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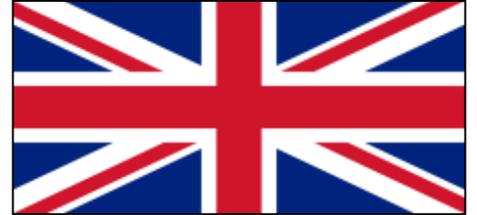
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لا يسمح بإعادة إصدار هذا الكتاب أو تخزينه في نطاق استعادة المعلومات أو نقلة أو استنساخه بأي شكل من الأشكال دون إذن خطي مسبق من رئاسة جامعة الزيتونة الأردنية.

كل ماورد في هذا الكتاب يعبر عن وجهات نظر الباحثين أنفسهم ولا يعبر بالضرورة عن وجهات نظر رئاسة المؤتمر أو سياسة جامعة الزيتونة الأردنية.

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Participating Countries



Objectives

The purpose of the conference is to explore inclusive business strategies with the aim of strengthening the Competitiveness and sustainability.

In Business sustainable Competitiveness is much more than profitability through low cost leadership or differentiation. It entails sustaining competitive advantage through constant growth, creation and innovation.

At macro level, Sustaining competitive advantage involves effective managing of resources, Knowledge assets and competencies. Further, sustainability is about leveraging advantage and improving weaknesses to gain a greater added value for Stakeholders and society.

Sustainability in business and the new network economy is a fundamental requirement for competitive advantage at organizational and societal Level and a source of new opportunities for excellence based on accumulated and renewable Knowledge of individuals and organizations.

In this context, Faculty of economics and administrative sciences organized an international conference which embraced on a major effort to deepen understanding of how sustainability relates to competitiveness in business

Conference Themes

Sustainability and Competitiveness.
Strategy and sustainable advantage.
Measuring sustainable competitiveness.
Competitiveness innovations and knowledge economy.
Sustainability and Competitiveness in Business.
Sustainability and business intelligence.
The competitive advantage of nation.
Sustainable supply chain management
Sustainable business.
Competitiveness in Business.
Competitiveness in services Sector.
Sustainability and Social Networking.

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The Relationship between Sustainable Development and Fair Trade

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Abstract:

Fair trade is an alternative trading model that combines trade with empowerment and sustainable development. 2013 was the year of impressive growth for fair trade. Shoppers spent \$.5 billion on Fair trade products, a 15 percent increase on 2012 figures. As BTC's report (2014) argued that fair trade products are sold in 120 countries and serve over 1.3 million farmers and workers in 70 countries. The main objective of this paper is to study how fair trade supports sustainable development. A theoretical discussion that considers the concepts of sustainable development and fair trade is presented. This paper found that fair trade plays an important role in supporting sustainable development. Moreover, fair trade products can be used as a vehicle to support sustainable production and it acknowledges that this cannot be done without sustainable consumption.

Introduction

Fair trade is an ethical certification system which aims to promote equality and sustainability in the farming sector. A product that carries the Fair trade label has met rigorous Fair trade Standards, which focus on (1) improving labor and living conditions for farming communities, and (2) promoting farming practices that don't harm either people or the environment. Fair trade is not a charity. It is an alternative trading model that combines trade with empowerment and sustainable development (BTC, 2014).

Fair trade has grown dramatically in recent years in many developed countries and has entered mainstream markets through supermarkets. (Hayes & Moore, 2005). Year 2013 was year of impressive growth for fair trade. Shoppers spent \$.5 billion on Fair trade products, a 15 percent increase on 2012 figures. As BTC's report (2014) argued that fair trade products are sold in 120 countries and serve over 1.3 million farmers and workers in 70 countries.

This paper aims to discuss the role of the fair trade in achieving the sustainable development. For this purpose, a theoretical discussion that considers the concepts of sustainable development and fair trade is presented. Moreover the paper shows some empirical data about the role of the fair trade in some countries and for some products. The main objective of this paper is to study how fair trade supports sustainable development.

The organization of this paper will be as follows: section 2 presents background about the fair trade. Section 3 shows the aspects of sustainable development. Section 4 shows the relationship between the fair trade and sustainable development. Conclusions and policy recommendations will be presented in section 5.

The Economics of Fair-trade

According to the fair trade organization, the number of farmers and workers that benefit from Fair trade are now 1.5 million people in 74 countries worldwide. The number of producers' organizations has grown from 827 in 2009 to 1210 by the end of 2013. The distribution of the producers in 2013 were as follows: 404 producers from Africa & the Middle East (33.4%), 624

producers from Latin America & the Caribbean (51.6%) and 182 producers from Asia & Oceania (15%).

According to fair trade organization, 80% of all fair-trade producers are small producer organizations, 64% of all fair trade farmers are in Africa and the Middle East and 113 farms are Fair Trade certified in South Africa.

The following table shows the top ten countries for fair trade farmers and workers.

Table 1 Top Ten Countries for Fair trade Farmers and Workers

Country	Number of farmers and workers
Kenya	295,400
Tanzania	164,100
India	139,400
Ethiopia	138,000
Ghana	104,400
Peru	61,300
Colombia	49,100
Uganda	47,300
Mexico	40,300
Cote d'Ivoire	34,300

Source: fair trade, 2015 <http://www.fairtrade.org.uk>

The Fair trade premium is an additional sum above the purchase price paid directly to producer organizations. Farmers and workers democratically decide on how to invest the premium according to their priorities. According to fair trade (2015), 96% Fair Trade is generated by seven products: bananas, cocoa, coffee, cotton, flowers, sugar and tea. On plantations, workers spent 24% of their premium on education. Small producer organizations invested 49% of their premium income on improving their organizations. Workers on fair trade certified banana plantations invested 28% on housing improvements. Cocoa farmers invested 46% of their premium improving productivity and quality.

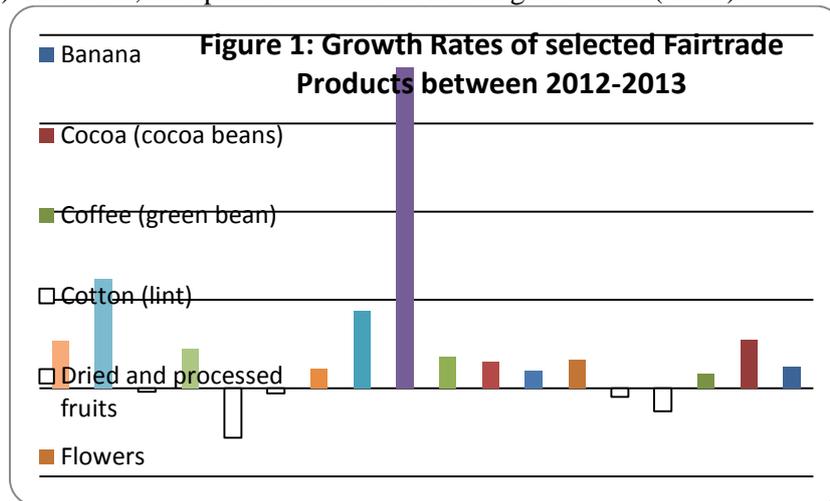
Table 2 shows the volumes sales of some fair Trade products in 2012 and 2013.

Table 2 Volume of sales for Fair Trade products in 2012 and 2013

Product	Unit	2012	2013	Growth rate
Banana	MT	331,980	372,708	12%
Cocoa (cocoa beans)	MT	42,714	54,485	27.6%
Coffee (green bean)	MT	77,429	83,709	8%
Cotton (lint)	MT	9,005	7,817	-13%
Dried and processed fruits	MT	1,507	1,430	-5%
Flowers	1,000 stems	536,669	623,907	16%
Fresh fruit	MT	12,094	13,329	10%
Fruit Juice	1,000 liters	37,165	42,577	15%
Gold	Gramm	6,434	7,562	17.5%
Herbs, herbal teas and spices	MT	637	1,795	182%
Honey	MT	1,319	1,898	44%
Quinoa	MT	590	658	11%
Rice	MT	5,623	5,482	-3%
Sports balls	1,000 items	152	108	-28%
Sugar (cane sugar)	MT	158,986	193,829	22%
Tea	MT	11,649	11,375	-2%
Vegetables	MT	435	706	62%
Wine	1,000 liters	16,432	20,934	27%

Source: fair trade, 2015 <http://www.fairtrade.org.uk>

It can be shown from Figure 1 that herbs and herbal teas and spices had the highest growth rate (182%). However, the sports balls had the lowest growth rate (-28%).



Source: fair trade, 2015 <http://www.fairtrade.org.uk>

A fair marketing movement which appeared for the first time in Europe in the 40's and 50's of last century through religious groups and nongovernmental organizations with independent political attitudes (Abu-Ghazaleh, 2009). The movement started to market the products coming from developing countries. With time, it developed to be a movement against imperialism and unfair economic policies. Fair trade provides economically marginalized producers with an opportunity in front of capitalist companies in terms of securing a better marketing competitiveness.

The Fair Trade scheme involves the following three categories of actors: (Boto, 2014)

A) Fair Trade producers usually represent co-operatives or associations in developing countries. To participate in the Fair Trade scheme, they have to join Fair Trade membership organizations e.g., fair trade Labeling Organizations (FLO), Fair Trade Federation (FTF) and International Fair Trade Association (IFAT). Participation commits producers to abide by Fair Trade standards, pay annual fees and supply products at predetermined prices.

B) Traders are importers, exporters or processors who deal in Fair Trade products, replacing so called middlemen. They are associated with Fair Trade membership organizations and subject to the standards, predetermined prices and monitoring requirements of the organizations which they join. Prime traders include Solidar'Monde (France), Oxfam (UK), Oxfam Wereldwinkels (Belgium) and Claro (Switzerland), to mention a few.

C) Retailers interface with the end consumers of Fair Trade products. World Shops represent the most common outlets for Fair Trade products. Recently, however, Fair Trade products have begun to make their way into general retailers, such as supermarket chains¹⁶.

In Egypt With over 500 fairly-traded products from all over Egypt, Fair Trade Egypt (FTE) supports 34 artisan groups, which translates into more than 2,300 individual artisans all over Egypt from Fayoum, Aswan, Qena, Assiut, Marsa Matrouh, Siwa, Sohag, North Sinai, Behera, Marsa Allam and Cairo.

There are wide selection of authentic handmade Egyptian products including; glazed pottery, hand-woven textiles, crafted wood, alabaster goods, traditional Egyptian dolls, various types of embroidered home and personal accessories, brass jewelry, beaded accessories, palm-leaf baskets, Bedouin-style accessories, home accent decor light fixtures, leather purses, Akhmim bed sheets and tablecloths, and much more.(FTE website)

Sustainable Development

Sustainable development is a term widely used by politicians all over the world, even though the notion is still rather new and lacks a uniform interpretation. Important as it is, the

concept of sustainable development is still being developed and the definition of the term is constantly being revised, extended.

According to the classical definition given by the United Nations World Commission on Environment and Development in 1987, development is sustainable if it “meets the needs of the present without compromising the ability of future generations to meet their own needs.”

It is usually understood that this “intergenerational” equity would be impossible to achieve in the absence of present-day social equity, if the economic activities of some groups of people continue to jeopardize the well-being of people belonging to other groups or living in other parts of the world (Tatyana, 2004).

Sustainable development could probably be otherwise called equitable and balanced, meaning that, in order for development to continue indefinitely, it should balance the interests of different groups of people, within the same generation and among generations, and do so simultaneously in three major interrelated areas—economic, social, and environmental (Olivier, 2010).

Sustainable development is about equity, defined as equality of opportunities for well-being, as well as about comprehensiveness of objectives (Tatyana, 2004).

Obviously, balancing so many diverse objectives of development is an enormous challenge for any country. For instance, how would you compare the positive value of greater national security with the negative value of slower economic growth (loss of jobs and income) and some, possibly irreversible, environmental damage? There is no strictly scientific method of performing such valuations and comparisons. However, governments have to make these kinds of decisions on a regular basis. If such decisions are to reflect the interests of the majority, they must be taken in the most democratic and participatory way possible. But even in this case, there is a high risk that long-term interests of our children and grandchildren end up unaccounted for, because future generations cannot vote for themselves. Thus, to ensure that future generations inherit the necessary conditions to provide for their own welfare, our present day values must be educated enough to reflect their interests as well (Tatyana, 2004).

How does Fair Trade Support Sustainable Development?

Fair trade believes that it plays an important role in the sustainability agenda as a promoter of sustainable practices in the production of Fair trade products. It also believes that by providing suitable support and adequate information, all actors can play a role in supporting sustainable practices whether this is done through the production of sustainable commodities (disadvantaged producers) or the consumption of sustainable products (sensitized consumers). Fair trade, thus, acknowledges that it must play an important role as a supporter of sustainable production (through secure and sustainable livelihoods) and sustainable consumption (through information and awareness) (Olivier, 2010).

Fair trade brings a human face to global trade aiming to secure fairer terms of trade so that producers and workers in developing countries can invest in a better future for themselves and their communities. It is a holistic approach to sustainability with a focus on improving long-term economic, environmental, and social conditions.

Fair trade works to support producers to economically and sustainably strengthen their livelihoods, as follows(Olivier, 2010):

Encouraging that producers get a better price for their products. Most Fair trade products have a Fair trade Minimum Price – a price floor which aims to cover producers’ costs of sustainable production;

Providing on top of stable prices, a Fair trade Premium – that producers can invest in economic projects such as farm improvements to increase yield and quality;

Improving the terms of trade for producers, promoting long term relationships, prepayments and market access.

Fair trade’s environmental standards have emphasized on making products without harming the environment or having a negative impact on the sustainability of the production site’s habitat.

In order to implement this, Fair trade will continue working at different levels (Tatyana, 2004):

Supporting producers to meet Fair trade's social and environmental standards;

Providing the tools needed for producers to elaborate their own development plans;

Providing producers the technical tools needed to face environmental and climate change challenges;

Providing financial services to producers to face and adapt to environmental and climate change challenges.

The Fair trade premium is also a key sustainability driver that enables producers to invest in long term social development projects that benefit the producers, their families and their communities.

A crucial feature of this premium is that its use is decided by the producers themselves, and is not imposed upon them. The Fair trade premium is a tool that allows producers to (Tatyana, 2004; (Boto, 2014):

Empower themselves as they can make decisions that have a direct impact on the sustainability of their activities;

Decide where to allocate these resources according to their needs;

Address sustainability issues that are pressing to them ranging from education to healthcare.

Sustainable production can only be achieved once producers have been able to face their economic, environmental, and social challenges. Economic stability is a precondition for any individual to respect sustainable social and environmental practices.

Fair trade works to enable producers to strengthen their livelihoods and contribute to a more sustainable world. Sustainable production is to a great extent shaped by sustainable consumption. Consumers have, in fact, sent a message to retailers indicating that they want to consume more sustainably.

Fair trade has taken the responsibility to inform consumers on the benefits generated by purchasing Fair trade products – this is yet another means to demonstrate that by consuming Fair trade products, consumers support economic, environmental and social sustainability. In this regard, Fair trade will continue to inform consumers on their Fair trade consumption options and to carry out awareness campaigns through its labeling initiatives.

Conclusions

The number of fair trade producers' organizations has grown from 827 in 2009 to 1210 by the end of 2013. The distribution of the producers in 2013 were as follows: 404 producers from Africa & the Middle East (33.4%), 624 producers from Latin America & the Caribbean (51.6%) and 182 producers from Asia & Oceania (15%).

Fair trade works to support producers so that they enjoy secure and sustainable livelihoods. In doing so, Fair trade connects disadvantaged producers in the South and sensitized consumers in the North.

Fair trade plays an important role in supporting sustainable development. Fair trade products can be used as a vehicle to support sustainable production and it acknowledges that this cannot be done without sustainable consumption.

This highlights Fair trade's role to connect producers and consumers through a label that represents both fairer trade conditions and a more sustainable development scheme.

Fair trade can help government in achieving its 2030 plan of eliminating poverty and reducing inequality - as espoused in its National Development Plan - in the following ways:-

Ensuring that workers receive sustained higher wages that exceed the statutory minimum and reflect rising food prices.

Provided a reference point to which employment terms and conditions have been set and occupational health and safety systems aligned.

Making an indirect positive impact on workers from neighboring non Fair trade certified hired labor farms, where management have been pressured into providing similar improvements including working conditions and wages for their workers, to match those of Fair trade certified farms

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Strategic Management and its Relationship to Competitive Advantage A Field Study on Industrial Food Companies in the Southern West Bank (Hebron, Jerusalem, Bethlehem)

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Abstract:

The study is about strategic management and its relationship to competitive advantage. It was carried out on a random sample of industrial food companies in the southern of the west bank, cities of Hebron, Jerusalem, and Bethlehem. The researcher used the descriptive method to achieve the goals of the study. The data was collected using a questionnaire prepared by the researcher. After assuring the validity and persistence of the questionnaire, it was distributed to the board of directors, managers, and all heads of departments of the selected companies. The number of individuals participating in the survey was 88 in total, of persons who are known to be responsible for the formulation, implementation, observation, and evaluation of strategic management. The study showed a number of results in which the most important were;

That there is a very strong relationship between the implementation phase and achieving competitive advantage.

And a strong relationship between both phases of observation and evaluation and achieving competitive advantage that is represented with; less cost, creativeness, uniqueness, and focus.

The researcher made some recommendations in which the most important were;

The necessity of adapting the topic of the study by the companies for achieving strategic management in all its phases.

To give the most attention to the environmental analysis phase. Internal analysis to achieve competitive advantage between the employees in the company. And external environmental analysis to achieve competitive advantage over other companies and outlook the option of exporting products to neighbor countries.

The results must be extraordinary, in order to achieve perfection and creativity of new products that will be demanded by the public.

Introduction

Due to the complexity in the modern business environment, and the rapid changes that occur in this environment which could be political, technological, humaneness, and any other changes, it is necessary to find an instrument to overcome, stay up-to-date with, and adjust to all these changes. This directs organizations towards forming a competitive strategy that has the advantage of achieving both continuity, and development against competitors, and overcomes challenges by changing them into opportunities, while taking advantage of every available opportunity. All this could be achieved by taking advantage of available resources and production of high quality products with reduced cost of production, or by achieving excellence in management of leaders in these organizations, or by concentrating on integration of products.

This despite the fact that these organizations could succeed in the visible and near term, but it was proved that on the long term these organizations did not succeed and could not

continue to survive except through a competitive strategy that is formed accurately by highly experienced individuals that have an abundant amount of information and data.

These organizations were chosen due to the importance and necessity of their products to the local market from on hand, and because of the competition these organizations face from the Israeli market on the other hand, and because the Israeli competitive has an abundant avalanche of economical capabilities. It is very difficult for Palestinian organizations to compete with this advantage, from this point it is very critical for these organizations to inspire competitive advantage by adopting the concept of it, possession of trained and efficient human resources, and reducing cost, this and having reduced price high quality products is the main interest of the Palestinian consumer.

Study Problem

Due to the rapid changes associated with the political situation in the Palestinian market of; the inability to import and export for reasons related to the economic agreements signed with the Israeli side, closures, strikes, recurring events, and strong competition from Israeli products, all these result to the need of these organizations to concentrate on modern management methods to overcome the complexities of the environment and to attain safety, continuity, and achieve competitive advantage. As is stated in the (Al-Khatib, 2005, 415) that strategic management is one of the key components to the success of organizations. And organizations that use strategic management according to experiences of organization are successful and continuing organizations over the long term (Berry, 455, 1998). Based on this introduction, the researcher was able to formulate the problem of the study using the following key question: what is the relationship between utilization of strategic management including all of its stages and achieving competitive advantage in the food industry companies in the provinces of the southern West Bank (Hebron, Bethlehem, Jerusalem).

The study variables

The independent variable of the study is strategic management including its three stages of formulation, implementation, and monitoring and evaluation so as to include the formulation stage; formulation of the vision, formulation of the message, the internal and external environmental analysis, and the formulation of strategic objectives. The implementation phase includes the preparations of the policies, procedures, operational and executive programs, and temporal programs. And the third phase includes pre, continuous, and after monitoring, evaluation of the result, and finally making the necessary improvements in a timely manner. The dependent variable for the study: achieving competitive advantage, price advantage (low cost and creativity), (creating new ideas and products), differentiating through (marketing strategies, the form and content of the goods), and concentration and integration.

Hypotheses of the study

The first major hypothesis: there is no significant statistical relationship at the significance level ($0.05 \geq \infty$) between the application of the concept of strategic management (formulation, implementation, monitoring and evaluation), and the achievement of competitive advantage (price competition, creativity, differentiation), which emanated the three sub-hypotheses that are:

First sub-hypothesis: There is no significant statistical relationship at the significance level ($0.05 \geq \infty$) between the formulation of the strategy (formulation of the vision, message, environmental analysis, the formulation of the strategic objectives), and achieving competitive advantage (price competition, creativity, focus, differentiation)

Second sub-hypothesis: there is no significant statistical relationship at the significance level ($0.05 \geq \infty$) between the strategic implementation phase (policies, programs, executive programs, schedules) and achieving competitive advantage (price competition, creativity, differentiation)

Third sub-hypothesis: there is no significant statistical relationship at the significance level ($0.05 \geq \infty$) between the control phase and strategic Monitoring and Evaluation (pre monitoring parallel and continuous monitoring, dimensional monitoring and evaluation) and achieving competitive advantage (price competition, creativity, differentiation).

The second major hypothesis: there is no significant statistical relationship at the significance level ($0.05 \geq \infty$) between the elements of the stages of strategic management and achieving competitive advantage.

Objectives of the study

This study aims to highlight and define the concept of strategic management with all its stages, and the concept of competitive advantage through competitive price, creativity and focus.

Identify the reality of the application of the concept of strategic management in the food industry companies in the southern West Bank (Hebron, Bethlehem, Jerusalem)

identify the relationship between the application of the concept of strategic management and the concept of achieving competitive advantage

To result in some recommendations that may help the companies selected for the study

The limits of the study

Human limits - the individuals employed in the departments of the food industry companies which total in 88 individuals.

Spatial limits - food industry companies in the cities of Hebron, Bethlehem and Jerusalem

Temporal limits - This study was completed in the time period from 08.15.2015 - 12.25.2015.

Objective limits the study addressed the issue of strategic management and the issue of competitive advantage

Study Terms

Strategic Management: defined by (Hunger 1997) as a group of administrative decisions and practices that determine the long-term performance of a facility, this includes developing the strategy, implementing, monitoring, and evaluating it when necessary. While (Yasin, 1998) defined it as a system of integrated operations related to internal and external environmental analysis. Then formulating an appropriate strategy based on the results of the environmental analysis, implement, and evaluate the strategy to ensure the long-term strategic goals either by expanding its achievements or by achieving excellence and sustainability of it. It was also defined by (Ghalibi, 2011) as a systematic approach to business achieved by dealing with strengths and opportunities on one hand and weaknesses and challenges on the other hand, which represents integrated and ongoing administrative processes that are targeted towards the formulation, implementation, monitoring and evaluation of the strategies. Also defined by (Prasad, 2005) as the science and art that lies in the formulation of decisions related to all departments and functions in the organization and enables it to achieve the objectives and apply the vision and mission of the organization.

As stated in (Al-Durra and Jaradat, 2014) that strategic management is the science and art consisting of three steps: The first step is positioned in the formulation of the philosophy of the organization (creation of the vision, and message, formulation of the goals, and objectives, and the development of the core values of the organization) (formulation stage), in addition to environmental analysis and resulting to the strengths and weaknesses and the opportunities and challenges. The second phase which lies in the implementation of the strategy. And the third phase is to assess and evaluate strategies when necessary.

The importance of strategic management lies in achieving the following benefits:

Integration of the behavior of employees in the form of comprehensive joint efforts.

Solidifying a trend towards long term orientation and a medium and short-term orientation in the organization.

To Direct the organization to identify the opportunities and prioritize exploiting them.

To reduce the effects of conditions and adverse changes

Abundance of resources and consuming less time to straighten wrong decisions and reduce cost.

Adapt a risk management program for the organization thus help in continuity

Expose the organization to threats and thus strengthening the possibility to avoid them or turn them into opportunities.

Have a positive impact on the well-being and improvement of the organization and its continuity.

Provide integrated input to work within an integrated team.

Improve the quality of decisions and lack of overlap creating a relaxed atmosphere to work and improve the quality of the product.

Reduce the gaps and overlap in administrative and production activities which is reflected on the quality of the product. (Al-Durra and Jaradat, 2014)

Competitive Advantage: which was defined by (Li, 2003) The search for something unique and different from what competitors offer. While (Render, 2001) saw that it is a reference to the system that has more unique features than competitors. It was also defined by (Qutub, 2002) as the unique and long-term site being developed by the organization through the performance of its activities uniquely and effectively, taking advantage of the strengths and opportunities and avoiding the weaknesses and challenges that it may face. It was defined from the point of view of (Getomer, 2000) as ever known from the consumer's perspective that it is offering a product or service that is considered very important to the consumer and offering him this in much better than competitors would. It was defined by (Murr, 2009) as the thing that works to satisfy consumer desires other than what is offered by competitors.

The researcher believes that competitive advantage for organizations is what pleases and satisfies the consumer. Whether it is reduced price; price advantage over competitors, or a higher quality product; better quality than competitors, or it could be by better communication with the consumer and following up with them after selling them the product or giving them the service. These could be achieved by:

Reduced price, products can sell at a lower price than competitors if the organization has been able to reduce the cost of production or if it has efficient human resources capable of increasing production and raising its quality and thus reducing the cost.

Differentiation which is defined by (John son, 2002) that it is the ability to distinguish the organization from its competitors in the same business sector, whether by the quality of products or the nature of the resources owned by the Organization that lead it to the ability to achieve continuity and quality of goods or services to overpower competitors, and be difficult to imitate. As stated in (Alsakarneh, 2005) that differentiation is unique, one of a kind, and wonderful, and recognition of an organization means the always competing to new creative products or services.

Creativity defined by (Amobile @ etal, 1980) as that the process that links relationships between things that have never been linked to each other in any way or by any relation. Also stated in (Fadhli, 2003) that creativity is the creation, renovation, addition, and departure from the common to the uncommon, and creativity was defined by (Zu'bi and Jerida, 2007) as coming up with a new idea or set of ideas that improve and develop what is common. In the (International Conference for the development of creativity, 2009) creativity was defined as the human behavior that leads to change in the same material used previously.

Focus which means the organization is concentrating on a special trend that will help distinguish it from competitors by offering multiple alternatives of the same product, it has not been shown by previous studies that it has resulted in any recognition.

Approach of the study

As the descriptive approach is based in studying phenomena and placing them accurately as they are in reality, the researcher used this method that certainly fits for achieving the goals of this study. This method offers the ability to collect data from primary or secondary resources, then analyzing this data to reach meaningful information that could be generalized to increase the information stock of the study.

Study sample: The study sample grouped board members, managers, and heads of administrative departments at the food industrial companies in the southern West Bank (Hebron, Bethlehem, and Jerusalem) which totaled in (88) persons. Eighty eight questionnaires were distributed to all individuals of the sample. The 89.7% of the questionnaires were handed back, only nine were lost, the following table shows the characteristics and features of the study sample.

Table number (1) shows the Statistical Descriptions of the personal characteristics of the study population (n=79)

Characteristic	Group	Recurrence	Percentage %
Gender	Male	55	69.6
	Female	24	30.4
	Total	79	100%
Age	Ages less than 30	7	8.8%
	Ages 30-40	28	35.6%
	Ages 40-50	14	17.7%
	Ages 50 and more	30	37.9%
	Total	79	100%
Academic Degree	Bachelor	55	69.6%
	Masters	21	26.6%
	Doctorate	3	3.8%
	Total	79	100%
Years of Experience	Less than 5	23	29.1
	5-10	18	22.8
	10-20	17	21.5
	More than 20	21	26.6
Area	Hebron	36	45.5%
	Bethlehem	20	25.3%
	Jerusalem	23	29.2%
	Total	79	100%

Study tools: the questionnaire prepared by the researcher to collect information that would help achieve the study goals, the researcher used closed questions according to Gradient Likert Quintet. The questionnaire was divided into two parts: The first part is personal information about the individuals in the sample (gender, age, academic qualifications, practical experience, and company place). The second part contained (85) parts distributed on the axes of the study as follows:

Formulation stage which includes formulation of the message, internal and external environmental analysis, offering strategic options, and formulation of strategic goals, which consists of 30 parts

Implementation stage, includes policies, procedures, programs, and tactics and consists of 20 parts

Monitoring and evaluation stage consisting of 15 parts

Competitive advantage stage includes competitive price, uniqueness, creativity, and focus this consists of 20 parts

Validity and consistency of the questionnaire: The researcher depended on virtual honesty, and honesty of arbitrators to measure the validity of the administration, as the researcher took the opinions of both the members of the administration and the strategic administration then formulated the questionnaire last version. And for assuring consistency of the questionnaire the

researcher depended on a test and retest method and the percentage of consistency was 87% in both the test and retest, and it is a reasonable percentage in most areas.

Previous Studies

(Nseirat and Khateeb, 2006) study, the topic of this study was 'the reality of strategic planning in the Jordanian pharmaceutical industry sector and its relation to administrative performance in these companies' the purpose of the study, The researchers used the descriptive analytical method for achieving the objectives of their study. They prepared a questionnaire that was distributed after assuring its validity and consistency. The study sample was all employees in the administrations of the six selected companies from the Jordanian companies guide for year 2001, which totaled in 54 individuals. The results of this study were: There is no relation between adapting strategic planning and administrative performance in the selected companies, and that the concept of strategic planning was not clear to these companies. On the contrary the managers in these companies had positive instructions towards strategic planning, and they believe that it plays a role in strengthening competition for a company. The study recommended spreading the culture of strategic planning, and adopting it in the company.

The research of (EISleibi, 2006) which was titled as 'the reality of strategic management of human resources and its relationship to performance- studying Palestinian universities'. The study aimed to detecting the reality of strategic management of human resources from formulation to implementation, to monitoring and evaluation. And the relation of adopting this strategy to the administrative performance. The researcher used the descriptive method to achieve the objectives of the study. He used a questionnaire he had prepared for collecting the necessary information for the study that was distributed after assuring its validity and consistency. The study sample consisted of the employees in human resources departments of the Palestinian universities in the West Bank that totaled in 74 individuals. The study resulted in finding a strong positive correlation between adopting strategic management of human resources and the performance of the university. And that most focus was on formulating the plan other than implementation, monitoring and evaluation. There was a variance in implementation of the strategy from one university to the other, and in the performance. The recommendations of the researcher were: the importance of adopting a clear strategy for human resources in the departments of universities, and the importance of focusing on the implementation and monitoring of these strategies as is focused formulation.

Study of (Elzaaneen, 2010) this aimed to studying competitive advantage in the products of medical companies in the gaze strip and its effect on increasing their market share from the customers point of view, the researcher used the descriptive analytical method, and the information was collected by a questionnaire he had prepared and distributed after assuring its validity and consistency. The important result was that the variety and availability of products in addition to services after selling is considered as middle competitive advantage and this resulted in an increase in the market share if these companies.

Study for (abdeltelbani, and others, 2012) titled strategic planning and its relation to competitive advantage- a field study on medical distributing companies in Gaza. the researchers used the descriptive analytical method to achieve the goals of the study by distributing a questionnaire They prepared, the sample of the study consisted of the members of the board of directors, and managers of the medical distributing companies in Gaza Strip that totaled in 74 individuals, these were responsible for strategic planning. Major results of the study; there is a statistically significant when ($0.05 \geq \infty$), between strategic environmental analysis and achieving competitive advantage, especially for recognition. The researchers recommended that it is critical to adopt strategic planning.

Test Hypothesis of the Study

Table (2)

It shows the results of the correlation coefficient between the elements of strategic management and elements of competitive advantage $W = 79$

No.		Area	Pearson's Correlation Coefficient	Value of ∞
1	Formulation Stage	Price Competition	0.883	0.002
		Recognition	0.685	0.002
		Creativity	0.790	0.019
		Focus	0.595	0.001
		Competitive advantage	0.882	0.001
2	Implementation Stage	Price Competition	0.495	0.000
		Recognition	0.526	0.000
		Creativity	0.388	0.000
		Focus	0.365	0.001
		Competitive Advantage	0.566	0.001
3	Monitoring and Evaluation	Price competition	0.597	0.000
		Recognition	0.682	0.000
		Creativity	0.752	0.000
		Focus	0.683	0.000
		Competitive advantage	0.794	0.001

The first sub hypothesis: which states “There is no significant statistical relationship at the significance level ($0.05 \geq \infty$) between the formulation of the strategy, and achieving competitive advantage (price competition, creativity, focus, differentiation). By reviewing number 1 in table (2) it shows that Pearson’s correlation coefficient for Price competition is (0.683) and at $\infty = 0.002$ which is less than ($0.05 \geq \infty$) and Pearson correlation coefficient between the formulation stage and differentiation is 0.685 at ($0.002 \geq \infty$) which is less than ($0.05 \geq \infty$) as well as the correlation coefficient between the formulation stage and creativity is 0.790 when ($0.019 \geq \infty$) which is less than ($0.05 \geq \infty$), and the Pearson’s correlation coefficient between the formulation stage and focus is 0.595 when ($0.00 \geq \infty$) which is less than ($0.05 \geq \infty$), and the Pearson correlation coefficient between the formulation stage and competitive advantage is 0.882 at ($0.00 \geq \infty$), which is less than ($0.05 \geq \infty$). This tells that there is a strong positive correlation between the formulation stage and achieving competitive advantage for the leaders in the food industrial companies. This correlation is the strongest between the formulation stage and creativity being an important element of competitive advantage; this is by consistent development and new products. After it is recognition, then price competition, then focus.

The second sub-hypothesis which states: “there is no significant statistical relationship at the significance level ($0.05 \geq \infty$) between the strategic implementation phase and achieving competitive advantage.” And by reference to the number (2) in Table (2) between the Pearson correlation coefficient between the implementation and recognition phase e 0.566 when ($0.01 \geq \infty$) which is less than ($0.05 \geq \infty$) means there is a relationship but it is not very strong as the correlation coefficient is close to 0.5 and this link was strongest with the differentiation factor of 0.526 link when ($0.00 \geq \infty$), followed by strong price competition by a factor of 0.495 link when ($0.00 \geq \infty$), followed by creativity 0.088, followed by focus 0.365 and ∞ value in these cases was less than 0.05 which refers to accepting the alternative hypothesis which refers to a relationship.

The third sub-hypothesis which states that: “there is no significant statistical relationship at the significance level ($0.05 \geq \infty$) between the control phase and strategic Monitoring and Evaluation and achieving competitive advantage.” In view of the item (3) in Table (2) it appears that the Pearson correlation coefficient between monitoring and evaluation, and achieving competitive advantage is 0.794 at $\infty = 0.001$ which is less than ($0.05 \geq \infty$) This suggests the

existence of a relationship and the fact that the correlation coefficient = 0.794 It is greater than 0.5, this relationship is described as a very strong one. From the standpoint of officials of the companies they will adapt the alternative hypothesis, which suggests a strong relationship between monitoring and evaluation, and achieving competitive advantage in all elements of the stage, and from viewing the item (3) in the table which shows that the relationship is strongest between the control phase and creativity as the correlation coefficient of 0.752 and 0.683, followed by focus and differentiation 0.682 and 0.597, followed by price competition and all of them are at $(0.00 \geq \infty)$.

The first major hypothesis; from studying the table (2) there is a very strong relationship between the formulation stage with a correlation coefficient of 0.882, followed by monitoring and evaluation and assessment stage with a correlation factor of 0.794, followed by the implementation phase with a correlation coefficient of 0.566. Conditions show that if the formulation is built depending on an accurate environmental analysis, and objectives are understandable and attained by all employees, all this with the right evaluation and assessment at the right time within all stages, then it is assured to achieve competitive advantage, through creativity, focus, recognition, and price competition.

Table (3)

This table shows the relationship between the elements of strategic management and competitive advantage $W=79$

Elements of strategic management		Pearson's correlation coefficient	The value of ∞
Vision	Competitive Advantage	0.872	0.000
Message	Competitive Advantage	0.600	0.000
Environmental Analysis	Competitive Advantage	0.784	0.001
Strategic objectives	Competitive Advantage	0.775	0.001
Policies	Competitive Advantage	0.790	0.000
Procedures	Competitive Advantage	0.810	0.000
Implementation programs	Competitive Advantage	0.720	0.000
Work programs	Competitive Advantage	0.730	0.016
Temporal programs	Competitive Advantage	0.840	0.000
Monitoring	Competitive Advantage	0.655	0.025
Evaluation	Competitive Advantage	0.783	0.023
Assessment	Competitive Advantage	0.856	0.000

The second major hypothesis which states that: "There is no significant statistical relationship at the significance level $(0.05 \geq \infty)$ between the elements of the stages of strategic management and achieving competitive advantage." By viewing table (3) it appears that the correlation coefficient between the vision and competitive advantage is 0.872 at $0.000 = \infty$, and that the correlation coefficient between temporal schedules and competitive advantage is 0.840 at $0.000 = \infty$, and that the correlation coefficient between the procedures and competitive advantage is 0.810 at $0.000 = \infty$. All these results statistically approve that there is a strong positive correlation between the elements of strategic management and achieving competitive advantage. With a clear vision that is observed by all employees and that leads to a clear set of strategic objectives, all efforts will be concentrated on achieving these goals and making this vision reality which will lead to achieving competitive advantage.

In addition to a strong monitoring and evaluation program that evaluates and makes the needed assessments at the right time, a clear temporal program that guides the time, a clear procedures program that is implemented on everyone in the organization equally, all this will lead to pertinence and achievement of competitive advantage.

Results of the Study

After analysis of the data, and testing the hypothesis, the study resulted in the following:

There is a strong positive correlation between the strategy formulation stage and achieving competitive advantage, and this correlation is at its highest between the formulation stage and achieving creativity as an element of competitive advantage with a correlation coefficient of 0.882 which is in the fourth quarter

There is a positive correlation between the implementation stage and achieving competitive advantage with a correlation coefficient of 0.566 that shows it is not such a strong correlation as with the formulation stage.

There is a strong positive correlation between the monitoring and evaluation stage and achieving competitive advantage with a correlation coefficient of 0.794 which is in the fourth quarter

There is a strong positive correlation between the clarity of the vision in the formulation stage and achieving competitive advantage

There is a strong positive correlation between the clarity of the procedures and the ease and justice of applying them in the implementation stage and achieving competitive advantage

There is a strong positive correlation between the clarity of the program and commenting to it especially in the field of creativity and competitive price and low cost.

There is a strong positive correlation between the clarity of the procedures and applying them in the implementation stage and achieving competitive advantage especially by price competition and recognition.

Recommendations

The researcher recommended the following:

Due to the importance of the organizations vision in the achievement of competitive advantage the researcher recommends that all companies willing to achieve this advantage must take the opinions of all their members and employees to formulate a clear simple vision that they all understand and can comply to and give their best to achieve

Departments of companies that aspire to achieve competitive advantage must adopt all stages of strategic management.

To give critical attention to the formulation stage especially formulation of the vision, the environmental analysis, and the formulation of smart goals.

To give critical attention to the monitoring and evaluation stage, because of its importance in the achieve mm of competitive advantage especially evaluating in the right time.

The importance of having a clear set of procedures, which are applied throughout the implementation stage.

The importance of adopting clear timely programs throughout the implementation stage.

The importance of having creativity considering it the most important element of competitive advantage.

Consumption of all efforts to reduce cost in order to achieve competitive price.

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Sustainability and Its Role in Organizational Performance in The Jordanian Pharmaceutical Industry

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Abstract:

The purpose of this study is to explore the indicators of sustainability in Jordanian pharmaceutical industry and investigate the impact of the triple dimensions of sustainability (economic, social, and environmental) on organizational performance (market share, profitability, and extension of the organization). The study sample consisted of 164 respondents were taken from the three major pharmaceutical organizations: Al-Hikma Pharmaceutical Co.; Dar Al Dawa, and Ram Pharma. The collected data was analyzed using appropriate statistical tools to test the hypotheses of the study. The results indicate that there is an impact of all three dimensions of sustainability on organizational performance. Based on results discussion it can be concluded that there is a need for Jordanian pharmaceutical organizations to develop sustainability indicators into its decisions and practices.

Key terms: Sustainability dimensions, continuum of business-ecology

Introduction

The law of business survival from Adam Smith era up to Friedman's, which is maximizing profit, has never changed and will continue to be so in the future, because profit is the blood of business organization. Smith in his famous book (The Wealth of Nations 1776) has emphasized that, wealth creation is the responsibility of the state and individuals, and the main objective of a company is to continue, as a wealth originator through the production and marketing of tangible goods, to protect capital and maximize profit. (Avisgai,1994). While Friedman, in his book "Capitalism and Freedom" has focused on the Economic motives as the core of the private enterprise. Furthermore, Friedman has stated that the fundamental function of business organization is profit maximization for the benefit of shareholder, while the ethical and social (and of course environmental) responsibilities are related to uneconomic motives which are out of the nature of the private enterprise goals. (Friedman,1962, and 1970). In contrast to this prospective, there is the Iron law of responsibility which donates that when business fail to foster the main interests and benefits of the society, therefore it would be necessary for the society authority to impose these interests and benefit by law.

The debate which going on nowadays everywhere concerning the law of environmental survival which pointed out that without ensuring environmental protection, business, organization have to search for new world or planet. Therefore it would be relevant to ask "will location become the critical factor in business success or failure", or the main market laws will continue to be the main determining factor of business although it is threatening environmental system and the whole society. Jones & Conrad have stated that "in the old pollution-based economy, we live in a situation of eco-apartheid, where the environment is the weaker party, and it exposed to major violations threatening the survival of the planet, such as: Excessive consumption of energy and resources, Climate change, Ocean acidity, arctic melting,

deterioration of biodiversity , bio-depletion , toxic wastes , radioactive pollution , weird weather ... etc. (Jones and Conrad 2008) .These Great problems with all its associated social and ethical problems are the outcomes of business and their concentration on the economic dimensions which can not Continue for long by giving the market and profit maximization the priority against the society and environment. To handle these critical problems the concept of business social responsibility was first introduced and then followed by the concepts of business ethics, business citizenship and lastly, the corporate philanthropy concept. To tackle the environmental problems the concept of environmental responsibility and corporate greening and sustainability were introduced. The theoretical framework of this paper aims at presenting the concepts related to sustainability and its role in treating environmental problems to introduce a clear perspective concerning the essential development in this field. The applied aspect of this study comprises a field study about sustainability dimensions and the extent to which these dimensions are adopted by Jordanian pharmaceutical companies and to determine the effect of this adoption on the general performance of these companies.

Sustainability concept

Sustainability is a complex and broad concept that includes many dimensions, which makes it very difficult for researchers to agree on one united definition. Table 1 contains a list of sustainability definitions by author.

Table 1: Definitions of sustainability

Author	Definition
Brundtland, 1987	- Development that meets the needs of the present without compromising the ability of future generations to meet their own needs”
Kuhn and Deetz, 2008	It seeks to pursue current development while preserving the environment and natural resources for long-term growth
Fergus and Downey, 2005, Bai and Sarkis, 2014,	- More recently, it has been extended to incorporate economic, environmental, and social sustainability which includes equitable development.
Lozano, 2012	- The corporate activities that proactively seek to contribute to sustainability equilibrium, including the economic, environmental, and social dimensions of today, as well as their inter-relations within and throughout the time dimension while addressing the company's system and its stakeholders.
Dyllick and Hockerts, 2002	- An effective business strategy that attempts to meet the needs of organizational stakeholders without compromising the resources and interests of the local community
Hubbard, 2009, Chow and Chen, 2012	- Corporate sustainability has multiple dimensions with the most popular being environmental, economic, and social
Zhong , and Wu, 2015	- A set of triangular concept which involve comprehensive and integrated approach to economic , social , and environmental process .
Hueting, 2015	- It is the situation in which vital environmental functions are safeguard for future generation .
Angelakoglous, and Gaidajis, 2015	Environmental sustainability refers to wider time scales and covers broader environmental issues in various scales .
Cobb , et al, 2007	- It is the path of continuous improvement , wherein the products and services required by society are delivered with progressively less negative impact upon the earth .

Table 1 indicates that, there are three kinds of needs for sustainability, firstly, human needs that related to health, safety, and Enjoying nature. Secondly, business needs which are basically the natural resources-based economic growth. Thirdly, diversified needs concerning protecting and maintaining the diversity of all kinds of plants, animals and terrain.

Sustainability dimensions

As researchers were differed in defining sustainability concept, they were also differed in determining its dimensions. Some researchers believe that sustainability is just how to work within the nature's limits to sustain human well-being (Boyce,2007,p1). Others look at sustainability as a strategic choice that covers widely diversified fields. Sustainability as a philosophy or a practice is not free of criticism (Parker, 2014, pp6-7). According to Neumayer (2013,p22), the consumption of natural capital is actually compensated by the development of human capital. Washington (2015, pp29-30) also criticized what so-called tyranny of sustainability, pointing out that the old sustainability concept is contestable. Researchers have determined sustainability dimensions in different ways. Table 2 illustrates the most common sustainability dimensions suggested by group of researchers. Although there are big differences between these dimensions, but it is possible to differentiate between three approaches that were used to determine these dimensions, which are as follow;

The first approach is the triple bottom lion (economic, social and environmental). This approach is the most commonly used and highly responsive to the dimensions of globalization as there is a need for combined approaches that widely acceptable by all concerned parties. Dow Jones sustainability index released in 1999 was the first global sustainability index that representing this approach.

Table 2: Sustainability dimensions

Author	Dimensions
Ma and kremer, 2015	- Economic assessment, environmental Assessment, social assessment.
Elliott, 2015	- Environment , society, economy Tenets: Ecologically sustainable, technologically feasible, economically Viable, socially desirable/ tolerable, , ethically defensible, culturally inclusive, legally permissible, administratively achievable, effectively communicable, politically expedient.
Marques, Cruz, and Pires, 2015	- Metabolism model and health and hygiene, social and cultural,, environmental, economic, functional, technical.
Medel- Conzalez et al.,2013	- Economic, environmental, social (includes: strategy, financial, customer and Product, governance and stakeholders engagement, human Factor.
Tomsic. Bojnec and slmcic, 2015	- Corporate sustainability awareness, operations based on sustainable growth, social responsibility and environmental protection, sustainability is one of the essential components of corporate culture, developing new green product., ecological regulations, sustainability is an important rule for long- term development of the enterprise.
Goodall,2013	- The 3Es: E cology/Environment, E conomic/Employment, E quity/Equality
Gimenez and Tachzawa, 2012	- Economic performance, social performance environmental performance.
Radebauer,2011	- Economic dimensions of sustainable business practice, socio-cultural dimension of sustainable business practices, environmental dimension of sustainable business practices.
Piotrowic and Cuthbertson,2009	- Social: health & safety, noise, employee - Economic: quality, efficiency, responsiveness - Environmental, emissions, natural resources utilization, waste and recycling
Hitchcock and Willard,2009	- Sustainability comply with the limit of nature. - Social responsibility- community needs. - Environmental stewardship- environment protection. - Quality- customer expectation. - Employee health, safety and quality of work life- employee needs. - Reputable business practices, compliance –laws, regulations and contract.

Joly, 2001	- Global warming, ozone depletion, material intensity, toxic release, energy intensity, water intensity, product characteristics quality of management.
Epstein,2001	- Work force diversity, environmental impacts, bribery/corruption, community involvement, ethical sourcing, human rights, product safety, product use fullness
Esty and Winston, 2009	Environmental sustainability in green wave focuses on: eco-resistance, eco-compliance, eco-efficiency, eco-advantage.
Abson et al, 2014	Eco-service as word's clusters and boundary objects for sustainability: forests, pollination, conservation, diversity, biomass, water, carbon, management, valuation.
Dow jones sustainability index,	- Economic dimension:27 criteria (27 %), - Environmental dimension: 38 criteria (38 %) - Social dimension: 35 criteria (35 %)

The second approach is the environmental approach. Which focuses on environmental sustainability, greening, urgent environmental problems and most important environmental issues. (Esty and winston2009,Joly, 2001, Abson et al 2014, p31).

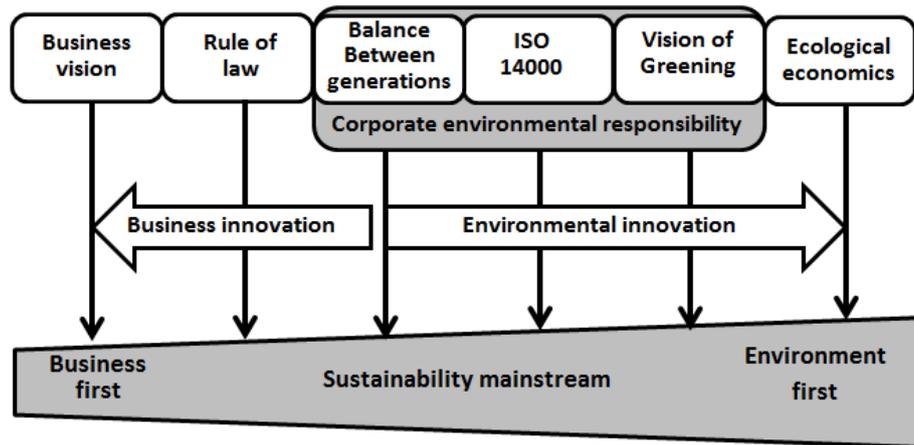
The third is the open approach. This approach widely expands sustainability dimensions to encompass , ethics, culture, law, corruption, human rights, and product safety. This approach broadly responses to the special needs of all the field of the natural economy plus the needs of the national environment in any country round the world.

Major perspectives of sustainability

Businesses nowadays: To be responsible business organizations have to insure that all their goods, services and competitive advantage based on sustainability. Rational managers must take into account the environmental performance with its inherent environmental cost is usually risen due to different types of economic activities ,therefore it can be suggested that sustainability represent the integrated approach which can ascertain the necessary balance between the economic social and environmental dimensions that represent the heart of the sustainable development despite the increasing, concern of sustainability and the efforts assigned to the adoption of its principles and practices. There are many diversified trend concerning sustainability and its requirement still very prevailing in business world nowadays . These trends are the following (see figure 1):

1- Business vision: this vision based on the fact that private business only concerns with economic values and ignoring environmental values .This practice led to the accumulation of environmental problems which motivate some parties to suggest the " classical economy and businesses developments" mentioned by Samson option. According to this perspective , growth is the solution to environmental problem. Economist contend that capital , in the form of technology, can exchange resources with each other , so that the problem would not be a shortage of resources, but it would be the capital. Technology can also reduce pollution (Callicott and Frodeman,2009, p271).

Figure 1: six perspectives of sustainability mainstream



Economists during 20th century were proudly announcing that the world protect the 40 per capita (Arrow et al,2004,p147). However conventional economics is increasingly criticized for its failure to reflect environmental demands and the limits of the plant capacity , which are increasingly exposed to degradation and depletion. As a result, environmental risks have become costly to the national economy and social system. Catton declares that emphasis on increasing economic growth and increases in per capita consumption of resources has turned us from Homo sapiens into Homo colossus. Technological innovation has temporarily expanded the available carrying capacity, but the finite planet inevitably imposes limits on our ability to fool ourselves with technological prowess (Catton,1980).

.It can be concluded that what protect the environment, is goods according to the economic concept . Therefore as far as this goods continue to be so business will invest to renew it . It is business perspective , which has created the environmental problem with its common dimensions. Hence, sustainability option would not be a real option unless it pays, to the society and environment. This actually means that sustainability option will be a good option as long it stay within the frame of cost / revenue analysis.

2- Regulation-based perspective: This viewpoint relays upon the rule of law as the main organizer of individual, companies, and whole society, to maintain the interests of all parties. As environment deterioration will badly affect all parties therefor, regulations are the most effective mean to protect environment. According to the world commission environment and development , "Human laws must be reformulated to keep human activities in harmony with the unchanging universal laws of nature." Rule of law for nature, extending respect the law of the non-human world , and imposing the environmental law , can contribute significantly to the reduction of environmental violation and stop externalities by enforcing companies to carry out their pollution . Although authority of law is important to reduce environmental violation, but it is not enough under the aggravation of environmental problems. Sustainability requires, more than a law , because it is a social responsibility of all parties which must contribute to achieve it , at home , at work on the street and at all commons . Sustainability to be effective and fruitful must be a common human responsibility for any one ,at any time and any where.

3- ISO 14000 perspective: ISO 9001-1987 and 2008 is a broad framework to build a generic system of quality management, in the same context, ISO 14001-2004 represented a voluntary standard for the construction of the broader environmental management system (Siew,2015, p185). It represents the minimum level required from international companies to enter the global market after being in compliance with the international standards of environmental quality. The environmental quality system according to ISO 14000 is an organized attempt to consider environmental issue as one of the standard to evaluate a company major ability and make the environmental performance of a company as one of the main elements of the company's total performance . This means that when a company run its system and produces

its output should be hold responsible for any waste of resource or pollution and must take all necessary step to reduce that to protect the environment and achieve its quality.

4- Brundtland commission perspective (Balance between generations): This perspective actually suggests that total sustainability will be achieved through sustainable development, which was defined by Brundtland as: it is a vision of balance between the present and future generations, a process that "meets the needs, and aspirations of present society without compromising the ability to meet those of future generations. This definition indicates that resources must be shared by recent generations and future generations, without considering the possible waste and irresponsible use of natural resources by companies with possible depletion during the era of future generation. In fact, maintain the existence of resources to next generation is not a true sustainability, what is needed is to ensure that all environmental resources will have the possibility to survive and continue.

5- Perspective of greening: The green wave was released many decades ago to become later "Green Economy" which was an initiative released by UNDP in 2008. The main purpose of this initiative is to greening the economy and ensuring a green growth that foster all the requirements of economic growth and environment greening.

Greening practices can be adopted by all types of companies in all types of industries and economic sectors. Therefore, some people are calling for "explosion of all for greening" (Jones and Conrad,2008,p35), such as, green productivity (Tuttle and Heap,2008), green innovation (Chen et al.,2012), green manufacturing (David,2013), green investment (Urdrich,2010), down to green trust and satisfaction (Chen and Chang,2013,p63). Despite the fact that the green wave was released in the 60s of the last century (Bhamra and Lofthouse,2007,p1), but the environmental problems are still worsening, which means that the green wave option is not enough as a tool to tackle all environmental problems caused by decades of ignorance of environment issue, particularly if we know that business organizations would never adopt a green option unless reaching economic of scale (Jones and Conrad,2008,p53). According to marginal analysis, green alternatives will really take off only when companies reach economies of scale (Jones and Conrad,2008,p53). Finally, Green economy can be called the "economy of two per cent" according to was suggested by "UNDP" for investing two per cent of the global GDP to green ten central sectors of the world economy (UNDP,2011,p24).

6- Ecological perspective: Eco-vision is a results of the worsening environmental problems in the second half of the 20th century as a response to the ability of neoclassical economic theory to solve those problems or provide adequate explanation for them. (Chmelev,2012). This vision is conducted to build an economies of de-growth (Rallis et al.,2012,p1), anti-growth alternative (Colye,2011) and ecological economy that assigns high priority to the environment and its systems. This is totally different from classical economy principles which allocate priority to profit making and marketing mechanisms which has led to the recent environmental disasters that threatening human survival on earth. By comparison between classical economy which based on market models standards and ecological economic which based on environmental standards, it would be adequate to refer to ".Bounding" contribution through his study "Spaceship Earth". In this study, he released what called "the cowboy economy" and "Spaceship Earth". According to the cowboy economy, people don't pay attention to the nature and environmental problems. They exploit the natural resources and when these resources run out, they use to immigrate and move to other places for new resource. In the "Spaceship Earth" as strong metaphor for limited energy and resources, infinity is ended and mankind is in box. Accordingly, an appropriate strategy on efficient use of energy and resources, and recycling of materials and products should be adopted. (Boulding,1966,Costanza,2015).

Classical economics has dealt with natural resources as unlimited resources, but not according to the perspective of the earth as spaceship, where limited resources are decreasing and environmental damage are increasing day by day. If the traditional economy relays upon economic efficiency, the ecological economy depends on environmental efficiency and its necessities without being concerned with economic efficiency, which has led to all serious environmental problems, we are suffering from nowadays. Despite the fact that, the ecological system does not cover the whole strong, natural dimensions, according to Triple Bottom Line

approach.(Bhamara and Lofthouse ,2007). Depending on these three dimensions, sustainability can achieve the efficient balance between economic value- added (economic responsibility, societal goods, social responsibility) and pollution avoidance (environmental responsibility) (Sikder, 2003).

Methodology

This study focuses on the adoption of sustainability concept by Jordanian pharmaceutical industry and its impact on the organizational performance . The study seeks to determine the impact of sustainability implantation on organizational performance of the companies under study (the sample of the study). The main variable of the study are:

- i. Independent variables encompass the three main dimensions of sustainability (i.e. economic, social and environmental).
- ii. Dependent variables comprise the main organizational performance measures. all business organization are performance-oriented where success can be reached through the ability of achieving performance within the internal environment of the organization ,associated with a rapid and effective response to the market needs in the external environment. Organizational performance is highly associated with the great evolution of the managerial concepts and methods. Organizational performance is in fact, the overall performance of the Organization, which is directly connected with the Organization strategy and its ability to survive and develop in the future.(Kaplan and Norton,1993), (hammer and champy,2006).

According (Kaplan and Norton) organizational performance is usually expressed and measured by multiple indicators. They also stated that there are four perspectives for organizational performance or what so called business performance, which are: financial indicator. internal operation. learning and growing, and customer.

Furthermore, the Calibration by its four types, internal ,competitive ,functional and generic benchmarking provide relevant indicator of the internal organizational performance with relevant comparison between organizational departments and external indicators with company best competitors and industry leaders . Actually, there are many organizational performance indicators, but the researchers have adopted three of them which are market share, profitability, and company expansion.

Hypotheses of the study: The hypotheses of this study are :

Ho₁: There is no statistically significant impact of sustainability dimension (economic, social and environmental) on market share of organization in the Jordanian pharmaceutical industry.

Ho₂: There is no statistically significant impact of sustainability dimension (economic, social and environmental) on profitability of the organization in the Jordanian pharmaceutical industry. .

Ho₃: There is no statistically significant impact of sustainability dimension (economic, social and environmental) on the organization extension in the Jordanian pharmaceutical industry.

Data collection: Beside a broad literature review a deliberately designed questionnaire was used to collect the required as it is one of the most relevant tools for data collection in field studies. It consists of four sections covered, the basic demographic data, and sustainability indicators adopted by the company, sustainability dimensions and organizational performance measure which provided the necessary data for statistical analysis and hypotheses testing .

The questionnaire:

The questionnaire was the main tool for data collection of this study . After it was designed and deliberately formulated based on the available literature , it was evaluated by academic referees and then modified according to their comments and notes . It consists of four section; the first , covered the demographic and basic data, the second addresses ten selected sustainability indicators commonly use by business organizations. The third included statements regarding the dimensions of sustainability (independent variables). The fourth comprised organizational performance measures (dependent variables) .

Sample characteristics: A random sample 180 was taken from three major Jordanian pharmaceutical organizations representing the Jordanian pharmaceutical industry . (Hikma Pharmaceutical Co.; Dar Al Dawa, and Ram Pharma) . The questionnaires were distributed at the headquarters of the three organizations. The recovered and complete questionnaires of (164) were the base of the statistical analysis of this study. The first section of the questionnaire was assigned to cover the general characteristics of the sample, as it is illustrated by Table 3.

Table 3: General characteristics of the sample

Characteristics	Categories	Frequency	
		Number	%
Gender	Male	106	106.0
	Female	59	36.0
total		164	100
Age	- 25	22	13.4
	26-34	67	40.9
	35-44	42	25.6
	45-54	27	16.5
	55 --	6	3.7
Total		164	100
Marital status	Single	109	66.5
	Married	55	33.5
Total		164	100
Education	Secondary	12	7.3
	Diploma	20	12.2
	Bachelor	95	57.9
	Master	28	17.1
	Ph.D.	9	5.5
Total		164	100
Job	Manager/supervisor	55	34
	Professional (production/quality)	34	21
	Professional (medicine/pharmacy)	35	21
	Clerk	27	16
	N.A.	13	8
Total		164	100
Number of training programs	None	16	10
	1-3	63	38
	4-6	41	25
	7-9	19	12
	> 9	25	15
Total		164	100

The second part of the questionnaire implies ten essential indicators that determine the strength of Jordanian pharmaceutical companies commitment to the adoption of sustainability as strategic choice relegating all the consequences of this obligation concerning broad tasks and responsibilities. This is clearly portrays in table 4.

Table 4 : Indicators of companies commitment to the adoption of sustainability as strategic option

Sustainability indicators	Yes		Sometime		No	
	No.	%	No.	%	No.	%
- The company adopts sustainability as a strategy or as a long term policy .	110	67.1	40	29.9	5	3.0
- The company correlates sustainability with its reputation.	107	66.2	52	31.7	5	3.0

- The company sustain considerable financial charges for sustainability adoption .	102	62.2	51	31.1	11	6.7
- Social and environmental sustainable performance is one of the company total performance indicators .	98	59.8	53	35.4	8	4.3
- The company adopts projects and programs related to sustainability in its annual budget .	80	48.8	67	40.9	16	9.8
- The company implements a clear policy directed to the green customer .	69	42.1	66	40.2	28	17.1
- The company has its own experts in the field of sustainability.	73	44.5	66	40.2	25	15.2
- The company has its own code of values and principles that are sustainability and society & environment protection oriented .	76	46.3	74	45.1	14	8.5
- The company adopts environmental standardization indicators to undertake regular comparisons with its major competitors .	82	50.0	68	41.5	14	8.5
- The company has its organizational culture that is sustainability oriented .	65	39.4	86	52.4	13	7.9

Tests

Before conducting hypotheses testing, some tests such as , face and content validity, reliability and Relationships between independent variables were conducted. which are :

Face validity: As it was stated before the questionnaire was developed relying upon sustainability literature and reviewed by academic referees to ensure its validity as a mean for collecting the required data .Then contents validity of the questionnaire statement was tested using factors analysis for the three dimensions of sustainability and organizational performance measures .The results of this test indicates that factor loading for both , dependent and independent variables are good and valid for statistical analysis . Table 5 below portrays these results .

Table 5 . Factor loadings of study variables or (5)

Variables	Factor1	Extraction
- Economic dimension	0.861	0.666
- Environmental dimension	0.788	0.590
- Social dimension	0.862	0.743
- Performance criteria	0.790	0.626

To ensure the reliability of the questionnaire internal consistency of the questionnaire items, Cronbach's alpha was calculated for the three sustainability dimensions. Cronbach's alpha for

economic dimension was 0.668, for environmental dimension was 0.771, for social dimension was 0.680, and for performance criteria was 0.680. These results indicated that there is an internal consistency between the questionnaire items and sustainability statements.

Relationships between variables of the study were examined to verify correlations between independent and dependent variables. Inter-item correlation matrix was used ,where the obtained results indicates that , the correlations between variables are were above of 30% (table 6) , which means that the study variables are appropriated for statistical analysis.

Table 6: Inter-item correlation matrix

	Sustainability dimensions			Three performance criteria		
	Economic	Social	Environ.	Market Share	Profitability	Extension
Economic	1.000					

Social	0.629	1.000				
Environ.	0.505	0.607	1.000			
Market Share	0.538	0.547	0.375	1.000		
Profitability	0.447	0.496	0.401	0.773	1.000	
Extension	0.473	0.475	0.414	0.475	0.672	1.000

Hypotheses testing

Ho₁: Sustainability dimensions (economic, social, and environmental) have a positive effect on organization market share in Jordanian pharmaceutical industry. This hypothesis is divided into three sub-hypotheses (Ho_{1a,b,c}).

The results present in table 7, show that all the determination coefficients are positive which means that there are a positive individual relationships between each individual sustainability dimension and a collective relationship of the three sustainability dimensions with the dependent variables. Simple regression coefficient values point out that there is also a positive effect of the three sustainability dimensions (economic, environmental, and social) on the company market share where the coefficient values are 0.536, 0.375 and 0.547 consequently. While the multiple regression coefficient shows that there is a positive impact of the three dimensions of sustainability on the company market share with coefficient value of (0.582). The hypotheses testing, results illustrates by (Table 7) bring to light that the calculated-F values for each individual dimension and that for all dimensions collectively are larger than the tabulated-f values (1.66). These results suggest that all null hypotheses must be rejected and the four alternative hypotheses should be accepted.

Table 7: Effect of sustainability dimensions on market share

dimensions of sustainability	Performance criterion	R ²	t	Beta	Calculated-F	Sig
Economic dimension	Market share	0.287	8.029	0.536	64.468	0.000
Environmental dimension		0.140	5.113	0.375	25.144	0.000
Social dimension		0.300	8.275	0.547	68.482	0.000
All three dimensions	R ² = 0.338		Beta =0.582	F = 81.317	Sig = 000	

Ho₂: Sustainability dimensions (economic, social, and environmental) have a positive effect on company profitability in the Jordanian pharmaceutical industry. This hypothesis is divided into three sub-hypotheses (Ho_{2a,b,c}) in compliance with the three main sustainability dimensions.

Table 8 portrays the results of these hypotheses testing which indicate that there is a positive effect of each individual sustainability dimension and all three dimensions collectively on the company profitability. This clearly means that the null hypotheses must be rejected and all four alternative hypotheses should be accepted.

Table 8: Effect of sustainability dimensions on Profitability

dimensions of sustainability	Performance criterion	R ²	t	Beta	Calculated-F	Sig
Economic dimension	Profitability	0.199	6.294	0.447	39.613	0.000
Environmental dimension		0.161	5.513	0.401	30.470	0.000
Social dimension		0.246	7.205	0.496	51.906	0.000
All three dimensions	R ² = 0.280		Beta = 0.534	F = 63.330	Sig = 0.000	

Ho₃: Sustainability dimensions (economic, social, and environmental) have a positive effect on company extension in the Jordanian pharmaceutical industry. In consistence with the

dimensions of sustainability, this hypothesis is divided into three sub-hypotheses (H_{03a,b,c}). The obtained results of these hypotheses testing are displayed in Table 9, these results assure that there is a positive effect of each individual dimension of sustainability and all three dimension collectively on company extension. These results affirm that all null hypotheses must be rejected and the four alternative hypotheses should be accepted.

Table 9: Effect of sustainability dimensions on Extension

dimensions of sustainability	Performance criterion	R ²	t	Beta	Calculated-F	Sig
Economic dimension	Extension	0.224	6.744	0.433	45.433	0.000
Environmental dimension		0.171	5.718	0.414	32.693	0.000
Social dimension		0.226	6.791	0.475	46.118	0.000
All three dimensions	R ² = 0.294	Beta = 0.542		F = 65.823	Sig = 0.000	

Discussion

For more than two centuries, business was the most important option and unlimited growth was the most motivating business objective. This seems to have ended now as sustainability has become the most important choice for survival through a well balanced growth without breaking Eco-Limits. Sustainability is the choice of all companies for efficient use of the available resources where "small is beautiful" and "green product" is the least need for environmental cleaning that it usually causes or by contrast incurring the additional burden of green taxes. Green information technology saves tons of papers through the use of e-mail Correspondences and e-documentation. (Poniatowski,2010). Sustainability represent one type of resources renewal such as ; 8Rs' (recycle, reuse, reduce, redistribute, relocate, restructure, re-contextualize, re-evaluate) (Arrow,2004,p3).

It can be observed from the six perspectives, that the business perspective is based on economic responsibility and growth priority regardless of other considerations including the destruction of the environment (Seidel, et al.,2012,p3). The second perspective is dependent on the law and its effective adaption of environmental objectives on one hand, and on the extent of the organization's commitment to these goals in a conscious and enlightened manner on the other hand. Previous experience has confirmed that legislation, is not enough to make the organizations committed to these objectives due to many reasons.

The previous three perspective (balance between generations, ISO 14000, and greening wave) exceed the legal responsibility to the corporate environmental responsibility (CER). According to these perspectives, environmental performance is based on indicators that are not necessarily compatible with the financial performance indicators (Porter and van der Linde,1995.). On the other hand, environmental performance can be a significant driver of superior quality, reduction of environmental effects, and an important source of competitive advantage (Pil and Rethenberg, 2003, Yang et al., 2010, Horisch et al.,2015, Hallsted et al.,2015,p).

It is necessary to emphasize that environmental performance imposes additional burdens on the organization, but it can provide many of the advantages of environmentally responsible organization (see table 10). Sixth perspective still has to do a lot of strenuous efforts in order to consider the environment as its first priority, and business demands to be second.

Table 10: Positive environmental performance associates with:

Positive results	Negative results
<ul style="list-style-type: none"> - reducing the waste of material - decreasing the pollution - improving quality - reducing inventories - realizing green supply chain - improving better relationships with green customer - obtaining awards of environmental quality 	<ul style="list-style-type: none"> - increasing cost of material - increasing production cost - redesigning process and product - increasing cost of employee training - experiencing problems with suppliers - rising the price of the product - reducing ability to compete

<ul style="list-style-type: none"> - creating a new activities to compete - entering new markets - improving organization reputation - reducing organization's payment of green taxes - improving quality of life in society - new life cycle e (raw material, production, distribution, end-of life) 	
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The results of this field study showed that the Jordanian pharmaceutical organizations which adopt sustainability programs and practices have a positive impact on its organizational performance. These results are consistent with the results of many other studies in the field, such as those conducted by , (Tomsic, Bojnec, and Simcic,2015, Goyal and Rahman,2013) where both reveals that the three sustainability dimensions have a positive effect on business organizations performance.

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The Case Of Usage of Letter of Credit in Turkey's Foreign Trade: A Sample of Participation Banks

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Abstract:

In this study, the case of usage of letter of credit in Turkey's foreign trade is analyzed. In this context, initially, some information was given about the process of letter of credit method and the preferability of it in Turkey's imports and exports. Then, in accordance with the purpose of study, letter of credit method in Turkey is analyzed in terms of maturity, confirmation, country and magnitude through the letter of credit data regarding 2014 imports of a participation bank operating in Turkey.

Key words: Foreign Trade, Letter of Credit, Turkey.

1. Introduction

Depending on the fast growing population of the world, a wide variety of goods and services is needed. Countries cannot meet all needs of goods and services with their own internal resources or cheaper or high quality goods and services can be provided from abroad. Countries not only want to buy goods and services they need but also want to sell goods and services they produce in order to ensure their development. Because of these reasons, in our day, world countries cooperate and pursue ways of developing trade with each other. In this regard, foreign trade plays an important role in existing and developing economic cooperation among countries.

Foreign trade which expresses the trade of goods and services of international economic relation is the realization of trade of goods and services through imports and exports among countries. Trade of goods and services subject to foreign trade across countries and continents bring along many difficulties. Especially, there are many risks in transporting goods and services to buyer and receiving its payment. Therefore, two most important topics are the type of delivery and the type of payment. The first one is how to deliver the goods and services subject to foreign trade and start and end time of obligation of recipient and seller, the second one is how to receive the payment of goods and services subject to foreign trade. There are important risks importers and exporters face in delivering goods and services and receiving its payment. The exporter cannot receive the payment of goods he sends or the importer cannot receive the goods he pays. While the exporter wants to receive the payment first, similarly the importer wants to receive goods and services first. The most common payment method protects buyer and seller from above risks is letter of credit.

The aim of this study is to analyze the case of usage of letter of credit in Turkey's foreign trade. In accordance with the purpose of study, primarily some information about the letter of credit method will be given, then the case of usage of letter of credit of a participation bank operating in Turkey on the basis of letter of credit data of this bank regarding 2014 imports will be analyzed. In this content, first of all it would be fitting to give some information about the letter of credit method.

2. The Letter of Credit

The letter of credit is a written promise consisting of the instruction given by buyer(importer) to his bank and the instruction given by correspondent bank in foreign country of same bank to beneficiary(exporter) that indicates payment in return for submitting particular documents at a particular time (Gökgöz and Şeker, 2014:90). The letter of credit including the functions of payment and credit, as a banking transaction, ensures transactions among the contracting parties securely (Ekici, 1995: 21). Letter of credit is derived from “accredits” which means credibility, guaranty, acceptance and so on. In the event that buyer and seller do not know each other well, one or more bank commitments can build up trust among parties (Bölükbaşı, 2008: 21-22). There are generally four parties in the the letter of credit method. These are; emir (import firm), issuing bank (bank of import firm), beneficiary (export firm) and corresponding bank (bank of export firm).

The process of the method of the letter of credit can be summarized as below (Şirinpınar, 2012: 33):

The contract between buyer and seller is signed after early negotiations.

Emir of letter of credit opens letter of credit by applying issuing bank.

Issuing bank prepares letter of credit and sends it to corresponding bank.

Corresponding bank examines letter of credit and report it to export firm.

Export firm examines letter of credit and despatches goods subject to trade.

Beneficiary submits the documents of export delivery to his bank

If the letter of credit is confirmed, corresponding bank makes the payment to issuing bank within 7 workdays and sends essential documents.

Issuing bank submits related documents to emir and receives the payment

If the letter of credit is not confirmed, the payment is remitted by issuing bank

The payment is transferred to export firm.

Letters of credit can be classified under four titles in terms of some criteria (Kodalak and others, 2015: 72-73):

- 1) Letters of Credit in Terms of Liability to Pay
 - a) Confirmed letter of credit
 - b) Unconfirmed letter of credit
- 2) Letters of Credit in Terms of Payment Conditions
 - a) Letter Of Credit On Sight
 - b) Deferred Letter Of Credit
 - c) Letter of Credit with Acceptance Credit
- 3) Letters of Credit in Terms of Purpose of Usage
 - a) Fixed Letter Of Credit
 - b) Transferable Letter Of Credit
 - c) Red Clause Letter Of Credit
 - d) Green Clause Letter Of Credit
 - e) Back-To-Back Letter Of Credit
 - f) Revolving Letter Of Credit
- 4) Commonly Used Letters of Credit in Foreign Trade
 - a) Straight Deferred Letter Of Credit
 - b) Straight Confirmed Deferred Letter Of Credit
 - c) Straight Cash Letter Of Credit
 - d) Straight Confirmed Cash Letter Of Credit

Table 1: The amount of Turkey’s Foreign Trade in Terms of Methods of Payments (2014)

	Imports (1.000 USD)	Percenta ge (%)	Exports (1.000 USD)	Percenta ge (%)
Cash against goods	71 528 310	29,54	102 834 175	65,25
Cash in advance	119 326 764	49,27	14 929 437	9,47
Cash against documents	14 920 304	6,16	24 228 910	15,37
Deferred letter of credit	10 542 951	4,35	2 449 256	1,55
Letter of credit	18 442 201	7,62	11 239 517	7,13
Letter of credit with acceptance credit	118 420	0,05	44 238	0,03
Cash against documents with acceptance credit	493 065	0,2	139 269	0,09
Cash against goods with acceptance credit	516 465	0,21	112 354	0,07
Other	6 288 637	2,6	1 633 002	1,04
Total	242 177 117	100	157 610 158	100

Source: TUIK data, www.tuik.gov.tr

As seen from Table 1, most common methods of payments in Turkey's imports are respectively cash, cash against goods, letter of credit and cash against documents. And most common methods of payments in Turkey's exports are respectively cash against goods, cash against documents, cash and letter of credit.

3. The Evaluation of the Letter of Credit Applications in Turkey's Foreign Trade

In this study, the letters of credit data of a participation bank is analyzed with the purpose of determining the place of the type of letter of credit in use. 2060 letter of credit transactions made in 2014 by that bank is analyzed in terms of country, maturity, confirmation and amount of imports.

Table 2: The Relationship Between Country and Maturity

Country		Type of Maturity		Total
		Sight payment	Deferred	
Argentina	Quantity	0	2	2
	Percentage	% 100	% 100	% 100
Australia	Quantity	1	2	3
	Percentage	% 33	% 67	% 100
Austria	Quantity	1	1	2
	Percentage	% 50	% 50	% 100
Bahrain	Quantity	1	0	1
	Percentage	% 100	% 0	% 100
Bangladesh	Quantity	60	13	73
	Percentage	% 82	% 28	% 100
Belgium	Quantity	8	3	11
	Percentage	% 73	% 27	% 100
Brasil	Quantity	4	0	4
	Percentage	% 100	% 0	% 100
Bulgaria	Quantity	1	0	1

	Percentage	% 100	%0	% 100
Colombia	Quantity	1	0	1
	Percentage	% 100	%0	% 100
Czech Republic	Quantity	0	1	1
	Percentage	%0	%100	%100
England	Quantity	32	4	36
	Percentage	%89	%11	%100
Egypt	Quantity	24	2	26
	Percentage	%92	%8	%100
Eritrea	Quantity	1	0	1
	Percentage	% 100	%0	% 100
France	Quantity	4	3	7
	Percentage	%57	%43	%100
Georgia	Quantity	0	2	2
	Percentage	%0	%100	%100
Germany	Quantity	22	36	58
	Percentage	%38	%62	%100
Greece	Quantity	1	1	2
	Percentage	%50	%50	%100
Holland	Quantity	8	4	12
	Percentage	%67	%33	%100
Hong Kong	Quantity	17	4	21
	Percentage	%81	%19	%100
Hungary	Quantity	1	0	1
	Percentage	% 100	%0	% 100
India	Quantity	140	20	160
	Percentage	%88	%22	%100
Indonesia	Quantity	124	9	133
	Percentage	%93	%7	%100
Italy	Quantity	22	30	52
	Percentage	%42	%58	%100
Japan	Quantity	28	2	30
	Percentage	%93	%7	%100
Kenya	Quantity	0	19	19
	Percentage	%0	%100	%100
Luxemburg	Quantity	0	1	1
	Percentage	%0	%100	%100
Macao	Quantity	1	0	1
	Percentage	% 100	%0	% 100
Malaysia	Quantity	33	3	36
	Percentage	%92	%8	%100
Mersin Free Zone	Quantity	0	1	1
	Percentage	%0	%100	%100
Mozambique	Quantity	1	0	1
	Percentage	% 100	%0	% 100
Omani	Quantity	0	1	1
	Percentage	%0	%100	%100
Pakistan	Quantity	48	16	64
	Percentage	%75	%25	%100
People's Republic Of China	Quantity	598	127	725
	Percentage	%82	%18	%100
Poland	Quantity	1	0	1

	Percentage	% 100	%0	% 100
Portugal	Quantity	4	0	4
	Percentage	% 100	%0	% 100
Qatar	Quantity	0	2	2
	Percentage	%0	%100	%100
Russia	Quantity	2	3	5
	Percentage	%40	%60	%100
South Korea	Quantity	108	64	172
	Percentage	%63	%37	%100
Spain	Quantity	5	5	10
	Percentage	%50	%50	%100
Sweden	Quantity	2	2	4
	Percentage	%50	%50	%100
Switzerland	Quantity	15	7	22
	Percentage	%68	%32	%100
Serbia	Quantity	1	0	1
	Percentage	%100	%0	%100
Singapore	Quantity	12	7	19
	Percentage	%63	%37	%100
Sri Lanka	Quantity	1	20	21
	Percentage	%04	%96	%100
Sudan	Quantity	1	0	1
	Percentage	%100	%0	%100
Saudi Arabia	Quantity	17	1	18
	Percentage	%94	%6	%100
Taiwan	Quantity	68	43	111
	Percentage	%61	%39	%100
Tajikistan	Quantity	1	0	1
	Percentage	%100	%0	%100
Thailand	Quantity	30	3	33
	Percentage	%91	%9	%100
Turkey	Quantity	0	5	5
	Percentage	%0	%100	%100
UAE (United Arab Emirates)	Quantity	7	4	11
	Percentage	%64	%36	%100
Ukraine	Quantity	0	1	1
	Percentage	%0	%100	%100
USA (United State of America)	Quantity	9	6	15
	Percentage	%60	%40	%100
Uzbekistan	Quantity	4	0	4
	Percentage	%100	%0	%100
Vietnam	Quantity	98	9	107
	Percentage	%92	%8	%100
Total	Quantity	1571	489	2060
	Percentage	%76	%24	%100

As seen from Table 2, 76% of letter of credit transactions is sight payment and 24% of letter of credit transactions is deferred. The bank opened the highest number of transactions for People's Republic Of China and 82% of transactions is letter of credit on sight.

Table 3: Relationship between Type of Maturity and Confirmation

		Confirmation		TOTAL	
		Yes	No		
Type of Maturity	Sight Payment	Quantity	164	1410	1571
		Confirmation rate	% 10	% 90	% 100
	Deferred	Quantity	94	392	489
		Confirmation rate	% 19	% 81	% 100
Total		Quantity	258	1802	2060
		Confirmation rate	% 13	% 87	% 100

As seen from Table 3, 10% of letters of credit on sight is confirmed, 90% is unconfirmed. 19% of deferred letters of credit is confirmed, 81% is unconfirmed. Totally 13% of letter of credit transactions the bank made is confirmed, 87% is unconfirmed.

Table 4: Relationship between Country and Confirmation

Country		Confirmation		Total
		Yes	No	
Argentina	Quantity	1	1	2
	Percentage	50%	50%	100%
Australia	Quantity	1	2	3
	Percentage	33%	67%	100%
Austria	Quantity	1	1	2
	Percentage	50%	50%	100%
Bahrain	Quantity	0	1	1
	Percentage	0%	100%	100%
Bangladesh	Quantity	0	73	73
	Percentage	0%	100%	100%
Belgium	Quantity	8	3	11
	Percentage	73%	27%	100%
Brasil	Quantity	0	4	4
	Percentage	0%	100%	100%
Bulgaria	Quantity	0	1	1
	Percentage	0%	100%	100%
Colombia	Quantity	0	1	1
	Percentage	0%	100%	100%
Czech Republic	Quantity	0	1	1
	Percentage	0%	100%	100%
Egypt	Quantity	0	26	26
	Percentage	0%	100%	100%
England	Quantity	33	3	36
	Percentage	92%	8%	100%
Eritrea	Quantity	0	1	1
	Percentage	0%	100%	100%
France	Quantity	4	3	7
	Percentage	57%	43%	100%
Germany	Quantity	29	29	58
	Percentage	50%	50%	100%
Georgia	Quantity	2	0	2
	Percentage	100%	0%	100%
Greece	Quantity	2	0	2

Country		Confirmation		Total
		Yes	No	
	Percentage	100%	0%	100%
Holland	Quantity	9	3	12
	Percentage	75%	25%	100%
Hong Kong	Quantity	2	19	21
	Percentage	10%	90%	100%
Hungary	Quantity	0	1	1
	Percentage	0%	100%	100%
India	Quantity	18	142	160
	Percentage	11%	89%	100%
Indonesia	Quantity	4	129	133
	Percentage	3%	97%	100%
Italy	Quantity	35	17	52
	Percentage	67%	33%	100%
Japan	Quantity	3	27	30
	Percentage	10%	90%	100%
Kenya	Quantity	0	19	19
	Percentage	0%	100%	100%
Luxemburg	Quantity	1	0	1
	Percentage	100%	0%	100%
Macao	Quantity	0	1	1
	Percentage	0%	100%	100%
Malaysia	Quantity	3	33	36
	Percentage	8%	92%	100%
Mexico	Quantity	0	2	2
	Percentage	0%	100%	100%
Mersin Free Zone	Quantity	0	1	1
	Percentage	0%	100%	100%
Mozambiq	Quantity	1	0	1
	Percentage	100%	0%	100%
Omani	Quantity	1	0	1
	Percentage	100%	0%	100%
Pakistan	Quantity	4	60	64
	Percentage	6%	94%	100%
People's Republic Of China	Quantity	17	708	725
	Percentage	2%	98%	100%
Poland	Quantity	0	1	1
	Percentage	0%	100%	100%
Portugal	Quantity	0	4	4
	Percentage	0%	100%	100%
Russia	Quantity	3	2	5
	Percentage	60%	40%	100%
Spain	Quantity	7	3	10
	Percentage	70%	30%	100%
South Korea	Quantity	7	165	172
	Percentage	4%	96%	100%
Switzerland	Quantity	16	6	22
	Percentage	73%	27%	100%
Serbia	Quantity	0	1	1
	Percentage	0%	100%	100%
Singapore	Quantity	3	16	19
	Percentage	16%	84%	100%

		Confirmation		Total
Country		Yes	No	
Sri Lanka	Quantity	0	21	21
	Percentage	0%	100%	100%
Sudan	Quantity	0	1	1
	Percentage	0%	100%	100%
Saudi Arabia	Quantity	17	1	18
	Percentage	94%	6%	100%
Tajikistan	Quantity	0	1	1
	Percentage	0%	100%	100%
Thailand	Quantity	0	33	33
	Percentage	0%	100%	100%
Taiwan	Quantity	1	110	111
	Percentage	1%	99%	100%
Turkey	Quantity	3	2	5
	Percentage	60%	40%	100%
Ukraine	Quantity	1	0	1
	Percentage	100%	0%	100%
UAE (United Arab Emirates)	Quantity	2	9	11
	Percentage	18%	82%	100%
USA (United State of America)	Quantity	11	4	15
	Percentage	73%	27%	100%
Uzbekistan	Quantity	0	4	4
	Percentage	0%	100%	100%
Vietnam	Quantity	2	105	107
	Percentage	2%	98%	100%
Total	Quantity	261	1799	2060
	Percentage	%13	%87	%100

According to Table 4, only 13% of letter of credit transactions is confirmed. 2% of letter of credit transactions of People's Republic Of China which has highest number of transactions is confirmed, 98% is unconfirmed.

Table 5: Relationship Between the Amount of Imports and Type of Maturity

	Categorical Imports ¹						Total
		1	2	3	4	5	
Sight Payment	Quantity	401	447	441	168	114	1571
	Percentage	%87	%77	%72	%74	%64	%76
Deferred	Quantity	62	135	168	59	65	489
	Percentage	%13	%23	%28	%26	%36	%24
Total	Quantity	463	582	609	227	179	2060
	Percentage	%100	%100	%100	%100	%100	%100

When the magnitude of letter of credit transactions is considered, transactions between 100.000-250.000 USD comes first and transactions between 50.000-100.000 USD comes in second. 72% of letter of credit transactions is letter of credit on sight, 28% is deferred. 77% of letter of credit transactions between 50.000-100.000 USD is letter of credit on sight, 23% is deferred.

-
- less than 50.000 USD ¹ 1-
 between 50.000-100.000 USD 2-
 between 100.000- 250.000 USD 3-
 between 250.000-500.000 USD 4-
 more than 500.000 USD 5-

Table 6: Relationship Between the Amount of Import and Confirmation

		Categorical Imports ²					Total	
			1	2	3	4		5
Confirmation	Yes	Quantity	30	59	67	38	65	258
		Percentage	%06	%10	%11	%17	%36	%13
	No	Quantity	433	523	540	189	114	1799
		Percentage	%94	%90	%89	%83	%64	%87
	Total	Quantity	463	582	609	227	179	2060
		Percentage	%100	%100	%100	%100	%100	%100

When the relationship between the amount of import and confirmation is considered, according to Table 6, 11% of letter of credit transactions between 100.000-250.000 USD is confirmed, 89% is unconfirmed. 10% of letter of credit transactions between 50.000-100.000 USD is confirmed, 90% is unconfirmed.

4. Conclusion and Evaluation

The most commonly used methods of payment are respectively cash, cash against goods, letter of credit and cash against documents in Turkey's imports. As for Turkey's exports, the most commonly used methods of payment are respectively cash against goods, cash against documents, cash and letter of credit. The letter of credit method does not take place near the top. The percentage of the letter of credit method in Turkey's imports and exports is only nearly 7%. The fact that cash and cash against goods payment methods respectively comes first in Turkey's imports and exports makes Turkey disadvantageous and face important risks in foreign trade.

As a result of the analysis of a participation bank's letter of credit transactions in 2014, it is determined that 76% of letter of credit transactions is letter of credit in sight and 87% of letter of credit transactions is unconfirmed. When the magnitude of letter of credit transactions is considered, it is seen that the most transactions are between 100.000-250.000 USD.

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less than 50.000 USD 1-
between 50.000-100.000 USD 2-
between 100.000- 250.000 USD 3-
between 250.000-500.000 USD 4-
more than 500.000 USD 5-

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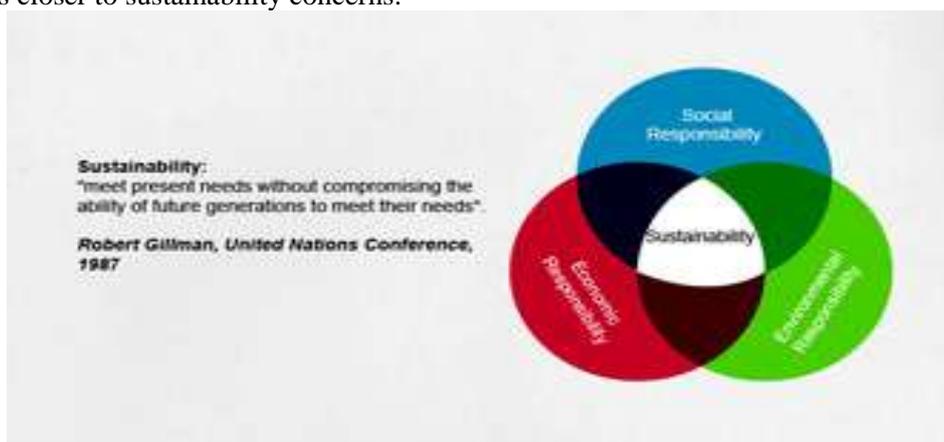
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Abstract:

This theoretical paper considers how accounting can contribute to sustainability reporting for organizations, and what implications changes in sustainability reporting in these organizations could have for the accounting profession, in terms of opportunities, challenges and skills. Through reviewing the literature, it was found that there are a number of challenges that face sustainability reporting, including difficulties of estimation and projections, understanding links between actions and impact, establishing robust indicators, verifiability and assurance, and the challenge of applying accounting standards to sustainability issues. Also, accounting profession should seek to adapt its training support and programs to accommodate the future needs of sustainability reporting. Greater attention needs to be paid towards measuring sustainability; the accounting profession could play an important role in developing robust measures.

1. Introduction

In the last two decades, sustainable development became an important phenomenon not only at national platforms but also at the corporate level. “Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland, 1987). This definition emphasizes that sustainability reporting should recognize the interdependence of economic, social and environmental factors. When this definition is applied in practice, it is so broad and vague that business and less enlightened governments can claim to care about the environment, but actually give priority to social and economic considerations (ACCA, 2010). Ball (2002) argues that the greater focus on sustainability accounting in the private sector is to some extent linked to the unsustainable nature of much private sector practices, whereas public sector could be seen as closer to sustainability concerns.



(Source: www.csrwatchjordan.com)

Sustainability embraces three major areas: economic progress, social progress and environmental progress. Previously, the attention had focused on economic or financial progress while social and environmental progress was assigned less recognition. This trend seems to be changing now as more focus is being placed on social and environmental issues. With environmental and social issues becoming increasingly important in the public opinion, there is no doubt about the significance of sustainability reporting. According to Laplume et al. (2008), several stakeholders such as employees, customers, suppliers, creditors, etc. with a drive for diverse economic, environmental, and social interests determine the success of an organization. Sustainability reporting is an unavoidable route through which organizations try to meet the information needs of the host of stakeholders. With the rising concerns for social and environmental matters, one cannot but accept the overwhelming need for sustainability reporting.

According to common definitions, every dimension of the sustainability dimensions focuses on different subsets.

Environmental factors	Social	Economic
Energy	Community investment	Accountability /
Water	Working conditions	Transparency
Greenhouse gases	Human rights and fair trade	Corporate governance
Emissions	Public policy	Stakeholder value
Hazardous and non-hazardous waste	Diversity	Economic performance
Recycling	Safety	Financial performance[12]
Packaging	Anticorruption	

(Source: www.wikipedia.com)

Sustainability accounting connects the companies' strategies from a sustainable framework by disclosing information on the three dimensional levels (environment, economic and social). In practice, however, it is difficult to put together policies that promote simultaneously environmental, economic and social goals.

The sustainability accounting phenomenon sprang up from developments in accounting. An area of brainstorming over the years has been how accounting and accountability could improve sustainable development. This line of brainstorming has tried to promote the strategy of sustainability by developing systems that could modify conventional financial accounting systems to cover sustainability issues.

To develop sustainability accounting systems, one thing fundamentally required is the reappraisal of the relative significance of social, environmental and economic benefits and risks and their interactions in corporate accounting systems (Schaltegger and Burritt, 2010).

Sustainability accounting has enjoyed popularity of recent. Several organizations are beginning to adopt new techniques in their annual reports by making disclosures on their core activities and the impact that these have on the environment. This development coincides with the increasing demand from stakeholders on how companies manage their resources to achieve their goals so as to accomplish sustainable development. Sustainability accounting acknowledges the importance of financial information and tries to replicate this on social and environmental concerns.

Sustainability reporting involves a number of professions. This paper considers how accounting can contribute to sustainability reporting for organizations, and what implications changes in sustainability reporting in these organizations could have for the accounting profession, in terms of opportunities, challenges and skills.

2. GLOBAL REPORTING INITIATIVE (GRI)

A number of attempts have been made to define sustainability or sustainable development in a way that could be used consistently around the world. The Brundtland definition still leaves a large degree of differences in measuring sustainability. Specific indicators and measures

designed for international use, but they tend to focus on specific aspects of sustainable development and are voluntarily implemented by private or public sector. Global Reporting Initiative (GRI) is a framework designed mainly for private companies, but developing supplementary guidance for sustainability reporting for public agencies, charities and other organizational entities.

The GRI framework is a collection of reporting guidance documents — all of which were developed through global, multi-stakeholder consultative processes — designed to assist companies in preparing sustainability reports and ESG disclosures. These guidance documents are periodically revised to ensure that they continue to meet the needs of 21st-century business and society (GRI Website).

The Global Reporting Initiative was founded at the end of the 1990s. Only a few dozen companies filed reports with the GRI in its first few years, but with the environmental sustainability movement at its core, it quickly gathered momentum. By the mid-2000s, hundreds of companies were voluntarily adopting the GRI framework and producing sustainability reports. In January 2011, the GRI began collecting GRI-referenced and non-GRI-referenced reports. Today, thousands of companies, from all over the globe, are publishing sustainability reports. The first version of the GRI standards appeared in 2000. The working groups that draft and revise the framework and supplements are composed of corporate representatives, NGOs, labor groups and society at large. Two years later, the second version of the Sustainability Reporting Guidelines was released at the World Summit for Sustainable Development in 2002. This version known as G2 was a significant improvement from the first version. It was utilized by several companies including Cisco, Ford, and Microsoft. G3 was released in 2006. Its content was streamlined to bring about improved communication with stakeholders. The G3 guidelines are more useful for investors and analysts, and bring corporate governance into focus. In May 2013, G4 was published. The guideline focuses on those topics that are material to an organization and its key stakeholders. This ‘materiality’ focus will make reports more relevant, more credible and more user-friendly. This new focus on materiality means that sustainability reports should now focus on matters that can be considered as key in achieving the organization’s goals in alignment to its impact on society (Oba and Ibikunle, 2015).

By continually revising its standards through a broadly consultative global process to meet evolving circumstances, the GRI has established itself as a leader in reporting (GRI Website).

In the 2013 Boston College Center for Corporate Citizenship and EY survey on sustainability reporting, more than two-thirds of respondents indicate that their organizations employ the GRI framework in the preparation of their reports. The key benefit of using the GRI framework, in addition to standardization of reports, is guidance on material issues. The GRI emphasizes that a company consider those environmental and social aspects that are most significant to its key stakeholders and have the most significant impacts on its business — or result from it (EY and Boston College Center, 2014).

3. SUSTAINABILITY IN JORDAN

Jordan, along with several other Arab nations, is increasingly weaving the tenets of sustainable practices into day-to-day business. That means taking greater account of the economic, social, and environmental impact of our decisions (Queen Rania, 2015). For example, the Jordan River Foundation (JRF) was the first NGO in the region to issue a sustainability report. JRF strives to make all its projects community and climate conscious, partnering with villages like Rasoun to transform them into models of sustainable development. The tourism sector, exemplified by the award-winning Royal Society for the Conservation of Nature (RSCN), is on a track to transform itself into a sustainable industry, building eco-friendly accommodation, advising communities how to protect their resources, and establishing wildlife and nature sanctuaries (Jordan River Foundation, 2011). It is worth mentioning that the JRF has presented its sustainability management report 2010 using the requirements of application level B of G3.

Also, Arab Sustainability Leadership Group (ASLG) formed in Jordan in 2008, ASLG is committed to the highest standards of sustainability practices and – encouragingly – growing in strength. As leading practitioners in sustainability, members are setting the pace of business and proving that the Arab world can respond to global challenges. When it comes to sustainability, ASLG is the regional standard bearer. To encourage broader adoption of 21st Century business practices, ASLG launched in 2009 the first Arab Responsible Competitiveness Index (ARCI). ARCI is an invaluable indicator for the Middle East on the status of industries and services, guiding governments and CEOs alike on how they can successfully combine conscience and competitiveness (Queen Rania, 2015).

Corporate Social Responsibility (CSR) Watch Jordan (2014) issued a comparative study on the practice of corporate responsibility (CR) among 7 sectors in Jordan including banks, telecom, transport, manufacturing, logistics, energy, and mining. These sectors formed the total GDP of Jordan. The study concluded that Jordanian banks fall along a broad spectrum of CR practice, starting from no CR practice at all, to strategic CR practice, with the majority of the banks falling in the Charitable Practice category. Also, it was found that the majority of telecom, transport, manufacturing, logistics, and mining companies don't report any CSR practice. Energy Local and regional companies operating within Jordan fall along a broad spectrum of CR practice. Ranging from no apparent CR practice to semi strategic practice, most companies fall into the semi strategic practice category.

While other countries move into the field of sustainability, Jordan will continue to innovate, solidifying its position as a leading regional economy, society, and role model.

4. ACCOUNTING AND SUSTAINABILITY

By disclosing sustainability information, organizations aim to increase transparency, enhance brand value, reputation and legitimacy, improve competitive stance and trigger employee motivation (Herzig and Schaltegger, 2006).

In the last four decades, the business world has been under pressure to be responsible to its stakeholders and the entire environment/society in which it operates (Sihotang & Effendi, 2010). As such, the need for a reporting framework that captures an integration of economic, environmental and social factors into information disclosure with a target for sustaining resources for the future is emphasized (Eppel, 2008). Although there is no single globally accepted definition of sustainability reporting, Elkington (1997) asserts that “the term sustainability reporting in its narrowest term is a framework for measuring and reporting corporate performance against economic, social and environmental parameters. As such, it covers the triple Ps – people, plant and profits.

The development of sustainability indicators and monitoring frameworks has largely been led by statisticians and economists. However, accountants have their own skill-set which could considerably benefit robust sustainability standards and monitoring. Standardizing the measurement of indicators within and between organizational units is the most obvious area where accountants could lead development.

Accountants could also add value in the areas of risk management, value for money methodologies, and balancing governance and ethical standards in politically governed environments. Also, if government institutions decide to pursue monetization strategies as part of sustainability reporting frameworks, then accountants will have ample opportunity to apply their financial and budgeting skills (EY and Boston College Center, 2014).

Challenges for Accountants

Regardless of the enthusiasm in sustainability reporting, organizations and those reporting for the first time are finding it challenging grappling with the set of protocols. Unlike financial reporting, which is targeted primarily at one key stakeholder, the investor, sustainability reporting targets a wider range of stakeholders and borders around addressing complex issues such as emissions, wastes, etc. (Oba and Ibikunle, 2015). In a bid to address these inherent complexities in sustainable reporting, standardization efforts are afloat to have comparable and verifiable sustainability reports globally. Despite the efforts channeled to this end, significant

differences still remain between organizations from different institutional environments with regard to the content and quality of sustainability reports (Fortanier et al., 2011).

Although there are clearly areas where accountants can make a strong and unique contribution to sustainable development and government sustainability reporting, it is also a field which raises challenging issues for the profession. These issues relate to the key elements of the sustainability approach – the interconnected nature of environmental, economic and social factors, and the intergenerational time-frame and, hence, length of calculations. The associated challenges include: difficulties of estimation and projections, understanding links between actions and impact, establishing robust indicators, and verifiability and assurance. The challenge of applying the traditionally rigorous standards of accounting to sustainable development issues may make some wish to shy away from this process. However, these challenges could also be looked on as opportunities to develop the strengths of the profession into new areas (EY and Boston College Center, 2014).

Thoradeniya et al. (2012) noted that notwithstanding the importance of sustainable development, its reporting remains voluntary in most countries. This is largely because of the fact that organizations in countries that have no functional laws institutionalizing sustainability reporting also engage in their own forms of reporting and as a result there exists a farrago of reporting styles and information contents.

Challenges for Researchers

It is also important to understand the factors that influence disclosure in order to improve sustainability accounting. However, insufficient research attention has been paid to factors that impact on the quality of sustainability reporting which is necessary for better accountability (Thoradeniya et al., 2012). It is imperative that the possible determinants of corporate sustainability accounting be established so as to be able trigger better and sustained reporting. Despite the growing quantum of literature on the subject as well as the increasing awareness of sustainability issues in society, the current knowledge of sustainability accounting has many gaps and inconsistencies. Research on sustainability reporting has been unsystematic and lacking a flow. The concept even seems to suggest several things to different researchers and organizations. Research direction must be targeted at getting sustainability accounting systematized and structured. For this to be realized there must be a reference, that is, a framework that enjoys a relative degree of acceptability of which the only one that seems to exist for now is the GRI (www.wikipedia.com).

CONCLUSION

This paper aimed at exploring the sustainability accounting profession challenges that face accountants in the area of sustainable development as it became an important phenomenon. Accountants will need to broaden their knowledge and to establish a common dialogue with social and ecological professionals.

There are undoubtedly a number of challenges to sustainability reporting, including difficulties of estimation and projections, understanding links between actions and impact, establishing robust indicators, verifiability and assurance and the challenge of applying the traditionally rigorous standards of accounting to sustainable development issues.

Also, the accounting profession should seek to adapt its training support and programs to accommodate the future needs of sustainability reporting.

Greater attention needs to be paid to understanding how sustainability elements could be measured. The accounting profession could play an important role in developing robust measures which are appropriate to the task.

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Affective Commitment Impact on Turnover Intentions in Jordanian Insurance Companies

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Abstract:

The study reviewed the literature on group commitment and proposed a question and a quantitative research design that explores commitment and its effect on turnover intentions in Jordanian's insurance companies, representing a collectivist culture. More specifically, it measured multiple foci's of commitment: commitment to organization, manager, and team. The literature covers three main social exchange and group theories and explores commitment in-group and work setting. Correlation between affective commitment to team, manager, and organization and its relationship to turnover intentions was tested as well as a bivariate regression analysis to test and predict which type of commitment is a better predictor of turnover intentions. The study found that all commitment foci were negatively related to turnover intentions, and found that affective commitment to team is a significant predictor of turnover intentions than normative and continuance commitment.

Keywords: Groups, Teams, Commitments, Culture, Turnover intentions

Introduction

Studying and researching the field of group dynamics is rich in content and importance to the field of organizational behavior, leadership, and management for the last 80 years. (Levine, 2010) Indeed, group behavior theory is essential to understand how people think, behave, and interact in human activities (Levine, 2010) hence, require a researcher's attention for its importance to daily interactions and social exploration.

William and Jennifer (2010) found that groups cannot have full control over their members but still need to rely on them to function (William & Jennifer, 2010); therefore, No group or team can function efficiently without its member's commitment to the group and organization. The commitment phenomenon grabbed the attention of organizations and researchers for its core functionality in group cohesiveness and performance, and many practitioners attempted to explore the best methods for commitment development and its benefits to the organization regarding of motivation, achievement, and satisfaction among others variables, as evident in the literature. (Levi, 2014; Levine, 2010; Levine, 2006)

Certainly, commitment to organizations and groups is a vital attitude, and it holds many criteria such performance, turnover, and satisfaction among other crucial variables and elements of organization effectiveness. The reasons why employers and other group members are committed are not easy to explain as many variables can add to the complexity of human and group behavior. Furthermore, Moreland and Levine (2010) found that scholars had difficulties when attempting to distinguish between distinctive types of commitment.

For instance, Gibson et al, (2012) assert that some research found effectiveness and commitment are related, and effectiveness is lower when commitment is absent. (Gibson et. al, 2012)

Additionally, Gibson et al, (2012) also found that turnover and its related costs are lower, no excessive supervision is required, and identification with organizational goals and considering them as one's own is some of the benefits of individual's commitment to

organizations (Gibson et. al, 2012). Hence, commitment is a top organizational priority and contemporary organizations are aware of it (Hausknecht, Rodda, & Howard, 2009).

Nevertheless, organizational commitment concept has been researched extensively (Levi, 2014; William & Jennifer, 2010; Neininger et al., 2010) and it answered many questions, however, this paper is more interested in researching commitment in a group or teamwork setting and level of analysis that can fill in the gaps of some unexplored areas of team commitment, its development, maintenance, and effect in addition to organizational commitment. Specifically, this paper will attempt to apply the affective, normative, and continuance commitment concepts found in the literature to a new cultural setting and organizations in the country of Jordan.

Team commitment is still a developing area of research and exploration. (Neininger et al., 2010) therefore, this is an important concept as researchers found that employees are more committed to their teams than their organizations, which they spend most of their daily activities together, and hence teams have more influence on individual behavior than organizations do. (Neininger et al., 2010; Riketta & Van Dick, 2005).

Many challenges are facing Jordan's economy today, with an unemployment rate of fourteen percent according to the department of labor statistics (2015), and external threats and upheaval in the region that is taking its toll on the national economy. Businesses in Jordan face many challenges (Khawaldeh, Muala, & Ziadat, 2014) in addition to turnover that averaged 2.8% in 2011 (Directorate of Labor Statistics, 2011).

Literature research is sparse on turnover and commitment concepts in Jordan; however, few scholars attempted to explore and focus on several industries in Jordan such as telecommunication sector (Alhadid, Guta, Muhaisen, & Alzougool 2014) industrial sector (Abu Jadayil, Mohsen, & Al-Bashir, 2015) healthcare (Al-Hussami, Darawad, Saleh, & Hayajneh, 2013) and insurance (Judeh, 2012) that explores turnover phenomenon.

This paper will focus on the insurance industry as it is considered one of the most important sectors in Jordan economy that is facing considerable turnover challenges (Judah, 2010) and employs almost 3000 employees (JOIF, 2015).

Gibson et. al (2012) viewed commitment to organizations as attitudinal in nature, and includes three elements: (1) sense of identification (2) involvement in duties (3) loyalty to the organization. Lawler (2010) defined commitment as the desire of an individual to keep preserving a relationship with another in spite of other possibly better alternatives. Hence, an individual does not look for another option or break from the current relationship regardless of what is available. Further, Johnson and Yang (2010) asserts that in a working environment, an individual bonds psychologically with the social entity at their jobs (Johnson & Yang, 2010).

The following section reviews the literature on commitment and three social theories that explore member to group commitment and attempted to prescribe and predict the antecedents of commitment in a social and work setting. From literature, five hypotheses are presented followed by the methods and data collection scheme and the result and conclusion of the study.

Literature Review

Relational cohesion theory

From a social perspective, relational cohesion theory describes the conditions that will develop commitment in relationships (Lawler, 2010) and argues that when people are engaged socially in a cohesive relationship, the outcomes involves commitment as well as the desire to give with no "strings attached (unilaterally) and partaking in new joint activities or ventures that require or imply trust in the other's goodwill." (Lawler, 2010, p. 689)

This activity is a result of a bond that forms through strong emotions in a social exchange setting, turning the focus on the value of affiliation with group instead of just some material objects. (Lawler, 2010) This requires a structural dimension according to the theory. "Structural cohesion is based on the degree of interdependence, that is, how dependent the people are on each other." (Lawler, 2010) However, people must feel the need for each other

so that cohesion and commitment develops; once that happens people tend to stay in their relationships, show trust, exchange gifts, cooperate and grow. (Lawler, 2010)

Furthermore, Lawler (2010) identified four conditions where emotions within groups can cause commitment. First, people come together in social structures and start exchanging according to their dependency and the value each gets from the exchange, therefore, at this point people are inclined to maximize their benefit from the relationship. The relationships get stronger depending on the frequency of their interaction. (Lawler, 2010)

Second, people start to feel success or failure through the repeated interactions and based on the success or failure they start to think logically that their felt emotions are the outcome of their group membership (Lawler, 2010). Third, once people keep receiving the positive feelings from their groups, they bond more together and adjust their behavior to other members and even accept sacrifices and other costs to keep the cohesiveness well and viable. (Lawler, 2010)

Finally, only after this sequence of exchange to emotion to cohesion, commitment is produced. The theory contends that no commitment will develop unless people feel this emotional connection and keeps getting it within the group. These conditions make a group cohesive in a repeated pattern of exchange (Lawler, 2010).

Relational cohesion theory, therefore, can predict and explain the possibility of commitment occurring in groups if all the conditions are met in sequence that includes social exchange and interdependence, followed by shared responsibility, positive feelings, and cohesion.

Group Socialization

Group socialization views framework of groups as dynamic rather than static units. According to group socialization model, groups change overtime and can affect members profoundly. (Levine, 2010) Furthermore, Levine (2010) makes a distinction between group development and group socialization and focuses on the latter that involves a social exchange between individuals and groups and their reciprocal effect on thoughts, behavior, and feelings.

The basic premise of the model examines groups that are small in size, and members interact on regular basis. Further, members share common values, have emotional ties, and want to achieve a goal. (Levine, 2010)

Group socialization views commitment as a second level process after groups evaluates the prospective members. At this phase, groups desire new members that can add value to them and inspects member's current and previous achievement and possible future contributions. Similarly, individuals also evaluate the group and explore the possibility of groups satisfying their needs. (Levine, 2010)

The evaluation outcome determines the level of commitment and how each member feels towards the new group. Therefore, the higher the group's evaluation of the prospective member the higher the commitment. Similarly, the higher the member's evaluation of the group the higher the commitment.

This will lead to the desire to satisfy the need of maintaining the positive relationship and feelings the group gets from the individual and individual from group, by working together on achieving both the group and the individual goals and needs.

Since groups are dynamic and change overtime, individual's as well as group's commitment level does not stay at the same level. That usually happen because the evaluation process is ongoing throughout the life cycle of the group – member relationship, therefore, whenever the evaluation yields positive results commitment increase and the opposite is true. The process of this evaluation goes through a decision criteria that determine the commitment level. Once the commitment level raises, each party tries to move into a new level called the transition phase. However, this will only occur once both parties agree on the level of commitment.

Moreland and Levine (1982) proposed model proposes five phases: investigation, socialization, maintenance, resocialization, and remembrance and four role transitions: entry, acceptance, divergence, and exit. Commitment is determined after the socialization phase and turns the individual into a full member at the enter level.

The model proposes a rich perspective on the dynamic and changing nature of commitment, which contrast to the relational cohesion theory that views commitment in a liner more static fashion that comes in a straight sequence. Nevertheless, both theories portray commitment as a strong psychological and emotional matter that can produce positive or negative outcomes.

Social Identity Theory

Self and Chatman (2010) identified two member attitudes toward groups that are closely connected psychological constructs: identification and commitment. The investigation of the conditions that makes people commit to a group is explored through identification with group's values, traditions, and goals and can explain some of the ways groups develop such levels of commitment.

The core premise of most of commitment definition includes a psychological attachment to a group. (O'Reilly & Chatman, 1986) The scholars identified compliance, identification, and internalization as three types of group commitment. (Self & Chatman, 2010; O'Reilly & Chatman, 1986) Those types are similar to what Meyer and Allen introduce in their three dimensions model "affective, normative, continuance" (Meyer & Allen, 1991). Both Identification and affective commitment are positively and willingly motivated and individuals desire to stay and contribute to the group.

One explanation why people would identify with groups and gets attached to it comes from social identity theory. The theory suggests that people "define their self-concept in terms of their memberships in various social groups." (Self & Chatman, 2010) Furthermore, an individual can correspond with more than one group, which translates into self-identity. Thus, when a person identifies with group's values and objective, it influences the perception, behavior, and attitude of an individual.

Affective, normative, and continuance commitment

Johnson and Yang (2010) focused on multiple levels of commitment and theorized that there are three different forms of commitment that includes affective commitment, normative commitment, and continuance commitment (Johnson & Yang, 2010).

Affective commitment involves an emotional attachment and readiness to perform tasks for others while adopting same goals and values. (Allen & Meyer, 1991; Johnson & Yang, 2010) This aligns well with the emotional aspect of relational cohesion theory and reasserts the importance of emotional connection within a group. One thing that distinguish this form of commitment is that it is self-determined, meaning that the behavior is not determined by any external motivators such as financial incentives, it is performed and determined by the individual's will. (Johnson & Yang, 2010)

Normative commitment involves a compelling feeling to return the favor and show loyalty to an entity based on some external pressure of morality, norms, society, or reward. (Allen & Meyer, 1991; Johnson & Yang, 2010)

There are several distinctions between affective and normative commitment. For one, normative commitment is based on the feeling of obligation and pressure to reciprocate and pay back the debt. Affective commitment promotes a more positive feeling and willingness to perform because of passion to the individuals in the groups or the organization. Although both involve emotions, yet one is guilt driven and the other is passion driven. Studies also show that both forms can be available at the same time, and there are correlations between the two. (Johnson & Yang, 2010)

Continuance commitment is the rational calculation of costs and benefits and the evaluation of one's position and other alternatives. . (Allen & Meyer, 1991; Johnson & Yang, 2010) Any employee that highly values the current employment will remain in the position as they see the positive and desirable outcomes provided through their jobs; moreover, the decision can also be made as a result of any lack of other opportunities. (Johnson & Yang, 2010) This form of commitment is based on compliance and is not self-determined as affective and normative commitment; however, this doesn't mean that it cannot be desirable. (Johnson & Yang, 2010)

Bagarim (2010) concluded that across all definitions of commitment there is one major commonality that is, “commitment is an obliging force or energy that directs behaviour to a specific target or focus of that commitment energy, which then shapes a psychological bond between the source of commitment and the specific target of that commitment.” (Bagarim, 2010, p. 98) Furthermore, it seems that the best predictor of member to organization, member to team, and member to leader commitment is affective commitment (Bagarim, 2010) and the research must focused and directed at those factors to get the best results. (Bagarim, 2010) Therefore, this paper will investigate affective commitment to team, leader, and organization as a predictor of turnover intentions, which is explored in the following section.

Turnover Intentions

Turnover intentions are defined as the “the conscious and deliberate decision to leave the organization.” (Tett & Meyer, 1993) Mobley, Horner, and Hollingsworth (1978) studied withdrawal behavior and the process of employee decision to withdraw and found that intentions to quit were the last point considered before searching for another job. Moreover, in a meta-analysis Griffith, Hom, and Gaertner (2000) found that intention to quit and affective commitment has a negative relationship.

Hence, the following hypotheses is proposed and explored:

- H1: Affective commitment to organization has a negative relationship with turnover intentions.
- H2: Affective commitment to team has a negative relationship with turnover intentions.
- H3: Affective commitment to the immediate manager has a negative relationship with turnover intentions.
- H4: Affective commitment to team is a stronger predictor of member turnover intentions than normative commitment.
- H5: Affective commitment to team is a stronger predictor of member turnover intentions than continuance commitment.

Cultural Considerations

The review so far revealed several important dimensions and layers to commitment. The relational cohesion perspective proposed a sequential linear process where commitment occurs after positive emotions and cohesion. The group socialization framework proposed a different more dynamic process where commitment may increase or decrease according to mutual evaluation of individuals and groups. Moreover, affective commitment and identification were strong emotional bonds that attach people to a certain group’s values and goals.

In a collectivist cultural setting, the Middle East cultural cluster show pride and loyalty to their family and organization. (Norton, 2013) Moreover, the dimension includes cohesiveness and devotion to those groups, in addition to highly valuing face-saving and status. Hence, there are inconsistencies when it comes to family organization loyalty and commitment and work commitment. In fact, the study found that the culture “deemphasizes charismatic/value-based and team-oriented leadership.” (Norton, 2013)

Furthermore, Oishi & Su (2010) posits that individuals in a collectivist culture attempt to maintain relational bonds with others in-group members, which involves adjustment to group needs, harmony, and developing emotional experiences. Also, Oishi & Su (2010) found that “In terms of work-related behaviors within collectivist contexts, working with in-group members tends to result in better performance than working alone.” (Oishi & Su, 2010, p.115)

This study is concerned with the process of commitment development and loyalty to groups that are not family or kin related in Jordan, which is categorized as a collectivist culture and share the attributes of the Middle East cultural cluster.

Method

Research Design

This study used a posttest-only correlational research design and obtained a group of participants from three insurance companies in Jordan, Delta Insurance, United Insurance, and EuroArab Insurance respectively. To measure affective commitment variable and turnover intentions variable, a survey was adapted from Meyer and Allen's scale (1993) of affective, normative, and continuance commitment, and Yücel (2012) turnover intentions scale. The surveys were distributed to the three companies in Amman with the help and permission of HR department heads in each company.

The study focused on insurance companies to control the variability of other industry's influence and for the purpose of this research. Insurance sector is chosen because of its economic power and significance and the salient turnover phenomenon according to the statistics from various official sources. Moreover, the surveys were randomly distributed to all departments to reduce any possible bias.

Participants

200 surveys were printed and distributed to reflect the sum number of employees in all three insurance companies. Employees of junior and mid-level were targeted, and a total of 117 responded representing a rate of 58%, which is a good response rate according to research-advisor.com that suggested a response rate of 137 for a population of 200. Amongst respondents, 60% were male, 40% female, 61% holding a bachelors degree, 44% were between age 20 and 29, 34% between 30 and 39 and 5% above 40 years old; 65% worked in their companies between 1 and 5 years, 15% between 6 and 10, and 15% between 11 and 25 years.

Measures and Data Analysis

Affective, normative, and continuance commitment was measured using Meyer and Allen's scale (1993) that contains a seven-point Likert scale where 1= strongly disagree, and 7= strongly agree, and the reliability is presented with a Cronbach's alpha aggregate of .87. Each the three affective commitment variables (commitment to manager, team, and organization) will be measured with adaptation to the Meyer and Allen scale as used in a similar research in South Africa (Bagraim, 2010) and as shown in the Appendix.

Turnover intentions were measured using a three-item scaled adapted from Yücel (2012) scale with a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree and with a reliability Cronbach's alpha aggregate score of .87. The data analysis procedure used SPSS statistical analysis software after collecting the data.

Data Collection

For data collection, self-administered surveys were distributed by acquiring the help of key people inside the insurance companies in Jordan. A random sample of managers and subordinates were given surveys after gaining permission, with a letter attached to explain the nature of the included questions. The language of the surveys was translated to Arabic and was double checked and tested previously with three respondents to assure understanding, consistency, and accuracy.

Results

Correlation coefficients were computed between affective commitment to organization and turnover intentions, affective commitment to team and turnover intentions, and affective commitment to manager and turnover intentions to test H1, H2, and H3.

Regarding affective commitment to organization and turnover intentions, a p value of less than .05 was required for significance. The results of the correlational analysis show that the correlations were statistically significant with a p value ($.000 < .05$) for all three tests, and the Pearson correlation coefficient for affective commitment to organization was $r(115) = -.504$, $p < .05$.

The result suggests that affective commitment to organization has a strong negative relationship with turnover intentions as hypothesized. For affective commitment to team, Pearson

correlation coefficient $r(115) = -.379, p < .05$; and for affective commitment to manager, Pearson correlation coefficient $r(115) = -.424, p < .05$.

As expected, the correlation analysis showed that all three affective commitment foci are significantly and negatively related to turnover intentions; although affective commitment to organization has the strongest relationship followed my commitment to manager and lastly team. Furthermore, the three foci affective commitment showed a significant positive correlation with one another as shown in Table 1 below.

Table 1.

Pearson correlation for affective commitment variables

	ACORG	ACT
ACT	.581*	
ACMAN	.456*	.568*

Note: ACORG = Affective Commitment to Organization, ACT = Affective Commitment to Team, ACPMAN = Affective Commitment to Manager, * = statistically significant at $p > .05$ level.

To test H4 and H5 and explore whether affective commitment to team is a stronger predictor of turnover intentions than normative commitment and continuance commitment, a bivariate linear regression analysis was conducted.

The linear regression established that affective commitment to team could statistically significantly predict negative turnover intentions ($\beta = -.379, p < .05$) with a model fit $F(1, 110) = 18.434, p < .05$. The results for normative commitment was statistically insignificant ($\beta = -.155, p > .05$) with a model fit result of $F(1, 114) = 33.646, p = .097$, as well as continuance commitment ($\beta = .169, p > .05$) $F(1, 114) = 40.252, p = .69$. The linear regression test confirmed that affective commitment to team can significantly better predict turnover intentions than normative and continuance commitment.

Discussion

This study contributes to the literature by replicating and testing commitments theories in a new setting and culture. The research confirmed all five of the propositions regarding the outcome of the multiple types of commitment. The nature of affective commitment and its positive psychological bond that develops with all levels (team, manager, and organization) and its relationship to turnover intentions is significant and could suggest great solutions and benefits to leaders and organizations that is suffering from high turnover.

Furthermore, some recommendations can be made to managers to interfere before the actual decision to leave the organization is made which can benefit the organization financially and morally. Moreover, a strategy to increase employee's engagement and positive affective commitment can be integrated into employee's orientation and probation period, which can also add much value and decrease the turnover rates in Jordanian insurance companies.

Affective commitments to organization and manager had a stronger negative relationship with turnover intentions than affective commitment to team, which was one of the surprising findings in this study. The implication of this result can suggest a new focus on those levels and provide an incentive to future studies that may explore the reason behind such findings.

Nevertheless, the regression analysis confirmed that affective commitment to team is a significant and stronger predictor of turnover intentions than normative and continuance commitment. This finding suggests that an increase of the positive psychological bond in work teams can increase the retention of employees and can predict the possibility of commitment better than neutral or negative psychological and emotional connections.

Strengths and weakness

The study provides a contribution to the literature and managers on commitment and turnover phenomena in a new collectivist country and an important sector. This will help future studies to understand fully differences between organizational, team, and manager commitment

across cultures. Furthermore, the research design can limit the problems of maturity and attribution, and can assist in getting much quicker results.

However, there is still some limitation to the study, as more data are needed from other collectivist cultures, as well as other industries before generalizations can be made. Also, levels of commitment may vary across cultures.

Another important question is how other variables may influence commitment, as other studies attempted to look at this problem and the possibility of other variables affecting the dependent variable exists. Other factors such as the difference of commitment in individualist setting or the influence of economic and other external factors can be considered and operationalized in future researches.

Nevertheless, the study contributes to the business community and organizations in Jordan as the issue of turnover is decreasing the effectiveness, development, and regional and global competitiveness. A scheme to develop affective commitment can be developed and tailored to fit managers and employees through a reliable source and more empirical studies.

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Appendix

Affective Commitment Scale items

I really feel as if this organization's problems are my own

I think that I could easily become as attached to another organization as I am to this one (R)

I do not feel like 'part of the family' at my organization (R)

I do not feel 'emotionally attached' to this organization (R)

This organization has a great deal of personal meaning for me

I do not feel a strong sense of belonging to my organization (R)

I really feel as if my team's problems are my own.

I think that I could easily become as attached to another team as I am to this one (R)

I do not feel like 'part of the family' at my team (R)

I do not feel 'emotionally attached' to this team (R)

This team has a great deal of personal meaning for me

I do not feel a strong sense of belonging to my team (R)

I really feel as if my manager's problems are my own

I think that I could easily become as attached to another manager as I am to this one (R)

I do not feel 'emotionally attached' to my manager (R)

My manager has a great deal of personal meaning for me

I do not feel a strong sense of belonging to my manager (R)

Normative commitment

I do not feel any obligation to remain with my current employer. (R)

Even if it were to my advantage, I do not feel it would be right to leave my organization now.

I would feel guilty if I left my organization now.

This organization deserves my loyalty.

I would not leave my organization right now because I have a sense of obligation to the people in it.

I owe a great deal to this organization.

Continuance Commitment

It would be very hard for me to leave my organization right now, even if I wanted to

Too much in my life would be disrupted if I decided I want to leave my organization now
Right now staying with my organization is a matter of necessity as much as desire
I feel I have too few options to consider leaving this organization
One of the few serious consequences of leaving this organization would be the scarcity
available alternative.

One of the major reasons I continue to work for this organization is that leaving would require
considerable personal sacrifice – another organization may not match the overall benefit that I
have here.

Turnover Intentions Measure

I intend to leave the organization.

I intent to make a genuine effort to find another job over the next few months.

I often think about quitting.

Bio

Emil Abujaber joined the consulting and training industry with different venues in Amman
- Jordan such as Ernst & Young (EY), the Business Development Center (BDC), and
Management Executive Training Institute of Canada (MeTraining) immediately after moving
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Conducted, designed, and delivered professional training and consulting projects in
Amman-Jordan, Al-Jubayl-Saudi Arabia, Baghdad-Iraq, Istanbul-Turkey, Kuwait City, Kuwait
and Dubai-UAE with global companies such as SABIC, Ahli Bank, Royal Jordanian among
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Topics included leadership skills, advance presentation skills, problem solving, decision-
making, strategic planning, professional customer service and selling skills, and emotional
intelligence among others.

Emil Abujaber holds a Masters in Management and a Master in Government form Regent
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Justifying the Investment of Information Technology Projects: A Case Study from Jordan

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Abstract:

Investing in information technology is a requirement for enterprises to sustain their competitive advantage in a market that is described as changing and global. IT is a very important resource for enterprises to improve their organizational performance, but requires some justification for its costs and burdens. This study utilized a model proposed by Gunasekaran, Love, Rahimi and Miele (2001) and applied it on a case in Jordan by analyzing and exploring the implications of investing in IT projects. The case used is the Japan Tobacco International, where a survey was used to collect response from JTI personnel and the documents available on their portal. The detailed results of this study are reported with conclusions at the end.

Keywords: Information technology; Investment justification; tangible and intangible benefits, operational, tactical, strategic, impacts, Jordan.

Introduction

The investment in information technology results in a wide transformation toward automating the business processes in different fields in organizations. Organizations in the 21st century adopt diverse applications and technologies to transform manual processes to automated processes to reduce their costs and increase their revenues (Macnish, 2012).

Information technology is the course of action that collects, stores, processes, and transmits data. The “term information technology” (IT) appeared in 1958 by Leavitt and Whisler, they proclaimed that “the new technology does not yet have a single established name. We shall call it information technology (IT)” (Mehrotra, 2012. p: 418). Different shapes of information technology like hardware, software, and networks, provide solutions for business problems. Organizations are utilizing new types of infrastructure like cloud computing and distributed systems, and advanced applications like computer aided design (CAD), computer aided manufacturing (CAM) and enterprise resource planning (ERP) (Onn & Sorooshian, 2013).

The evolving nature of new technology as well as the fast and constant development in information and communication technology (ICT) stimulates further developments and diffusion (Rojko, Lesjak & Vehovar, 2011). IT has had a significant influence on the way organizations function. Such developments have a crucial influence on organizations’ strategies, tactics, and operational decisions (Gunasekaran, Ngai & Gaughey, 2006).

This paper will explore the influence of IT investments on organizational performance utilizing a case study method. The case explored in this study is Japan Tobacco International (JTI). The structure of this paper is the following: The following section will review the literature in an aim to understand the implications of IT investments and the factors that may lead to the success or failure of such projects. The following section will cover the dimensions concluded from the literature that would relate to case under consideration. Finally, the paper will end up with conclusion and future work.

Literature Review

The employed criteria for IT investment justification can be grouped into the following categories: Strategic impact, tactical considerations, operational performance, tangible and intangible financial and non-financial indicators. Different approaches are adopted for the purpose of evaluating IT projects and their influence on organizational performance. The reported approaches in the literature are the following: economic, strategic, operational, and analytic approaches (Gunasekaran, Ngai & Gaughey, 2006).

Justification of IT investment

Quantifying the benefits of IT investment is difficult because of the high uncertainty of the factors considered in the process. The following factors contribute to the level uncertainty: global competition among companies in improving their performance and gaining competitive advantages, increasing economic pressures, radical changes in business environment, and business process reengineering (Gunasekaran, Love, Rahimi & Miele, 2001). The information technology nature does clearly create challenges for the scientific measurement of IT investments returns. Challenges are less present in traditional long term investments that result in competitive advantage (Drnevich & Croson, 2013). Furthermore, IT investments are costly and make the organizations more skeptical regarding the profits and returns. IT specialists (directors and managers in charge of such investments), should analyze and explore the main factors that lead to expected returns on investment and not only the ones related to the financial results. They should also take into account the strategic advantage of the organization and creative technologies connected to IT investment with business process reengineering and organizational redesign. On the other hand, decision makers should set the main reasons that prompted the organization to invest in IT (Stewart, Coulson & Wilson, 2007).

There is an agreement that IT actually contributes to business value, but how it contributes to business value is uncertain. Also, understanding the nature of IT investment benefits is significant in evaluating how IT contributes to the value of the business (Prasad, 2008). The lack of awareness of ICT nature coupled with the cash flow importance contributes to making the processes of evaluating its benefits burdensome and requires considerable resources (Love & Irani, 2004).

Drnevich & Croson (2013) proclaimed that IT investments can comprise a tangible resource like IT assets or intangible capabilities needed. They added that such IT investments can influence organization's strategy by influencing both its effectiveness and efficiency. In addition to that, IT investment provides critical information that would either increase the investments value on other capabilities or resources, or force management toward more effective and efficient decision making.

It seems clear in the examples reported by Gunasekaran, Ngai and Gaughey (2006) that if the evaluation is related to IT/IS services, it might need to specify more weight to "intangibles". On the other hand, we might need to specify higher weight to "tangibles" if it is in manufacturing. Such understanding means that different situations require different weights to be assigned to tangible, intangible, financial and non-financial criteria. As an example and when evaluating IT/IS marketing projects, more weight might be assigned to financial performance and intangibles such as customer satisfaction. On the other hand, the IT/IS manufacturing projects might require more weight given to non-financial performance measures such as capacity utilization, and intangibles such as flexibility. An appreciation and understanding of the intangible benefit in IT is important for IT investment continuity (Prasad, 2008). Flexible IT infrastructure existence will enable the development and identification of key programs and applications in the organization. Such step will then improve production processes (Perez-Arostegui, Benitez-Amado & Tamayo-Torres, 2012).

IT project importance (success and failure)

Many variables have been investigated as influencers on IT success such as outsourcing, strategic planning, and IT strategic alignment. Outsourcing focuses on some of the most

important issues such as IT as a competitive advantage, IT as a core competency, and company size (Peslak, 2008). Certain application also fits with specific strategic and tactical situations (Abu-Shanab, 2004).

The evaluation of every investment (before and after being made) is very significant in determining the successful decision that the organization took (Ahmad & Arshad, 2014). The major barrier to justifying IT investments is having no strategic vision (Love & Irani, 2004) where critical issues were faced with respect to the gained strategic benefit. Also, projects budget overrun is reported as one of the many problems caused by management lack of understanding of IT costs. Such estimation uncertainty is becoming more and more important.

Sweis (2015) classified the factors that may lead to IS project failure into two types: managerial and technical. Poor communication, poor leadership, poor methodology and meager competencies, are the main managerial factors. Managerial factors related to the management of information system (MIS) are the most crucial factors that lead to its failure. Factors reported in the literature are the following: the organization complexity and management support. The author concludes that the high degree of customization involvement in the application, the underestimation of project schedule, and the changes in design specifications, are the three main factors that contribute to the failure of IS projects in Jordanian companies. A similar study of 105 IT firms in Jordan concluded that the most important factors influencing the success of IT projects are: poor planning, unclear goals and objectives, and changing project objectives during the execution (Abu-Shanab & Al-Saggar, 2013)

IT project success is assessed by using simple measures such as delivering a working system on budget, on time and to the specifications required. Such criteria are perceived as rational, objective and fact-based. However such assessment, in predicting and determining the budget needed and the time required for the system development defined by its specifications, ignores the unavoidable uncertainty (Cecez-Kecmanovic, Kautz & Abrahall, 2014).

Horan & Fowler (2007) examined successful system development and compared the associated factors with system success to the most associated factors with system failure. The authors concluded that the most influential factors in system success are the following: top management commitment, effective project management, project personnel knowledge/skills and user acceptance. Such factors are directly related to the factors associated with IS failure (lack of top-management commitment to the project, lack of effective project management, lack of required knowledge/skills of project personnel, and users resistance).

Research reported many factors that are related to the success and failure of IT/IS projects. A study related to e-government projects concluded that three major categories are proposed for e-government systems success and they are: infrastructure, human, and governmental factors (Abu-Shanab & Bataineh, 2014). Other researchers asserted that success or failure depends on the system type, data, size, users, certainty...etc. It is difficult to define failure or success in general terms because it is dependent on the criteria used and the stakeholders view (Nguyen, Saranto, Tapanainen & Ishmatova, 2014). It is one person's failure that may be another one's success (Heeks, 2006).

Research Method

This study followed a case study approach, where a case was selected to apply a framework that guides the analysis done. The framework adopted a five dimensions typology and they are: strategic impact, tactical impact, operational impact, intangible benefits, and cost related issues (Gunasekaran, Love, Rahimi & Miele, 2001). The framework is a good tool for investment justification of IT projects.

The selected case was utilized to investigate the implications of adopting IT and its importance to the firms by using the framework. The following sections will analyze the case in details. The case is the Japan Tobacco International (JTI). This case study utilized reports published on the JTI's website and the content of the website itself, and partially for the Jordanian market. The questions addressed in this study are adopted from the framework proposed by Gunasekaran et al. (2001). Qualitative analyses on responses were applied to better understand the environment of investment in IT projects and conclude to the research objectives

and goals. The main objective of this work is to better understand the investment justification in IT projects followed by a Jordanian firm. The following sections will depict the qualitative data collected and conclusions of this research.

Japan Tobacco International

Japan Tobacco International (JTI) founded as a partnership between Japan Tobacco and RJ Reynolds, where they form a group of private companies operating in 120 countries in the world and Jordan is one of them (JTI, 2012a). The goal of JTI is to be the most successful and respected tobacco company in the world. JTI has a corporate strategy to increase profit through establishing outstanding brands, enhancing productivity and focusing on continuous improvement.

JTI realizes the downside of smoking; it does not offer its products to encourage people to smoke. JTI is interested in developing low-risk products, and it has identified its position toward smoking through six principles: openness about the risks of smoking, transparency about products, commitment to the development of reduced-risk products, prevention of youth smoking, accommodation between smokers and non-smokers, and respect for local norms and cultures (JTI, 2012d).

Strategic impact

The best way to ensure the effectiveness of IT investment can be achieved by looking at the technology as an essential element in achieving the company's strategy. Strategy should be clear in direction, boundaries, parameters, nature of environments, and connected with the objectives of the organization (Gunasekaran et al., 2001). IT/IS strategic significance in organizational performance acts a key role in determining if a particular IT/IS is needed in the organization and how it should be implemented. The strategic choices have long term impact on IT/IS planning and implementation as well as IT/IS contribution to organizational performance (Gunasekaran et al., 2006).

JTI considers technology as an important resource for achieving its strategy that is seeking to build outstanding brands, continue to enhance productivity, develop human resources as a cornerstone of growth, and sharpen the focus on responsibility and credibility of its products (JTI, 2012a). On the other hand, the strategy of JTI is to gain a leading position in the global e-cigarette market. In 2014, JTI was successful in acquiring e-cigarette under its E-lites umbrella which was defined as "*consumer products that provide an inhalable vapor by direct electrical heating of a liquid contained within the device or a replaceable cartridge*" (JTI, 2012b).

One of the most strategic challenges facing JTI is the illegal trade of tobacco, which is considered a global issue. Such issue influences the company's ability to control the activities such as production, import, export, purchase, and sales of its products and services. Other issues (related to legislations and the illegal trade) are the following: the high rate in taxes, difficulties facing law enforcement, difficulty to control borders, the growth of complexity in organized crime, absence of government support to eradicate this growing issue, and the adequacy of law enforcement officers' knowledge. This issue has a negative impact on both businesses and the society, where governments are challenged in overcoming the illegal trade of tobacco products. JTI succeeded in utilizing information technology as an effective solution to eliminate the illegal trade through developing a set of extensive Anti-Illicit Trade (AIT) programs in house which represented the basis of its internal control to fight this issue (JTI, 2012c).

The main reasons that prompted the enterprise to invest in information technology are: sustaining its survival, growing in a global competitive environment, increasing its market share, and sustaining its competitive advantage. Strategic information system planning is one of the major reasons for gaining a competitive advantage (Earl, 1990; Silvius & Stoop, 2013). According to a study by Hammouri, Shraideh, and Abu-Shanab (2015) for evaluating the success of strategic information system planning in Jordan, the authors concluded that the JTI's success in the implementation of strategic information system planning in its strategic activities relies on a set of factors like: the clarity of strategy, the stakeholders influence and nature of

social behavior, and the competitive environment. Their study utilized two case studies and they are Japan Tobacco International (JTI) and Irbid Electricity Company (IDECO).

Tactical impact

This dimension focuses on identifying the critical success factors that will lead the company to attain its strategic objectives and goals. Tactical considerations are the following: tangible vs. intangible, performance indicators, generating data, evaluation methods, security, and involvement of senior managers (Gunasekaran et al., 2001).

One of the critical success factors of JTI is the diversity of its workforce culture. The company has more than 26,000 employees from 100 different nationalities. So to achieve its business objectives with high level of integrity, JTI developed a code of conduct for its employees and other stakeholders over the world. The code of conduct is presented as an integral statement regarding the organizational values, believes, roles, and responsibilities toward conducting business in compliance with corporate governance and laws (JTI, 2012d). By enforcing such code of conduct, JTI ensures that all of its employees have the right to work in a fair environment and they have equal opportunities. They also have the needed level of commitment to establish and maintain such environment and succeed in protecting its intellectual capital and personal information (JTI, 2014a).

Thomas McCoy (CEO of JTI) said that *“Our goal is to be the most successful and respected tobacco company in the world. The Code of Conduct is essential to achieving this.”* Bruno Duguay (the Chief Compliance Officer of JTI (CCO)) made the following statements: *“We have made the Code as user friendly as possible by providing practical guidance and information to help you maintain the high standards JTI expects from us.”*

A code of conduct mechanism is a confidential reporting concerns mechanism (RCM) that implements a robust process (like the “whistle blowing” act) to determine any behavior or violation of JTI’s compliance regulations and laws related to illicit trade internally and externally. RCM mechanism can be accessed via the company’s intranet to find out the details related to illicit trade. JTI focuses on increasing awareness for its employees regarding the illicit trade issue through providing a training program for them to help minimize threats of this issue. This indicates that JTI succeeded in utilizing information technology to decrease the rate of turnover for employees (JTI, 2012e).

JTI is keen on improving and developing new products to meet customers’ expectations as well as to achieve their strategic objectives. In December 2011, JTI signed agreement with Ploom Company to develop pocket-sized smoking devices which they called “Pax”. These devices are portable vaporizers including silicon mouthpieces that can be connected with superior lip-sensing technology. Pax devices are composed of intelligent and cooling system that automatically adjust the temperature of users to optimize heat and vapor production without heating the material or producing smoke (JTI, 2012j; Pax, 2015).

By integrating IT with intellectual property; JTI teams utilized email tools to receive new ideas or suggestions related to new product development from persons not belonging to JTI group. Such technique is protecting the company as well as its intellectual property for talented people (JTI, 2012h).

Operational impact

When exploring the operational considerations, the enterprise should identify the operational critical success factors to perform the daily operations. Such dimensions mean that the firm needs to measure the role of IT infrastructure in achieving business goals for each department. The process includes measuring the system and data integration, users’ perceptions, servers, existing operations system, data migration, existing IT systems, and software (Gunasekaran et al., 2001).

JTI tries to fight illicit trade and deter criminals from converting genuine products from the judicial supply chain. JTI has 22 factories, 5 tobacco processing facilities, 8 global flagship brands and hundreds of different products sold in millions of selling points by tens of thousands of distributors and suppliers over the world (JTI, 2012f). This makes illegal trade a big threat

and global issue to the company. In 2013, Euromonitor reported that the size of illicit tobacco trade is approximately 392 billion cigarettes per year (JTI, 2012c). Based on that, the company has worked hard to invest in IT to protect its supply chain from illicit trade. JTI implemented the “track and trace” system, which aims at delivering its products to the intended markets. The process includes putting unique signs on the products at the master case and carton level, which enables the company to monitor the route of its products within the legitimate supply chain.

In addition to that, JTI implemented a set of integrated programs as solutions to fight illicit trade. One of these programs is “know your customer” (KYC) program which focuses on those global customers. The system is integrated with the track and trace system to form a solid base to trace the products and where they were sold. In addition to more control on operation and the fight against illicit trade, these programs are fostering customer relationship management. Other programs adopted by JTI is the “market and volume monitoring program”, which investigates the market position and determine the quantity of its products that will be sold in intended markets.

JTI also has focused on programs related to its suppliers to minimize illicit trade which is known as “know your supplier program” (KYS), which helps in conducting business with all suppliers in the manufacturing, transportation, and storage activities. JTI also has implemented the “product authentication system” which provides authentication for its products; it is defined as a digital tax verification system that allows customers to check if the package is realistic or not by an SMS or telephone call. JTI employed tagging on its products (especially chemical products) by using a reader to vitrify them. JTI also implemented some security programs to monitor its products from theft during transportation and track the finished products at factories and warehouses (JTI, 2012e).

Intangible benefits

JTI sees technology as an important tool to achieve its strategy and to conduct business effectively and efficiently (Hammori et al., 2015). IT played a vital role in making the company a leading international tobacco product manufacturer. JTI utilized diverse IT tools and technical solutions to enable employees to establish its business goals in a legitimate framework through four core centers that will lead the company to gain its competitive advantage.

The first is the Center of Excellence (CoE), which is responsible for understanding its business goals and incorporate them into other processes and systems. The second is the Global Development Center (GDC), which is responsible for defining the strategic direction, developing and training personnel on different global business applications, and ensuring the secure access to information in compliance with laws and regulations. The third is the Global Technical Center (GTC) that assists in providing the IT infrastructure solutions to all employees, factories and markets, such as the networks, communication and collaboration tools, and workplace computing techniques. Finally, the Information Security and Risk Management (ISRM) which provides the protection for the information resources of JTI based on three words: confidentiality, integrity, and availability.

In 2002, JTI implemented its enterprise resource planning system (ERP) as one of the most significant IT projects in its history. It provides a significant contribution for the company by acquiring and integrating different business activities from all over the world into its wide system. Examples for such application are: Gallaher, acquired in 2007 to establish JTI position in UK; and Leaf Tobacco Supplier Group acquired in 2009 to create a New Leaf Tobacco Sourcing Company with US Leaf Tobacco Supplier. On the other hand, it enhanced the human resources operations such as recruitment, selection, training and development, motivation, maintenance, and assigning and retaining a team that shares aspiring goals of the company (JTI, 2012g). Research in Jordan indicated that ERP systems are vital applications that are associated with operational improvements, and information quality (Abu-Shanab & Saleh, 2014).

JTI utilized its website to improve the quality of its products and services to the public by providing specific tools that enable customers and suppliers to submit and share their suggestions and ideas. Such venue improved JTI’s position in relation to product feedback, media relations, business ethics, career and investor contacts, and corporate social

responsibility. Some of these tools have positive impact on JTI's stakeholders in understanding their users and legal requirements (JTI, 2012h). On the other hand, JTI utilized social media tools such as Facebook and LinkedIn for getting people within a company to communicate, collaborate, and share their ideas and experiences that can lead to problem solving and create new ways of doing business.

JTI also developed an internal communication tool (called Engage) that enables employees to create a specific profile, where they can share their opinions, documents, and ideas on specific projects based on their role and expertise. Blanca Garcia, the project manager of Engage platform, declares that: *"If traditional communication was a flat sheet of paper, a collaboration platform would be more like origami. There is overlap, different levels, it is multi-dimensional. With more traditional communication, such as email, two people can share ideas. With a platform like Engage, there are no limits on how many people participate in that conversation"* (JTI, 2012i).

JTI developed enterprise portals to make sure its business processes are completed according to standards. Such portals consisted of content management, business intelligent, data warehouse, and data management. Such tools assist the company in meeting its business needs with more security. For example, JTI developed a certification program for its suppliers who are willing to work with JTI. Suppliers are requested to provide the required information about their products and services through a dedicated portal during the bidding process. If the products and services offered by suppliers meet the certification program specifications and standards, the company may conduct the transaction. The online portals help the company in providing high quality products with lower cost, improve the relationship with suppliers, and minimize illicit trade (JTI, 2012c).

Cost related

Measuring the benefits of IT is one of the challenges facing most companies. Barth et al. (2001) examined the factors that enable companies to predict the benefits of intangible assets and found that research and development are the most important factor followed by advertising expenses. On the other hand, they found that company size, growth, trading volume, equity issuance, and perceived mispricing have a positive impact on predicting intangible benefits.

Return on investment (ROI) is not an adequate tool for measuring intangible benefits of IT (Gunasekaran et al., 2001). In JTI, intangible assets area unit calculated by employing a cost model and are declared at cost less accumulated amortization and accumulated impairment losses. Intangible assets area unit treated severally, and measured at value at the initial recognition and also the prices of intangible assets acquired through business mixtures with price at the acquisition date.

Intangible assets with finite productive life cycle area unit amortized employing a straight-line method over their calculable helpful life and area unit tested for impairment whenever there is any indication of impairment. The calculable helpful life and amortization methodology of intangible assets with finite helpful life are reviewed at the tip of every twelvemonth, and any changes in estimate would be accounted for future estimation. The calculable helpful lifetime of major intangible assets with finite helpful life as follows: Trademarks for twenty years and Software for five years.

Since 2014, JTI has developed a formula that is understood known as the "Adjusted Operating Profit". The formula is considered a key performance indicator to improve business investment management and its revenue and facilitate the method of benchmarking performance with alternative trade players. Adjusted Operating Profit (AOP) includes the following calculations (JTI, 2014b):

AOP = Operating profit + amortization cost of acquired intangibles + adjustment items

The previous formula estimates the "Adjustment Items" (income and costs) in the following manner

AI = impairment losses on goodwill ± restructuring income and costs ± others

Conclusion and Future Work

It is vital for businesses to better understand the factors that influence IT projects success and failure. Still businesses are not always keen on success or failure as they try to benefit from their investment in IT ventures in the best manner. Such direction requires a solid ground for measuring the benefits of implementing IT projects and investing in ICT.

This work aimed at exploring the importance of investing in IT projects. This research adopted a case study method focusing on Japan Tobacco International (JTI). Also, this study utilized a framework guided by the work of Gunasekaran, Love, Rahimi & Miele model (2001). The decision of investing in IT must be aligned to the organizational strategy and senior management should be committed to supporting the project by providing the necessary resources. On the other hand, the tactical and operational areas are considered as the most effective key performance indicators (KPI) in measuring the intangible benefits and to evaluate the success of investment of IT projects as well as to ensure that the project is implemented in consistency with firm's strategy and objectives.

This study reflects our understanding of a survey responses and documents available from JTI's portals. Such work lacks the necessary generalizability of research and requires more cases to better understand the challenges faced by companies in justifying their investment in IT. Future work is required to support our understanding using other case studies. Also, it is useful to use other models or frameworks in exploring such dilemma, and better support the role of IT in sustaining organizational competitive advantage.

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Environment and sustainable development in Qat Economic

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Abstract:

No one can deny that consumption and production of Qat nowadays seems to be a way of life of most of Yemeni people, having financial, social, cultural and environmental far-flung effects. The high rising agricultural operation, production and marketing of Qat are parallel to rise in the number of people asking for and chewing it. In the last two or three decades, Qat consumption was widely spreading in Yemen. Currently, Qat consumption includes all groups of society (intellectuals, businessmen, employees and workers).

As the number of people asking for Qat increasing, cultivation areas of Qat spread significantly and occupying most agricultural areas. The unprecedented expansion in Qat area and production were mainly the result of the unorganized and haphazardly executed digging of irrigation wells, a matter that significantly contributed to the depletion of underground water resources in many areas in Yemen.

Moreover, the expansion in Qat production has its negative effect on the export sector. But Qat sector contributes to government revenue by a Qat consumption tax and as a religious Zakat duty, becoming the fastest-growing and most profitable occupation involving millions of farmers, traders and other service-providers, so Qat plays a prominent role in sustainable development Yemen's economy and has become the backbone of the region's economy, because, Qat production and distribution now support the livelihoods of millions of Yemenis. However, with growing national pressure to ban its distribution, we stresses the need for effective policies to better manage the production, consumption and trade of Qat, and to create an enabling policy to encourage saving of the cash from the production and marketing of Qat and encourage investment for alternative livelihood options.

Key words:- Economic, Environmental, Qat, sustainable development.

Introduction

Qat (*Catha edulis* Forsk.) is an evergreen shrub of the Celastraceae family. In eighteenth century, Peter Forsskalin described a plant from Yemen and named it *Catha edulis*. Since that most authors have used this name (Kennedy et al. 1983). Chewing of Qat leaves and ingesting the juices that contain the psychoactive substance, Cathinone produces sympathomimetic and central nervous system stimulation analogous to the effects of amphetamine (Schechter et al. 1984). These effects include elevated blood pressure, mydriasis, hyperthermia, anorexia, insomnia, and alertness (Baasher 1980; Mekasha 1984). The subjective pleasurable effects such as the ability to concentrate, euphoria, confidence, friendliness, contentment and flow of ideas have also been reported (Kalix 1988).

One would estimate that at least over 85% of the Yemeni people chew Qat leaves. Over 60% of these are in the habit of chewing once a week and the remaining find it necessary to chew Qat daily. Consequently the expansion of Qat cultivation has been quite significant, over the last two decades. The areas of cultivation are estimated to have at least tripled if not quadrupled to some 80,000-126,000 hectares (Oskar 1992).

In Yemen Qat cultivation is found mainly in the Yemen volcanic (basalt and tuffs). Good drainage is the only factor that all soils satisfactorily cultivated with Qat have in common. The soils which suitable for Qat cultivation are slightly alkaline. (Sharma et al. 1976) Qat benefits from available water resources, such as rainfall, floods, springs, and groundwater. Farmers sometimes bring in water even from far away by using trucks carrying water tanks. The high revenue generated by Qat farming also encourages farmers to drill deep wells despite high drilling costs. Moreover, in this paper the concomitant negative aspects of qat cultivation and use. and the influence of qat on the socioeconomic life of Yemenis, , qat and sustainable economic development in Yemen.

AIMS OF STUDY

In relation to the above mentioned problem of consumption of Qat in Yemen society, the study determines the following objectives:

- a-To identify the direct or indirect effects of growing and spreading of Qat on natural environment.
- b-To investigate the natural environmental factors which help in growing and spreading of Qat in Republic of Yemen
- c-To highlight some of positive contribution of sustainable development in Qat Economic to Yemen society such as agriculture development, government budget, and on rural life . The increase in rural savings and investment result in improving the level of living in rural areas. Add to that, the positive effect on irrigation development and irrigated areas. It also helps in decrease rural-urban immigration. It affects farmer's incomes, employment and gross domestic product .

The Effect of Qat on Water Resources

Yemen is amongst the driest countries in the world. Per capita water availability is little more than one fifth of the regional average. Only represent 2% of the world wide average. Yemen's per capita availability of 150 m³ is well below the 1000 m³ usually assumed to be necessary for food self sufficiency. (World Bank 1999).

According to the High Water Council (HWC 1992a) the total population was estimated to be around 23.4 million by the year 2010. Eighty per cent of them live in the central and southern highlands which receive most of the erratic and limited rainfall. Increasing water demand in recent years and the limited availability of surface water resources have increased the pressure on the available, mostly non-renewable groundwater resources. The number of wells dug for Qat irrigation increase by the increase of Qat production. Number of wells amounted to 4,765 well in Sana'a basin.

While other crops such as fruits and vegetables were irrigated from the same wells, it was possible to estimate amounts of water utilized in Qat production through the application of cowpats. Water utilized in Qat production was estimated at 659 million m³ in 1996. This amount kept increasing with the increase in Qat production until it reached 756 million m³ in the year 2000 (Atroush 2001) (Table-1).

Therefore, Bazza (2001) summarized four critical issues for Qat effect on water resources as follows:

- a. Lack of sustainability of the water resources, as the current use from most aquifers is much higher than natural recharge. This trend will ultimately lead to the depletion of groundwater with all of the consequences.
- b. Demand on water resources continues to grow with the population increase and the higher needs to meet food requirements.

Table 1 Estimation of ground water extracted for Qat production in the year 2000

Source of irrigation	Area (meter ²)	%of area to total	Area under Qat within each water	Water duty (m ³ /ha)	Extracted ground water for Qat production
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		area in sample	regime (hectare)		1000m ²	%
Owned wells	175.006	38%	39.512	9.941	392.785	72.0
Rented Wells	66.479	15%	15.009	8.889	133.421	24.5
Tankers	119.476	26%	26.975	672	18.137	3.3
Tanks	6.070	1%	1.370	720	987	0.2
Total	367.031	81%	82.867	-	545.330	100.0
Other sources	88.878	19%	20.067	-	-	-
Total area	455.909*	100%	102.934**	-	-	-

*Total area of the sampled farms.

** Total area under Qat in the year 2000

Source: Sherif. 2000

c. Pollution of water is reaching alarming levels, in particular in coastal aquifers as a result of seawater intrusion, but also domestic and industrial residues.

d. Of the total water use in the country 85% the rest is lost to evaporation and deep percolation as a result of conventional water management methods.

The use of Pesticides in Qat cultivation

Due to the economic importance of Qat as a cash crop, producers use pesticides on a large scale in order to protect the plant from various pests, to ensure healthy foliage, larger leaves and a more attractive leaf coloring. Many farmers believe that these effects are enhanced with greater quantity of pesticides and they therefore mix several different products. They often use substances pesticide in of these countries, such as DDT and Landane (Thabet 1993).

Becomes clear that the northern Governorates, considered as the most area for Qat grown. That is because; the farmers are the main users of imported pesticides. This also illustrates that the amount which is being spent on pesticides has been steadily increasing in recent years. In 1998 a total of 2305 tons of pesticides was imported to Yemen, as compared to 650.7 tons in 1989, The amount of imported insecticides and fungicides more than doubled. The amount of imported fertilizer has been raised considerably in the past years (Environment Protection Council 1995). In 1998 a total of 333.4 tons of fertilizers was imported to Yemen (Statistics Yearbook 1998).

These fertilizers can find their way into the ground water system and disturb the ecological balance. Nitrates pollute this valuable resource and affect the quality of drinking water and thus increase specific health hazards. Most of the adverse effects of fertilizers result from inadequate knowledge among farmers, for example, choice of fertilizer and combination of nutrients, rate, method and timing of application, irrigation and water management. Thabet (1999) stated that in Yemen, Qat farmers use many different kinds of pesticides as well as some fertilizers. There is with variations from farm to farm in rate of application for the same pesticides against the same pests. This reflects the lack of technical knowledge in pests control among Qat farmers. The majority of farmers used a single pesticide in each application, but in other cases mixtures of two or more pesticides were used.

pesticides which banned by WHO and the Environmental Protection Agency (EPA) have been used widely in Yemen , such as D.D.T, Dimethoate, Aldrin, Methidathion, Parathion, Pirimicarb, Landane (B.H.C) and Dicofol (Al-Hadrani & Thabet 1998).

The average daily intake of Qat consumers of Cadmium (Cd), lead (Pb), copper (Cu) and zinc (Zn) was estimated to be 2.0-10.2 µg/day, 23.6-118.0 µg/day, 530-2654 µg/day and 662-3311 µg/day respectively. Although high of these values were within Food and Agriculture Organization/World Health Organization tolerance limits (Matloob 2003). Continuous exposure to Cd and Pb results, may cause profound biochemical and neurological changes in the body (Piomelli 1994).

Hazards of Plastic in Qat Production

Qat marketing is normally carried out straight away after its harvesting. Fresh harvested branches are trimmed, sorted, and wrapped in bundles. Small bundles are grouped together in larger bundles that are, then, enveloped by big plastic cover. These covers help to keep the Qat fresh for some time. The plastic bags are halogenated aromatic compounds which can increase environmental pollution. It also can contaminate soil and water. They are very stable materials and exceptionally persistent in the environment, (Thabet 2002).

Bawazir and Amin (1999) reported that about 31,044,000 plastic bags are being marketed every day in Aden city alone. Qat is a major contributor to this. Dumping or burning PCB-containing materials, such as plastic bags, is both, environmentally and economically undesirable. Add to that, Masser et al. (1972) established the health effects of PCBs. Investigations have shown that PCBs interfere with reproduction in phytoplankters. Other observed effects in mammals and birds include microtubular enzyme induction, porphyrinogenic action, estrogenic activity and immunosuppression (Bitman 1972; Vos 1972).

People tend to smoke much more heavily during Qat sessions than at other times. Passive smoking, even for infants present at female chewing sessions, is a further contributing factor for these disorders. Al-Hadrani (1997) identified passive smoking during Qat sessions as one of the major contributing factors to cancer in Yemen.

The natural environmental factors and Qat production in republic of Yemen

The natural environmental factors which help growing of Qat in Republic of Yemen can be classified as the tolerance of Qat to drought and low soil fertility, the ability of Qat to grow on marginal lands, and to grow in a wide agro ecological zone ranging in elevation from 1000-2500m (Figure -1). It grows in areas with an annual average rainfall of at least 500-1000mm or under irrigation (Herzog 1998; McKee 1987; Ward et al. 1998; Weir 1985).

The range of annual average temperature is between 16-22°C. In addition, Qat is a hardy plant which requires little attention and can grow in a wide range of environments with a productive life span of up to 50 years. Although it can go dormant under water stress, it is generally drought resistant. The plant also responds to irrigation of any level rapidly, producing new leaves as soon as it receives water and thus giving the farmers more control over their marketing and harvesting strategies. For this reason, it can grow throughout the year and it cannot be replaced by other crops once established. Qat is popular amongst the farmers because it does not seem to suffer from mineral deficiency due to its extensive root system.

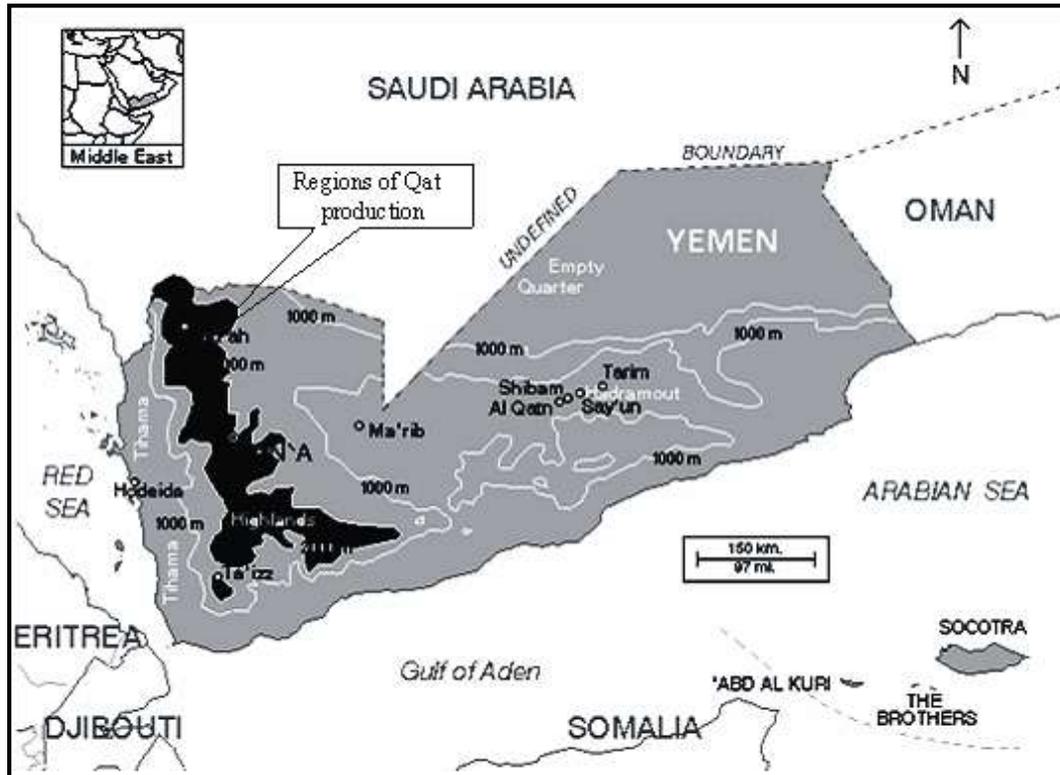


Figure 1 The regions of Qat production in Yemen Republic

Qat cultivation was found in four major geological zones (Steffen 1978). It thrives better and produces foliage in greatest abundance on acidic well-drained soil in well-watered mountainous districts.

The Qat in The Yemeni Economy

Table- 2 explains the sub-sectors contributing to the agricultural of gross domestic product; include crops, forestry, livestock, fish, and government services. Excluding the contribution of government services sub-sector, which increased at a very high annual rate (24.3%) the contribution of all the sub-sectors increased at an average annual rate ranging between 2.3% (livestock) and 9.9% (fish). Average annual rates of increase for other sub-sectors were 8.2% for plant production (excluding Qat), 5.6% for forestry, and 2.8% for Qat. Crops, excluding Qat, ranked first, contributing on the average YR 17.8 billion followed by Qat which contributed YR 12.2 billion. The contribution of other production sub-sectors ranged between almost YR 1 billion for fish and YR 3.7 billion for livestock.

Qat sector contributes to government revenue in two ways: by a Qat consumption tax (levied on Qat transport and marketing) and a religious Zakat duty (levied on Qat production). While Zakat is collected at the farm level by Zakat assessors, the consumption tax is collected at checkpoints located at the bottlenecks of the roads, as well as in the Qat markets of each city. The portion of government revenue derived from the Qat sector is however nearly negligible.

Table 2 Development of Agricultural of gross of domestic product and its constituents in constant 1990 prices YR million

Items	Crops with out Qat	Qat	Forestry	Livestock	Fish	Services	Total
1990	13.834	10.741	1.286	3.688	797	271	30.617
1991	12.066	11.142	1.407	2.648	807	276	28.346
1992	15.946	11.508	1.714	3.523	669	396	33.756
1993	16.876	11.796	1.685	3.709	742	448	35.256

1994	16.274	12.090	1.654	2.901	688	446	34.053
1995	17.560	12.389	1.625	3.586	722	528	36.410
1996	17.660	12.491	1.536	3.911	930	560	37.088
1997	19.613	12.811	1.687	4.315	1.267	649	40.342
1998	24.115	13.142	1.856	4.552	1.385	830	45.880
1999	17.071	13.471	1.937	4.436	1.509	861	46.285
Average	17.802	12.158	1.639	3.727	952	527	36.803
Increase %*	8.22	2.82	5.62	2.25	9.93	24.19	5.69

*Percentages of average annual increase to the value in 1990

Source: Central Statistical Organization 2000a

Taxes actually levied fall short of that Table 3 It is well known that due to tax evasion, especially in the case of Qat. The state loses annually millions of Rials. It seems likely that 70 - 90 percent of Qat consumption tax that should be levied is not being collected. In the year 1998 this would represent a loss of 4,239 to 16,351 million Rials.

Table 3 Qat in Tax Revenue in the Years 1990, 1994 and 1998

Tax and Zakat	1990	1994	1998
	1000 RY	1000 RY	1000 RY
Total Tax Revenue	13.733.075	25.358.569	79.949.512
Qat consumption Tax	298.417	664.864	1.816.732
Qat Zakat	193.091	181.359	325.965

Source: Taxation Department, Ministry of Finance. Sana'a. Yemen

The Effect of Qat on Gross Domestic Product

Qat contributes to gross domestic product. Table-4 estimated the average contribution to these sectors during the period 1990 - 1999 is YR 12.2 billion, YR 1 billion, and YR913 million, respectively in constant 1990 prices. These contributions represented 33.5%, 8.6%, and 5.7% of the contribution of agriculture, trade, and transport to gross domestic product, respectively. The total contribution of Qat to gross domestic product amounted to YR 14.1 million or 8.7% of gross domestic product, or 10.2% of gross domestic product without oil contribution. Thus, Qat contribution to gross domestic product ranked 5th after agriculture (23%), mining and quarrying (14%), transport, storage and communication (10%), and manufacturing (9%). In other words, Qat contribution to gross domestic product amounted to 38%, 62%, 88%, and 98% of the contribution of agriculture, mining and quarrying, transport, storage and communication, and manufacturing sectors, respectively. The direct contribution of Qat averaged about 54% of oil contribution to gross domestic product during the period 1990 - 1999. However, its total contribution was estimated as 63% of the oil contribution during the same period.

Table 4 Contribution of Qat to agriculture, other sectors and gross domestic product in constant YR million

Item	Unit	1990	1999	Average
Gross domestic product	YRm	126.489	206.108	162.045
Agriculture	YRm	30.617	46.285	36.803
Trade	YRm	10.232	15.595	12.205
Transport	YRm	18.713	15.944	16.039
Oil	YRm	15.949	32.719	22.482
Qat production	YRm	10.741	13.471	12.158
Qat share in trade	YRm	916	1.165	1.043
Qat share in transport	YRm	802	1.019	913
Total Qat contribution	YRm	12.459	15.655	14.114
% of Qat to agriculture	%	35.08	29.1	33.04

% of Qat to trade	%	8.95	7.47	8.55
% of Qat to transport	%	4.29	6.39	5.69
% of direct Qat contribution to oil	%	63.37	41.17	54.08
% of total Qat contribution to oil	%	73.51	47.85	68.16
% of Qat in gross domestic product	%	11.37	9.03	10.24

Source: Central Statistical Organization 2000

The Contribution of Qat to Employment

The total contribution of Qat to employment in agriculture, trade, and transport sectors is 507 thousand persons in 1999, which represented 14% of all persons employed by the economy aged 15 years or above. It ranked second only to agriculture, and was followed by the wholesale and retail trade sector, which employed 437 thousand people or 12.1%. The public administration, defense, and security sector, which employed 358 thousand persons or 10%. Each of the other sectors employed represented less than 10% of the total employment. Comparing the total employment in Qat production, trade and transport with employment in agriculture including and excluding those working in Qat production reveals that, it amounts to 26%, or 35%, respectively.

The Contribution of Qat to Employment in Rural Areas

Table-5 shows that, Qat is the best provider of job opportunities in agriculture. Qat production utilized the services of 99.3 thousand hired laborers in the year 1999. This number is more than 5 times the hired laborers employed for vegetable crops, 2.7 times the number hired for cash crops (excluding Qat), 2.2 times the number hired for cereals, and 1.2 times as the number hired for fruits .

Family members working in Qat production amounted to 374 thousand person, which are 33.5 times as much as those working in vegetables production, 7.3 times as much as those working in cereals production, 5.7 times as much as those working in cash crops excluding Qat, and 4.1 times as much as those working in fruits production. The total number of persons working in Qat is 473 thousands in 1999, which represent 25% of the total number of people working in agriculture. Fruits came next to Qat, employing 175 thousands (9.1%) followed by cash crops without Qat, which are 114 thousands (5.9%), with cereals 97 thousands employers (5%), and with vegetable crops about 15 thousands employers (1.6%).

Contribution of Qat to Employment in non-Agricultural Sectors

The percentages of Qat contribution to the value added in the trade and transport sectors in 1999 were 7.47% and 6.39% respectively, while the numbers of people working in these two sectors were 349,144 and 122,465 respectively. Hence, the number of people working in the Qat trade was estimated at 26,081 and 7,826 respectively. The working force in Qat related activities in the two sectors amounted to 33,907 persons in the same year. However, these figures should be treated as only rough estimates. (Central Statistical Organization 2000a).

Table 5 Estimation of hired and family labor working in the production of Qat and some groups of other crops for the year 2000

Crop	Farm labor at the country level						% of hired to total labor	% of total labor to total agricultural employment **
	Hired		Family		Total			
	Man/ year*	Ratio of Qat to	Man/ year*	Ratio of Qat to	Man/ year*	Ratio of Qat to		
Qat	99.299	-	373.948	-	437.247	-	20.98	24.55

Cereals	45.409	2.19	51.485	7.26	96.894	4.88	46.86	5.03
Vegetables	19.656	5.05	11.179	33.45	30.835	15.35	63.75	1.6
Fruits	83.992	1.18	90.747	4.12	174.740	2.71	48.07	9.06
Cash crops-Qat	37.378	2.66	76.941	4.86	114.319	4.14	32.7	5.93

* Numbers of man/year were calculated on the assumption that the person work 300 days per year.

* The latest estimation of the total number of people working in agriculture is 1,927,868 people in 1999.

Source: Sherif et al. 2000

Table-6 estimates the total contribution of Qat to employment in Yemen in the year 1999. It shows that the total contribution of Qat sub-sector to employment amounted to 507 thousand persons or 14% of the employed persons aged 15 years or above in the whole economy. Hence, it ranked second only to agriculture in this respect. It was followed by the wholesale and retail trade sector includes hotels and restaurants, which employed 437 thousand people (12.1%) and the public administration, defence, and security sector, which employed 358 thousand persons (10%). All other sectors employed less than 10% of the total employed persons. Comparing total employment in Qat production, trade and transport with employment in agriculture including and excluding Qat revealed that it amounted to 26%, or 35%, respectively.

Table 6 Total contribution of Qat to employment in 1999

Sectors contribution	Employed person	
	Person	Percentage
Total Qat contribution	507.154	14.00
Agriculture without Qat	1.451.983	40.09
Total agriculture	1.959.137	54.09
Mining and quarrying	17.699	0.49
Manufacture	135.503	3.74
Electricity, gas and water	11.713	0.32
Construction	238.264	6.58
Whole sale and retail trade	437.001	12.07
Transport, storage and communication	122.465	3.38
Financial institutions and real estate	29.968	0.83
Public administration, defense & security	357.907	9.88
Education	209.195	5.78
Health and social work	42.350	1.17
Others	60.477	1.67
Total	3.621.679*	100.00*

*The first two lines are not included in the total.

Source: Central Statistical Organization 2000a

The Contribution of Qat on Farmers Incomes

Table-7 shows that, Qat is by far, the most profitable crop for farmers. Gross Revenue per hectare of Qat averaged YR 2.5 million, while it averaged YR 101,000 for cereals, YR 547,000 for fruits, YR 540,000 for vegetables and YR 419,000 for cash crops excluding Qat. That is gross income per hectare of Qat was almost 25 times as much as the same for cereals, 6 times as much for cash crops excluding Qat, and 4.6 times as much for both vegetables and fruits. Figures for gross margin were more exciting. Gross margin per hectare of Qat averaged YR 1.9 million, while it averaged YR 423 thousands for fruits, YR 343 thousands for cash crops without Qat, YR 215 thousands for vegetables, and YR 36 thousands for cereals. The gross

margin per hectare of Qat was 53 as much as the same for cereals, 9 times as much for vegetables, 5.5 times as much for cash crops excluding Qat, and 4.5 times as much for fruits.

Table 7 Gross revenues and gross margins per hectare of Qat and other main crops

Crop	Gross Revenue per hectare		Gross margin per hectare		% gross margin to gross revenue
	YR	Qat/Other Crops	YR	Qat/Other crops	
Qat	2,498.372	-	1,894.324	-	75.82
Cereals	101.158	24.70	36.017	52.60	35.60
Vegetables	539.807	4.63	215.418	8.79	39.91
Fruits	547.409	4.56	422.805	4.48	77.24
Cash crops-Qat	418.884	5.96	342.552	5.53	81.78

Source: FAO 2001

Table-7 estimates the total farmers gross revenues and gross margins at the country level from producing Qat and groups of some other crops, Table-8 shows that total farmers gross revenues from Qat production amounted to YR 257 billion, while it ranged between YR 41 billion for cash crops without Qat, and YR 63 billion for cereals. This is total gross farmer's revenues from Qat ranged between 4.45 and 6.8 times as much as for cereals and cash crops without Qat, respectively.

Moreover, gross revenues from Qat was 1.4 times as much as the total gross revenues from cereals, vegetables, fruits, and cash crops without Qat in the year 2000, while the area allocated to Qat was only 12% of the total area allocated to the other crops. Table- 9 shows that while Qat occupied 11% of the total area allocated to all other crops in 2000, its value was 1.5 times as much as the value of all other crops. Figures for gross margin from Qat and groups of other crops are also more striking. Gross margins from Qat production amounted to YR 195 billion as compared to YR 38 billion for fruits, YR 33 billion for cash crops excluding Qat, YR 22 billion for cereals, and YR 13 billion for vegetables.

Table 8 Gross revenues and gross margins from production of Qat and other groups of crops at the country level

Crop	Crops' Ares in 2000 ha	Gross revenues at the country level		Gross margins at the country level	
		YR b	Qat/ other	YR b	Qat/other
Qat	102.934	257.167	-	194.990	-
Cereals	619.583	62.676	4.10	22.316	8.74
Vegetables	64.953	35062	7.33	13.992	13.94
Fruits	91.055	49.844	5.16	38.499	5.06
Cash crops-Qat	97.299	40.757	6.31	33.330	5.85

Source: Agricultural Statistics Yearbook 2001

In other words, gross margin from Qat production ranged between 14 and 6 times as much as for vegetables and fruits, respectively. The most striking fact is that, while the area allocated to Qat in the year 2000 was about 12% of the total area allocated to cereals, vegetables, fruits, and cash crops excluding Qat, the net gross margin from Qat amounted to 1.8 times as much as the same from all of these crops together.

Table 9 Area and value of Qat and other crops in 2000

Crops	Area in Ha	Value in YR m
Cereals	571.033	29.327
Vegetables	64.953	35.292
Fodder crops	116.165	12.581
Cash crops excluding Qat	97.299	8.668
Fruits	91.057	42.153
Qat	102.934	64.178

Total without Qat	940.507	128.021
Ratio of Qat to total W/O Qat	0.11	1.50

Source: Statistical Yearbook 2000

The Effect of Qat on Migration

Qat expansion in the villages consumed free labor as it need people to work in different stages of production such as cultivation of land, pruning, spraying chemicals, harvesting and marketing .The advantage of expansion of Qat is holding men to work on Qat which is consumed locally.Table-7 indicates that, Qat considerably increased farmer's incomes and Table-5 indicates that Qat has significant effect on job creation in rural areas. Hence it might be inferred that the increase in Qat production might have had some effects on reducing rural-urban immigration.

The Effect of Qat on Irrigation Development and Irrigated Areas

The high profitability of Qat production induced farmers to introduce mechanical pumping of groundwater to ensure complete irrigation conditions in order to get higher yields and have complete control on harvest time. This factor was behind the doubling of the irrigation between 1970 and 2000, of which 70% was specified for Qat production and that by the expansion of Qat land by Maintenance new land.

Sustainable development in Qat Economic

Unsustainability as interpreted by Jodha (1992) refers to intergenerational inequity, an adaptation of the original Brundtland Report that starkly stated: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987). The problems associated with qat, primarily the reduction in the quality of the land resource and the rapid over pumping of stored water, preclude sustainable development. As for economic development, one subset of sustainable development, unquestionably Qat has brought great benefits to the villagers engaged in growing it. But as Kennedy (1986) points out, the economic growth that has occurred "must be viewed as shallow and temporary." There is an illusion of economic prosperity in Yemen, which the profusion of Toyotas on the streets and electronic goods in the stores amply demonstrates.

However, the essential societal changes that are a prerequisite for economic development are not present, but Sustainable development is generally considered to be that which is: viable with Qat Social impact , has an equitable impact on economic society, and an acceptable impact on the environment Imperative to consider the three components for Qat effects both individually and collectively to achieve an acceptable balance Sustainability can be considered at a variety of scales to project Sustainability often illustrated as three interlocking circles: Figure 2

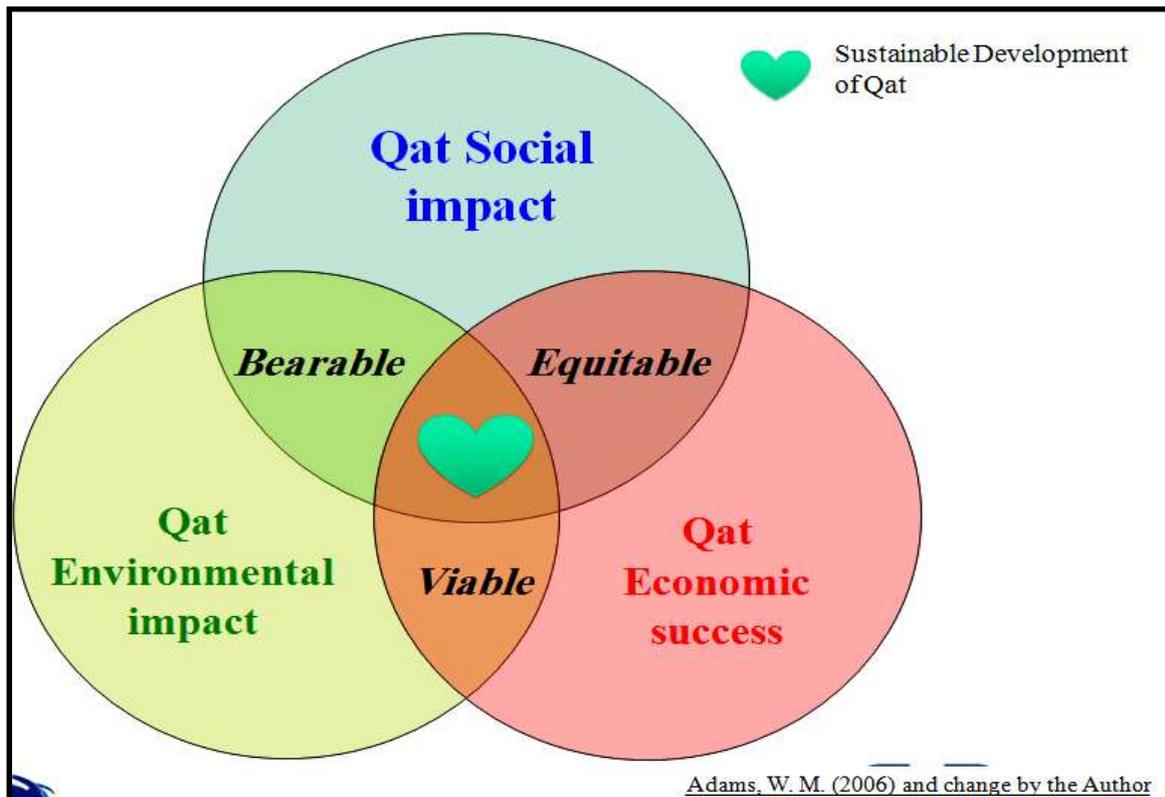


Figure 2 sustainable Development of Qat in Yemen

Conclusion

Despite Qat consumption gives negative impact on the country environment as well as social impacts, However Qat plays a prominent role in Yemen's economy and has a strong impact on related sectors. These include transportation, marketing, and commercial margins (wholesale and retail). Qat related economic activities therefore positively affect national revenue. Qat directly contributes to the growth of the Yemeni economy, well beyond the agricultural sector. Also the old and new Qat farmers significantly increased their incomes, to enabled them to improve their level of living. The predicted, population growth enhance qat production ,required in Yemen is an analog program , by timeframe is a reasonable estimate for an entire population to adjust its behavior and for Qat . Yemenis could be induced to reduce their Qat consumption through the use of authoritative, incentive-driven, and hortatory policy tools, both at formal and informal levels, In conjunction with a sustained education .

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Assessment of Profitability Competitiveness in Jordanian Banks- A Comparative Study between Islamic and Conventional Banks

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Abstract:

The study investigated the performance efficiency of conventional banks and Islamic banks in the Jordan for the period 2011 and 2014. A comparative study of the Islamic and conventional banks is undertaken based on selected financial ratios as performance indicators. The collated secondary data derived from the banks' financial statements are transformed to percentages and ratios so that comparison can be made between the different banks and periods. Comparing conventional and Islamic banks results showed significant differences in business orientation and performance in the areas of ROA and Profit margin. The conventional banks are more profitable in addition to being better able to effectively generate income by its assets. However, Islamic banks appeared to be more controlling over its' income in relation to the shareholders' equity than the conventional in 2014. While in relation to the profit margin the Islamic banks rate was higher than the conventional banks, due to higher expenses pursued by the conventional banks.

Keywords: Profitability, Return on Assets (ROA), Return on Equity (ROE), Profit Margin (PM).

1.0 Introduction

Global and boarder less markets, forced banks to adopt innovative strategies to ensure continuous business improvement. In order to do so banks should satisfy the needs of customers and meet their high changing expectations. Due to the importance of their financial system and influence on national economies, banks are highly regulated in most countries. Most nations have institutionalized a system known as reserve banking called central banks, under which commercial banks hold liquid assets equal to only a portion of their current liabilities and deposits them in central banks. Few visionary individuals, scholars, bankers, Islamic economists, and Shari'ah scholars started Islamic banking system as a universal banking in 1970.

Although Riba-free business transactions were in practice before this, a well-defined working model for Islamic banking did not exist (Tahir, 2007). Interest-free banking attracted a lot of attention, this awareness took place because of the emergence of young Muslim economists (Naqvi, 2011), where Islamic finance proved to be the fastest-growing segment of the global financial system (Lawal, 2010).

1.1 Research Objectives

The study was designed to evaluate and comparatively analyze the financial performance of Jordanian Islamic and conventional banks subject to profitability, for the periods 2011 and 2014. The study addressed to contribute in abridging the knowledge gap identified in literature, regarding Islamic and conventional banks financial performance, especially profitability, in

relation to time, so the comparison came to see Islamic and conventional banks performance after four years of performance in the Jordanian-banking sector.

1.2 Significant of the Study

The competitive performance evaluation of Islamic and conventional banks for the two periods illustrates the knowledge gap prevailing in literature regarding financial performance evaluation of Jordanian banks. The research hopes to identify further research issues and questions pertaining to measurement and mitigation of Islamic bank performance, as it helps investors identify chances and investment opportunities and in the selecting process among the banks (Castelli et al., 2006). This study came to evaluate the performance of all the Islamic and conventional banks in Jordan, and then due a performance comparison between the two groups.

2.0 Literature Review

The efficiency of the banking system has been one of the most important issues in financial environment. Since their products and services are of an intangible nature, it is hard to measure their efficiency and competitiveness. Many researchers have attempted to measure the productivity and efficiency of the banking industry using outputs, costs, efficiency, and performance. Bank's performance provides a signal to depositors and investors whether to invest or to withdraw funds from the bank and whether to buy or sell the bank's securities.

In addition, regulators also need to know the bank's performance for regulation purposes. Moreover, a failure of a single bank creates an economic confusion, and is regarded as an economy disaster. Bank performance can be studied by either financial or non-financial perspectives, and for any business to continue it must perform in a successful matter, especially profitability (Ranti, 2011).

In Jordan ROA ratio ten years ago was approximately 26.9% for the conventional banks and 14.7% for the Islamic banks (Al-Momany and Srouji, 2007). However, considering the last 4 years trend in ROA, both types of banks are experiencing difficulties in profitability, as in Matar (2014).

Whereas the average ROE of conventional banks a decade before was 26.96%, compared with a 14.7% for the Islamic banks (Al-Momany and Srouji, 2007). However, Olson and Zoubi (2008); and Siraj and Pillai (2012) comparison of the GCC, revealed that conventional banks were found to be less profitable in relation to ROE, due to higher provisions toward credit losses and impairment losses, and Islamic banks were more equity financed with a significant relationship.

While Almazari (2014) added that the increase of assets, operating expense, and cost to income caused a decrease in Islamic banks profitability in Saudi Arabia, while an increase in operating income caused an increase in profitability, in relation to both ROA and Profit Margin. This was also found in Matar (2014) study, based on a comparison research in Jordan.

3.0 Methodology

Based on the previous literature and on common used ratios applied, helped in evaluating and measuring the financial performance by analyzing the profitability of the banks in Jordan. In this study, the descriptive statistics will be presented through frequencies and percentages by summarizing the grouped data using a combination of tabulated description and graphical description. Coefficient of variance was also calculated by using the standard deviation, as if the coefficient of variance decreased it would be an indication of high dispersion of data points around the mean, which leads to consistency, and more homogeneity within the group, which leads to less risk and better performance in banks (Turen, 1995) and Asif Kan et al. (2015). The equation is calculated as following:

$$C.V. = \frac{s}{\mu} * 100$$

Since the main aim of this research was to find the difference between both conventional and Islamic banks, t-test was used in order to determine any significant difference between the two groups mean (Malik and Mullen, 1975), by using the following formula:

$$t = \frac{\mu_1 - \mu_2}{\sqrt{\frac{s_1^2 + s_2^2}{n-1}}}$$

3.1 Explanation of the Ratio Model

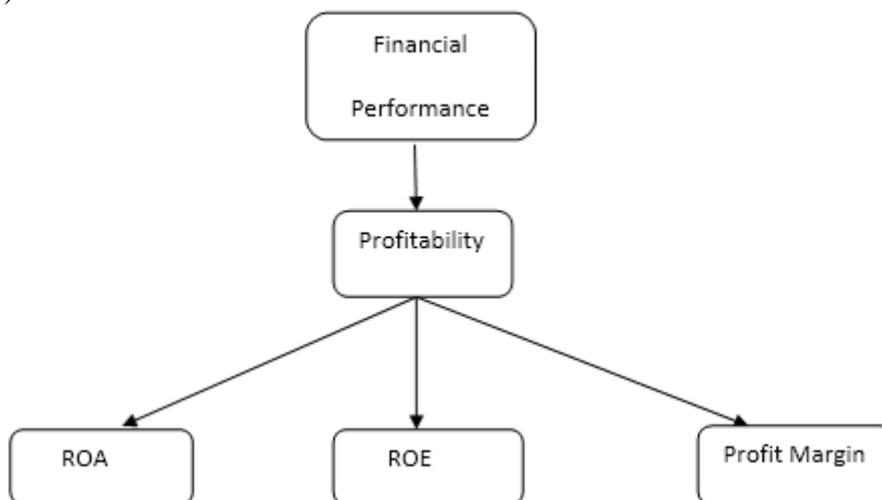
By examining the financial statements through ratio analysis, which is considered as an analytical tool applied by investors and lenders to safeguard their decisions, and also helps in reflecting the financial performance of an organization (Ho and Wu, 2006).

Financial position, which could be known and clarified by the help of financial ratios, is a health measurement. In this research, profitability will be used as an evaluating measurement of financial performance. In this research and based on literature review, financial performance groups were used to compare the Islamic banks in Jordan with the conventional banks, as indicated in the research model in figure (1).

3.2 Profitability Ratios

Since profitability is an important issue, as it helps banks understand the current conditions of the institutes critical factors, which they should consider in making decisions and creating new policies for either recovery or improvement. The ability to earn profit may be measured in terms of return on assets, return on equity, and profit margin Hasan et al. (2012) as in this study.

Figure (1)



3.3 Hypothesis

In order to evaluate and analyze the financial performance of the Jordanian Islamic and conventional banks, and to draw a comprehensive comparison, the following main hypothesis was tested:

There is a significant difference of the financial performance of Jordanian Islamic and conventional banks in terms of profitability.

The hypothesis was sub-divided into the following hypotheses:

There is a significant difference of the financial performance of Jordanian Islamic and conventional banks in terms of ROA.

There is a significant difference of the financial performance of Jordanian Islamic and conventional banks in terms of ROE.

There is a significant difference of the financial performance of Jordanian Islamic and conventional banks in terms of PM.

3.4 Data Sampling and Statistics

The data had been retrieved from the annual financial reports of all the Jordanian Islamic banks, for the periods 2011 and 2014. As the year, 2011 was the first full working year of two new Islamic banks in the market.

4.0 Data Analysis and Discussion

4.1 Profitability

Based on previous literature profitability of the selected Islamic banks in this study was measured in terms of ROA, ROE, PM, and discussed respectively.

4.1.1 Return on Assets

Table (1) and figure (1), reflects the descriptive results and profitability indicator for the period 2011 and 2014. The conventional banks mean for both the period 2011 and 2014, was higher than the Islamic banks. The coefficient of variance for the year conventional banks was lower than the Islamic banks, which means that they were less risky in terms of ROA. With a significant difference between the two mean, this means that there is a difference in terms of ROA between the two groups of banks.

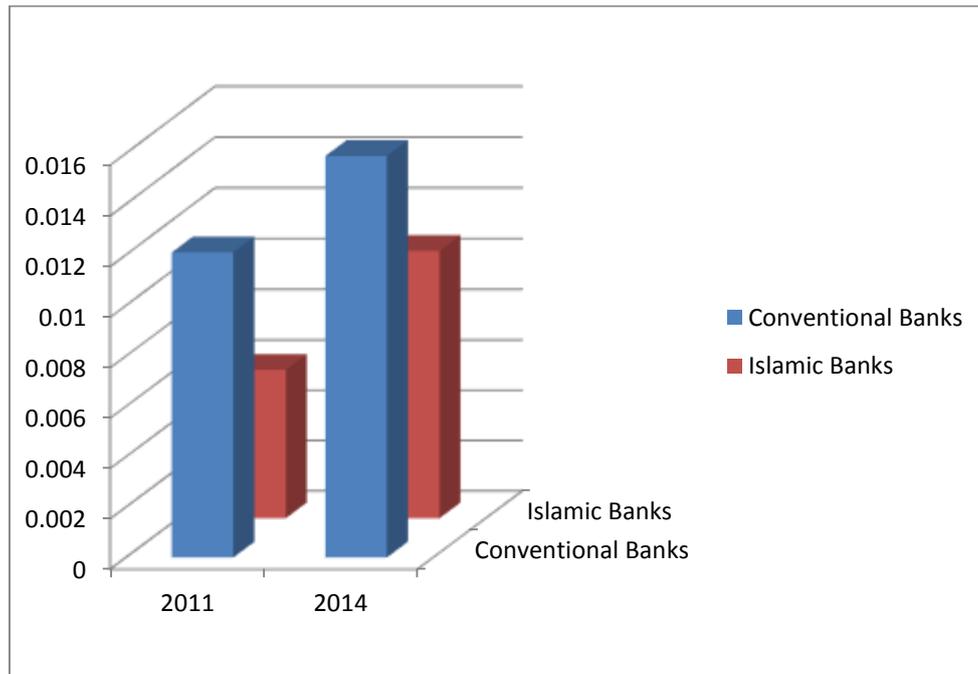
In comparison with the total bank averages during the periods 2011 and 2014, for the conventional banks was higher than the Islamic banks. In addition also to the mean of both the conventional and Islamic banks, was also in favor to the conventional banks.

Table (1) ROA for the year 2011 and 2014

ROA	Conventional Banks	Islamic Banks
2011	0.0121	0.0059
2014	0.0159	0.0106
Mean	0.0138	0.0098
Standard deviation	0.0017	0.0027
Coefficient of variance	0.1266	0.2786
Significance	0.050	

Significant at a $\alpha \leq 0.05$ level.

Figure (1) ROA of Islamic Banks and Total Banks in Jordan



4.1.2 Return on Equity

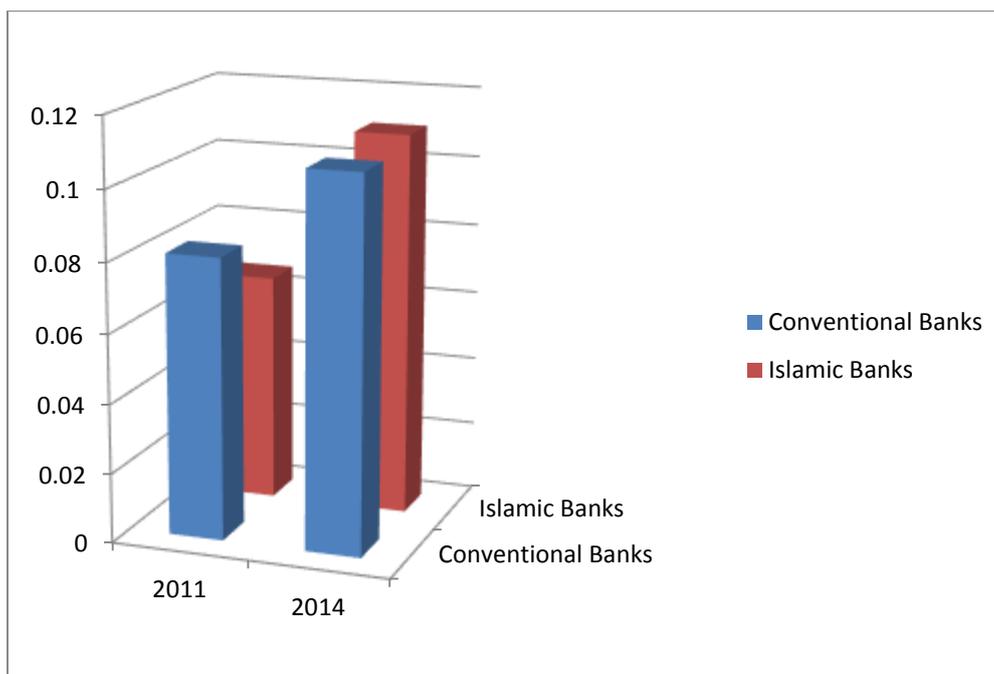
The previous scenario for ROE changed in comparison with the ROA. As stated in table (2) and figure (2), the mean of the period 2011 was higher for the conventional banks, then the amount went in favor toward the Islamic banks for the year 2014. Explanation was due to the nominator and denominator level. As the Return on equity for the Islamic banks in relation to the shareholders' equity was higher than the conventional banks, which maybe a competitive advantage. In general results did not show a significant difference between the means. However, while taking a closer look on the risk indicator, it seems that the Islamic banks were riskier in performance than the conventional banks.

Table (2) ROE for the year 2011 and 2014

ROE	Conventional Banks	Islamic Banks
2011	0.081	0.066
2014	0.107	0.1101
Mean	0.092	0.100
Standard deviation	0.011	0.023
Coefficient of variance	0.128	0.237
Significance	0.603	

Significant at a $\alpha \leq 0.05$ level.

Figure (2) ROE of Islamic Banks and Total Banks in Jordan



4.1.3 Profit Margin

Results for the PM ratio in relation to explain the ability of operating expenses to generate net income; it seems that the results were not consistent with the previous profitability ratios. As the Islamic banks, PM was higher for the period 2011, and for the period 2014, than the conventional banks. Seeing that the net income in relation to the shareholders, equity was in favor to the Islamic banks.

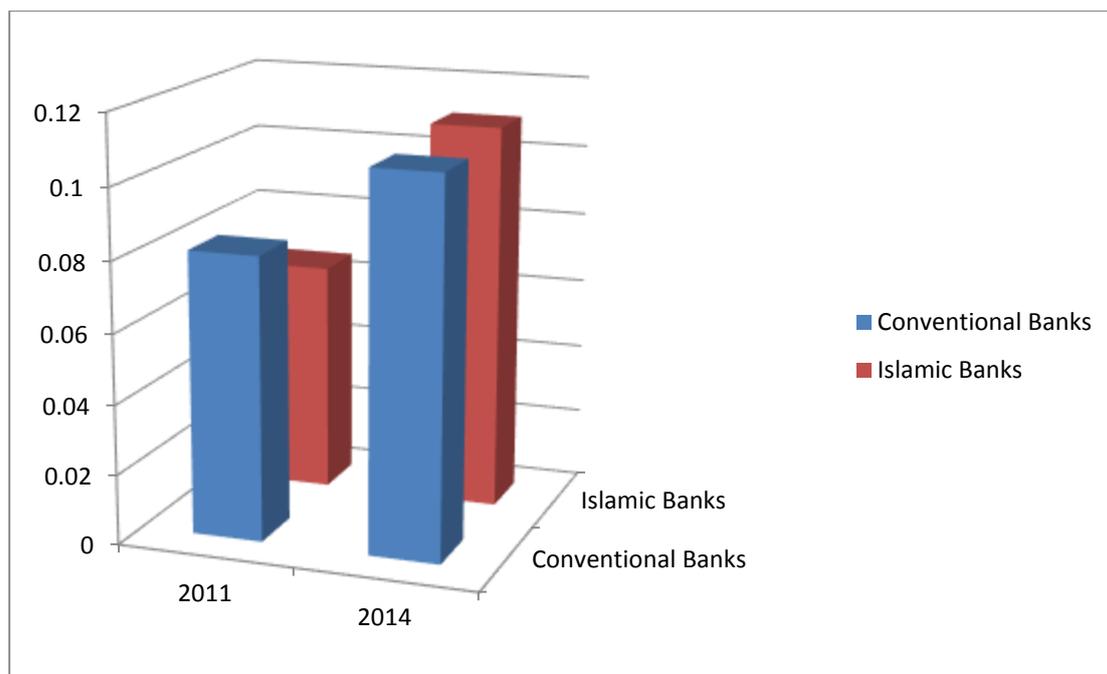
Results also reveal a significant difference between the two means, and a lower coefficient variance for the conventional banks, which means more consistency and less riskiness and higher performance. As illustrated in table (3) and figure (3).

Table (3) PM for the year 2011 and 2014

Profit Margin	Conventional Banks	Islamic Banks
2011	0.295	0.466
2014	0.345	0.598
Mean	0.315	0.564
Standard deviation	0.028	0.066
Coefficient of variance	0.088	0.117
Significance	0.0021	

Significant at a $\alpha \leq 0.05$ level.

Figure (3) PM of Islamic Banks and Total Banks in Jordan



5.0 Summary

The study identified and compared the financial performance of all full-fledged Islamic banks operating in Jordan, in relation to profitability, then each bank was compared with the mean of the total working banks in Jordan. Data was retrieved from the financial annual reports for 2011 and 2014, familiar profitability ratios analysis were applied with descriptive and inferential statistics for analyzing the results. Empirical results revealed that Jordanian Islamic banks in the year 2014 were more profitable than the conventional banks in relation to ROE than the year 2011, while it was higher for the Islamic banks in relation to the profit margin for both periods. Nevertheless, at the same time the conventional banks assets ability to generate income was higher for the conventional than the Islamic banks, for both the years 2011 and 2014. For the deviation and coefficient of variance as consistency values also proved that, for all the profitability ratios, results revealed that the conventional banks were less risky than the Islamic banks.

6.0 Limitations and Recommendations for Future Research

As the target of this paper was to determine of bank performance based on profitability indicators, a limitation of the study was based on the limited number of performance ratios. Moreover, a limitation of comparing the groups in two-year periods, rather than a range, may affect the results.

For that, it is recommended for future studies to investigate other financial performance indicators as liquidity and risk, with various ratios. Another recommendation also is to change the type of banks compared, as Islamic only; or even foreign and local banks.

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Sustainable Technology Adoption in a violence context: The Case of Banking Services in the Republic of Yemen

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Abstract:

In the context of developed countries and in a few Middle Eastern ones, customers are already availing themselves of the sustainable banking services in hoards. Contrastingly, in Yemen, a nation characterized as riddled with violence, studies concerning the banking services practicability are few and far between. To compound the situation further, majority of the people in Yemen steer clear of using banking services for their financial needs and this occupies one of the top issues concerning the country's economy. Accordingly, this study is an attempt to reduce the literature gap concerning the factors that affect the Yemeni consumer's use of banking services Sustainability. It is important to note that Yemeni consumers are distinct from those in developed countries in terms of their psychological, cultural and behavioral utilization of the banking system. Data was collected primarily through questionnaires, which were distributed among university students, after which it was analyzed through SPSS 17. This is followed by the hypotheses testing via factor analysis, correlation analysis and regression analysis. According to the results, the service quality-banking legal framework relationship significantly and positively impacted behavioral intention toward sustainable in banking services, except cultural belief. Specifically, cultural had a negative and significant impact in sustainable of banking system usage in Yemen.

Keywords: Sustainable, behavioural intention, service quality, legal framework, banking system in Yemen

1. Introduction

A country's economy is driven by the role of sustainable station of banks. In the current times, the country's economic development largely hinges on its sustainable of banking system's performance. Banks in general, facilitates the mobilization of savings from the surplus sectors to the clients through loans in order to ultimately facilitate investments. This process is brought about in a way that the savings are used for investments. In other words, if people refrain from using banking services at sustainable way, a great proportion of the economic capital would just remain untouched (Rosly, 2005). In Yemen's context, even though the government is exerting effort to boost the banking sector because of its significance in driving economic changes, there exists notable deposit shortage. This is because people in Yemen still refuse to trust the banks with their savings and instead opt for keeping their savings in their homes. According to the Mayor of Yemen, there exist only 600, 000 bank accounts constituting 2.7% of the country's population.

Additionally, the annual circulated checks only reach around 500-600 thousand. These facts were reported by the Malaysian company, SIRIM Berhad in 2010 (Swidi, 2011). Moreover, according to Al-Mushrqui (2009), majority of the financial transactions occur outside of commercial banks, indicting the need for an extensive study focusing on the sector and examining the influencing factors.

This motivated the present study to determine the significant factors that influence the behavioral intention of Yemeni consumers to avail of the banking services Sustainability with university students as the study sample. This sample was chosen owing to the fact that this sample's age range (20-31 years) is deemed to be the largest demographic segment of the consumers in society (Rugimbana, 2007). This range constitutes a significant population of the country, numbering approximately 22.2 million people in the year 2007 with an annual growth rate of 3% (Library of Congress, 2008).

Thus, the present study contributes to literature by providing an insight into the factors affecting the behavioral intention of Yemeni people towards interaction with banks and keep the services sustainable. In particular, the present study is an attempt to highlight the awareness of the variables that could possibly affect this important segment of the Yemeni population to make sustainable use of banking services. In this regard, according to Khan (2010), a significant relationship exists between violence and the successful adoption of banking services but as yet, no clear proof has been provided as to violence's impact on the adoption of e-services. In the current times, Yemen's unbalanced political, economic and social situation calls for the effect of such violence on its banking services.

2. Literature Review

2.1 Sustainability

Generally, sustainability known as saving something that has been usable for a certain period of time without having any extra aid to continue its processes (Reynolds & Stinson, 1993). Additionally, Misund and Hoiberg (2003) explained sustainable in ICT as "technology that is capable of being maintained over a long span of time independent of shifts in both hardware and software".

2.2 Conflicts types

The global situation is riddled with various types of conflicts, with majority of developing countries experiencing civil war and violence – for instance, Afghanistan, Burma, India, Iraq, Myanmar, Nigeria, Pakistan, Philippines, Russia, Somalia, Sri Lanka (HIIK, 2008), Syria (Pasternak, 2013), and Yemen (Lewis, 2013). It is expected that several more will suffer from such violence. Specifically, HIIK (2008) estimated that from the 345 war torn conflicts, the intrastate constitutes the largest proportion while interstate only constitute a small number. Based on the estimate, around 111 conflicts are taking place in Asia and Oceania, while in Africa, there are around 79 conflicts, in Europe there are 65, in the Middle East and North Africa there are 47, and in the Americas, there are estimated 43 conflicts.

Evidently, little effort is required to provide a description of the impacts of civil disorder on the environment of the country – these include psychological distortion, economical setback, which in some cases results in the country's downfall (Pederson, 2002; Landrigan et al., 2004). Literature concerning information technology has failed to examine the possible inference of conflicts from the different countries of the world on the successful implementation and use of technological applications and services (Khan, 2010). However, some studies examined the impact of organizational conflicts on the technology adoption (Smith and McKeen, 1992). The impact of organizational conflict invariably affects the technology adoption and could be compared to the role of civil conflict on e-government adoption.

According to the HIIK (2008), the reasons behind the occurrence of conflict in the countries include territory, secession, decolonization, autonomy, system/ideology, national power, predominance of regions, control of resources and international power. Therefore, it becomes important to evaluate the environmental factors impacting behavioral intention to use banking services. In other words, it is crucial to examine how violence in Yemen and its unstable environmental state impact its people's behavioral intention to use banking services in the country.

2.3 Behavioral Intention

Most studies considered behavioral intention in their studies as a dependent variable (e.g. Bounding et al., 1993; Zeithalm, et al., 1996) as it robust in its prediction of human behavior that is crucial in realizing actual behavior (Zolait, Matilla, and Sulaiman, 2008).

In particular, consumer intention can be any of two ways namely favorable or unfavorable (Zeithalm, 1996; Ladhari, 2009). The former results in the formation of a bond with the service provider and the intention to purchase products/services from the provider and hence increase market share. On the other hand, the latter leads to the potential of brand-switching, disinclination to purchase, the negative word of mouth (Zeithalm, 1996). Financial success is largely dependent on the degree to which consumers show favorable behavioral intention toward buying the services or products (Maiyaki and Mokhtar, 2009). This study examines three variables as antecedent factors of behavioral intention to avail of banking services in the context of Yemen. They are service quality, banking legal framework and cultural belief.

2.4 Perceived Service Quality

In banking services, service quality is presently occupying a position of an important service industry aspect, particularly with the increasing competition (Pont and McQuilken, 2005). It enables banks to achieve a competitive edge over rivals (Pont and McQuilken, 2005). In this regard, banks services should go over the consumers' expectations (Amarjit, Falschner and Shachar, 2006). Additionally, service quality is considered as a success and survival factor in the banking industry and it has been examined as a major element in the consumer's intention to make use of financial services (Patricio, Fisk and Cunha, 2003).

According to majority of studies, poor services are an antecedent to bank-switching of consumers (Lees, Garland and Wright, 2005). Other studies like Schmidh, Bergsiek, and Kolesnikova (2008) reported that 40% of customers in the U.S. switched banks because of poor services. Similarly, Allred and Addams (2000) stated that 50% of their sample study employed bank switching because of issues in services.

In fact, the relationship between the product/services quality and their use has been investigated in many studies in literature. Such studies reported quality to play a key factor in consumer intention (Andronikidis, 2009; Gottlieb, Brown and Drennan, 2011; Lee and Beeler, 2009; Ravichandran, Bhargavi and Kumar, 2010; and Shaharudin, et al., 2011). Moreover, the positive perceptions of consumers towards service quality have been coupled with intention to use the services/products offered while a negative perception leads to lack of intention to purchase such products/services (Kouthouris and Alexandris, 2005).

2.5 Banking Legal Framework

Banking service is deemed to among the top-most susceptible industries to different types of crises and this explains why the banking sector is deemed to be one of the most highly regulated sectors, where in which customers and funds of the financial institutions are protected. This safeguard regulation enhances the confidence of customers and their intention towards banking services, and attracts potential customers. It is also works towards securing the depositors' rights against losses in case of banks foreclosure (Broaddus, 1994). Therefore, the banking industry is generally described as unstable and its regulation is explained by the significant roles in the financial system and the concern of consumers (Niemeyer, 2006).

In this regard, although consumer protection has attracted increasing interest all over the globe, there is a fundamental distinction between consumer protection between developed and developing nations. In developed nations, consumers have various alternatives and the authorities are confident of the ability of the market to deliver benefits because of the solid market mechanism instead of the government regulation (Asher, 1998). Contrastingly, in developing nations, the environment is characterized as immature and the economy is still in its early stages of development. In this context, consumers depend more on government regulations for their asset's protection (Al-Ghamdi, Sohail and Al-Khaldi, 2007). In Yemeni banking sector, various challenges has been experienced throughout the years. These challenges

have lead to the people’s lack of confidence in the banking system and consequently, the decreased number of deposits and shortage of capital rate (Al-Mushrqui, 2009). In the present times, the Yemeni banking system is unable to finance investments. Nevertheless, the central bank of Yemen has passed a corporate law that ensures bank deposits in banking legal framework.

This framework primarily safeguards small consumers, attracts potential customer’s confidence towards the banking system, lays down strict and sophisticated banking system and safeguards the depositors’ confidence on the safety of their deposits. According to Abdul Salam (2010), this banking legal framework was laid down to attract potential consumers to avail of the banking services. Therefore, in the present study, the banking legal framework is considered as a key influencing factor that requires examination to comprehend its impact on the consumers’ intention to use banking services in Yemen.

2.6 Cultural Belief

Culture is a term that have been defined in many ways, where each definition exploring a distinct aspect of the term. Generally, culture is the fundamental determinant of the behavior and desires of the individual, along with his/her attitude and perceptions. Several studies have deemed culture as a basic variable representing human thinking (e.g. Ifinedo and Usoro, 2009; Moon, Chadee, and Tikoo, 2008; Rugimbana, 2007; and Ubadineke, 2009). According to them, culture is the key variable that explains the differences (both psychological and behavioral) in different societies. They provide an insight into the pattern of individual behavior formation in different groups. In other words, individuals differ in their behavior based on cultural belief (Jung and Kau, 2004). Moreover, culture is one of the significant factors in marketing in terms of knowing and understanding the way people believe and think about particular products/services (Liu, Furrer and Sudharshan, 2001).

Culture impacts people’s way of thinking and their thoughts along with their behavioral intention to perform a particular future behavior. As such, the examination and diagnoses of cultural belief is significant in studying consumer’s behavioral intention in the marketing field. In the context of Yemen, consumers have never been open to the concept of banking services for their savings, financial and investment needs. Yemenis often steer clear of opening bank accounts unless when required and they prefer to keep their savings at home as opposed to in the bank (Yemeni Times, 2008). Therefore, culture is a significant factor that needs in-depth examination in the Yemeni context to provide an insight into Yemenis’ perceptions in making use of the banking services.

3. RESEARCH FRAMEWORK AND METHODOLOGY

A review of the related literature and of the influencing factors on consumer’s behavioral intention towards sustainable using banking services, this study developed the following conceptual framework;

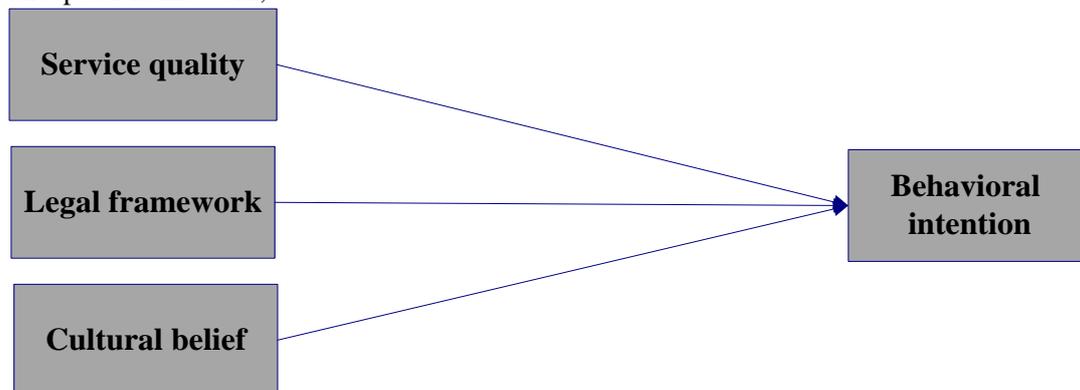


Fig .1 Research framework

On the basis of the above framework, the study hypothesizes that;

H1: There is a positive relationship between perceived service quality and student's behavioral intention to use bank services.

H2: There is a positive relationship between banking legal framework and student's behavioral intention to use bank services.

H3: There is a significant relationship between cultural belief and student's behavioral intention to use bank services.

4. STUDY SAMPLE

The sample comprising of university students, was selected with the help of random sampling technique and data was collected via questionnaire. From the 850 questionnaires distributed, 598 were returned, constituting a response rate of 70.4%. According to the results of the assessment, the respondents had several income ranges with majority of them (39.1%) earning a monthly income between YR80, 001 and YR100, 000. This is followed by 23.2% who earned a monthly income between YR60, 001 and 80, 000, 14.9% earned over YR100, 001, and 12.9% of the respondents earned between YR40, 004 and YR60, 000. At the end of the list is occupied by 5% of the respondents who earned between YR20, 001 and YR40, 000 and 4.8% who earned less than YR20, 000 per month.

As for their age range, 42.1% of the respondents are between 20 and 30 years old. This is followed by 39.6% of respondents between 31 and 40 years old, 11.5% who are 41 years old and above, and 6.7% who are under 20 years old. Out of the total respondents, 470 were male and the remaining 128 were female. At the time of conducting the study, 94.8% of the respondents were not bank customers while 5.2% were bank customers. The details of the above demographics are listed in Table 1.

Table 1 Demographic Profiles of the Respondents

Profile	Frequency	Percentage
Monthly income in Yemeni Riyal (YR)		
Less than 20000	29	4.8
20001- 40000	30	5.0
40001-60000	77	12.9
60001-80000	139	23.2
80001-100000	234	39.1
100000- over	89	14.9
Age:		
Under 20 years	40	6.7
20 to 30 years	252	42.1
31 to 40 years	237	39.6
41 and above	69	11.5
Gender:		
Male	470	78.6
Female	128	21.4
Bank usage		
Bank customer	31	5.2
Non-bank customer	567	94.8

All the items were positively stated and were measured with the help of a five-point Likert scale that ranges from 1 depicting strongly disagree and 5 depicting strongly agree. The Cronbach alpha result for all the variables was over 0.7 and the items displayed factors loadings higher than 0.5, indicating measurement validity.

5. DATA ANALYSIS

Table 2 presents the correlation results of the study. Based on the table, the values of the variables are; perceived service quality ($r=0.121$ with $p<0.01$), banking legal framework ($r=0.165$, with $p<0.05$) and cultural belief ($r=-.190$, with $p<0.05$). The findings show that all the variables are correlated with behavioral intention in a significant manner.

Table 2 Correlations among summated study variables

Variables	DV	IV1	IV2
DV- Behavioral intention (BI)	1		
IV1- Service quality (SQ)	.121**	1	
IV2- Banking Legal Framework (BLFW)	.165*	-.020	1
IV4- Cultural Belief (CB)	-.190**	-.026	-.607

** Correlation is significant at the 0.01 level (2-tailed).

* Correlation is significant at the 0.05 level (2-tailed).

The components direct impact on intention to sustainable of use banking services was run through multiple regression analysis. The dimensions listed in Table 3 show that the four dimensions explained 27.6% of the behavioral intention variance. The standard coefficient beta of service quality is significant and positive at ($\beta=.091^*$ with $p<0.05$), indicating support for hypothesis 1. Similarly, the standard coefficient beta for banking legal framework is ($\beta=.0090^*$ with $p<0.05$), which is consistent with hypothesis 2 and for cultural belief, significant beta was confirmed with a negative sign ($\beta=-.501^{**}$ with $p<0.05$) indicating support for hypothesis 3.

Table 3 Summary of Multiple Regression Results

Independent Variables	Standardized Coefficient Beta (β)
Service quality H1	.091*
Legal framework H2	.0090*
Cultural belief H3	-.501**
R ²	.276
Adjusted R ²	.272
Sig. F Change	0.000**
F value	75.438

Note: * $p < 0.05$, ** $p < 0.01$

Dependent Variable: Behavioral intention (BI)

6. STUDY DISCUSSION

The present study primarily examined behavioral intention toward sustainable use of banking services, which is considered as the fundamental factor in the actual behavior of consumers. Studies dedicated to behavioral intention form the source of predicting purchase intention (Fishbein and Ajzen, 1980). From the results of the present study, it could be deduced that service quality predicts Yemeni consumers' intention to interact with the banking system. Yemeni consumers are very discerning with the banks efficient delivery of services as evident from the results.

Moreover, Yemeni consumers perceive that Yemeni banks are capable of efficient and timely delivery of sustainable services. When the students perceive that the banks services and products satisfy their quality expectations, this may result in their behavioral intention to avail of these services and products. Despite the existence of the positive significant perception, the consumers may form their decision to interact with the banking system in Yemen on other variables that could impact their behavioral intention (Al-Hajri, 2008). These may include trust, protection among others (Esmaili, 2011). This indicates the requirement for more research into these variables in Yemeni context to shed a light on the consumer's behavioral intention to avail of the sustainability of banking services.

Additionally, actual factors prevent consumers from interacting with banks should be kept into consideration. For instance, the country's legal framework reflects government intervention in protecting consumers and it facilitates a confident environment among consumers for the achievement of economic stability. Several studies have also addressed the legal framework-behavioral intention relationship (e.g. Chang, 2009; Ferdous and Towfique, 2007; Tsai et al., 2007; and Wirtz et al., 2007).

The importance of legal framework and its effect on behavioral intention shows that the former can be utilized to promote students' sustainable use of banking services. On the basis of the comparison between its influence and the influence of the rest of the variables within the model (see Table 3), it is clear that it has the lowest influence in behavioral intention prediction. Nevertheless, this is still a significant result and worthy of future examination.

This weak predictive power of the legal framework in Yemen and its effect on the behavioral intention of students is related to the experience that Yemeni people went through in 2006, during which the Yemeni Central Bank declared on of the country's largest bank's liquidity, i.e. the Watani bank. Majority of the depositors to this bank were adversely affected, after which consumer confidence in financial institutions started to decline. In this case, consumers perceived the lack of government protection (Elaph Electronic Newspaper, 2008).

According to the final finding of the study, cultural believe significantly related to behavioral intention toward sustainable of use banking services with ($\beta = -.501^{**}$ and $p < 0.01$). The minus sign shows an inverse direction indicating that with increased cultural belief, behavioral intention to sustainable use banking services decreases. This is supported by Teng and Laroche's (2007) result, which stated that culture has a significant and negative impact on purchase intention of consumers. Some results of cultural factor's effect on purchase intention were significantly positive whereas others are significantly negative according to societal culture. In this regard, Liu and McClure (2001) contended that consumers from various cultures display various behaviors and intention towards particular services/products.

This may explain why Yemenis are not open to dealing with the banking system and why they prefer to keep their money in their residences as opposed to availing the banking services (Al-Adhi, 2009). Moreover, the Yemeni people's perception of keeping their money with them and trading in cash develops their confidence psychologically. Cash transactions are conducted in majority of trade activities, including durable goods (al-Mushrqui, 2009).

It is therefore crucial for Yemeni banks to expend greater efforts to shift people's attitudes towards using banking services. However, as things stand, majority of the banks in Yemen, despite the prevalent Islamic way of life, still deal with interest (reba). This is because Islamic banks were established in Yemen only in 2008 and currently, there are only four of these banks in the country (Al-Hamady, 2010).

In comparing the short life of Islamic banks with its counterpart traditional one, it is clear that Islamic banks have obtained significant market share in the past few years and this shows that Yemenis are ready to deal with Islamic banks.

7. Contribution of the Study

In the research framework, the results obtained from investigating and analyzing the set of variables, provide invaluable information to bank managers and practitioners. It is important for management and practitioners to satisfy students' expectations regarding to the sustainable banking services. The results showed that cultural belief is the top most important aspect in the

Yemeni banking system and could act as the major barriers to using banking services. An effective campaign may promote the students interests in the benefits provided by the financial services. In the same way, monetary authorities can utilize this study's findings to promote a new culture of trust and confidence in consumers and to attract new consumers to banking services. It is also crucial for relevant parties to work together in order to convince the Yemeni people of the benefits of sustainable using banking services for themselves and for their country.

8. Future Research

The banking system refers to an integrated process requiring in-depth examination of its factors that have the potential of barring consumers from accessing invaluable services. Therefore, the present study is an attempt to highlight the reasons as to why people in Yemen are not open to using its banking system.

Based on the results, cultural belief has a negative impact on Sustainability of banking services use. In fact, culture can play a significant role in the transformation of some fundamental aspects of the individual's attitude. This requires future studies to examine this factor, particularly in the context of Yemen, a country whose population is predominantly Muslim (99.1%). It seems that Yemenis steer clear of using banks because of interest (riba) that is clearly forbidden in Islam. This contention can be further studied by future researchers.

9. Study Limitations

The present study, like any other studies of its caliber, has some limitations. First, a significant difference was noted in the response rate of both genders (male and female) respondents. The male respondents made up 78.6% of the total respondents while the remaining 21.4% were female. The considerable response from male respondents is attributed to the female individuals' refusal to fill the questionnaires on the basis of different excuses. Hence, this study could display a greater rate of the perceptions of the male respondents and as such, its generalization to the population's perception should be carried out with caution.

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Factors influence Sustainability of E-Government Services in Most Dangerous Country in the World

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Abstract:

Electronic government (EG) is a computer applications used in the governing activities and operations of a government; whereby both the government and the public interact transact electronically. Iraq being tagged as a conflicting area has received lesser related studies on practicability of EG. Variables like infrastructure, social factors, security, habit, users behavior and the more are to be determined majorly effecting the sustainability of EG as a technological and psychological packages. With the theoretical perspectives of the Unified Theory of Acceptance and Use of Technology² (UTAUT²). This study is aimed at investigating the related variables that could mitigate the sustainability of EG in most dangerous country in the world. This study propose to quantitatively examine the usage behavior (sustainability) of EG in Iraq, with that, data were gathered from Iraq being a dangerous and violence zone in the Middle East and the world. Additionally, the findings limitations of our study are discussed.

Keywords: Information system, Electronic Government, Application, Unified Theory of Acceptance and Use of Technology.

Introduction

Electronic government (EG) is an electronic application with the main orientation of serving beneficiaries faster and wider than the traditional governmental settings can offer. Khan (2010) posited that there is a significant affection between crisis and the success adoption of EG services in the Arab homeland, but still there is no explicit proof on whether civil war, crisis, and violence can affect the adoption EG services. The present rowdy and unbalance nature of Iraq therefore necessitate the effort to examine what effect of the dangerous and conflict environment could contribute to the adoption of EG in Iraq as a most dangerous country in the world (Top 10 Most Dangerous Countries in the World). Scores of studies have employed UTAUT and UTAUT² to achieve similar objective, but none has implemented UTAUT² to the adoption of EG in public agencies and particularly in a deranged and conflicted country like Iraq.

In that purpose, this study adopt the theoretical perception of UTAUT² to examine the adoptability of UTAUT² in Iraq and in that course, will elaborately explain the type of conflicts and the vulnerability of EG services to the types of conflicts in Iraq.

Dangerous and Conflicts environments

Nowadays, many countries facing unstable environment in general. Iraq is one of these countries. Currently Iraq accounted as a most dangerous country in the world (Top 10 Most

Dangerous Countries in the World). Iraq suffered from dangerous and conflict environment from few years. Additionally, Pedersen (2002) explain that the world is increasingly witnessing different types of conflicts, several numbers of developing countries are burning from the flames of civil war and riots (HIIK 2008). Reportedly, several more are still going to witness the burning. HIIK (2008) estimated that among the 345 conflicts and crisis ongoing globally, the intrastate amounted for the largest and interstate attract a very minor number, as showed in Table 1.

Table 1: Conflicts forms in all over the world and location.

Conflicts forms in all over the world	Conflicts located in
111	Asia and Oceania
79	Africa
65	Europe
47	Middle East and Maghreb
43	Americas

Obviously it takes little effort to describe the consequence of civil disorder on country's environment, mass psychological distortion, economical setback, and sometimes lead to total downfall of the country (state of emergency) (Pedersen 2002; Landrigan, Lioy et al. 2004). Invariably, the influence of organizational conflict on the adoption of technology is transmissible and could be potentially similar to kind of role civil conflict plays on electronic government adoption. Currently, Iraq facing a real risky environment has with thousands of fatalities (see Table 2).

Table 2 Total Estimated Iraqi Civilian Fatalities, by Year.

Year	Fatalities
2003	7,30
2004	16,800
2005	20,200
2006	34,500
2007	23,600
2008	6,400
2009	3,000
2010	2,500
2011	1,578

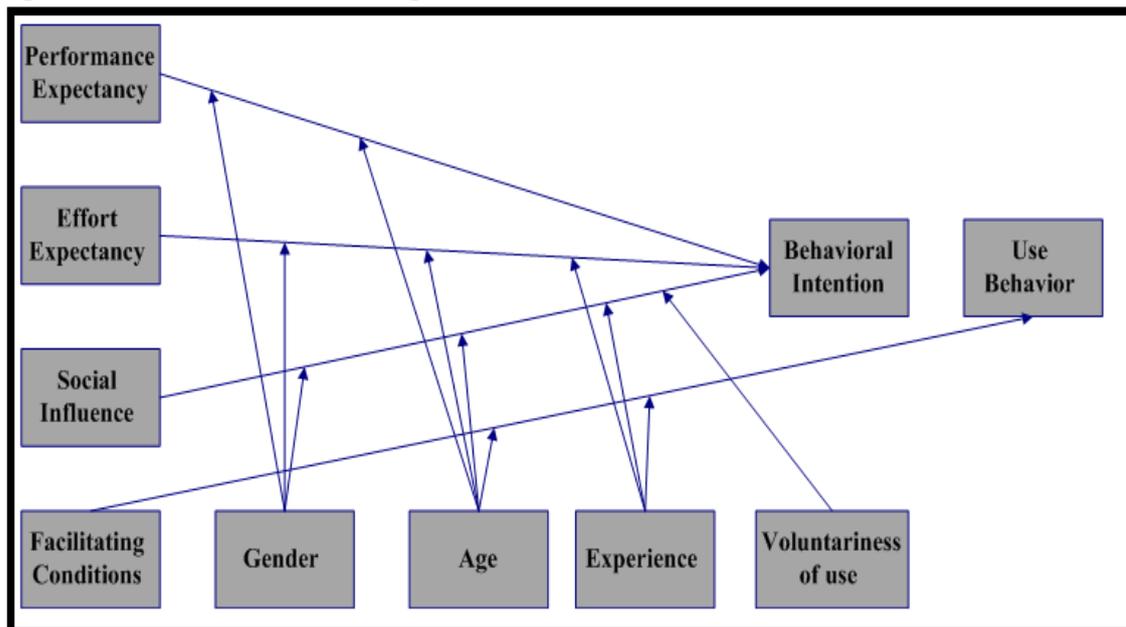
Electronic Government in Iraq

In general, Iraq facing huge problems in many fields such as education, sciences, healthy, and electronic services (James A. Wall., 1995; Pascal C. Sanginga, Kamugisha et al., 2007; K.Faaq, Ismail et al., 2009). Iraq is currently within an aftermath of war, even with the conspicuous consequence of the war from the length and breadth of the country, Iraq government is aiming at developing the country's infrastructure under which electronic government is enlisted (James A. Wall 1995; UN & ESCWA 2007). Through this, the government dream of citizenry transactions with the governmental services to be done electronically, while the serves can be accessed throughout the country widely and timely. The EG will transform the traditional access and transaction of governmental services through portal where everyone can logon anywhere and anytime. Logically, besides the technical (infrastructure) and financial needs to determine the success of such project, there are still some social impediments that can still hinder the practicability of EG in Iraq, some of them are investigating the adoptability EG by the people of Iraq. Alongside, there is a limited research on the effects of risky and civil conflicts on adoption of technology and in particular E-G services (Khan, Moon et al. 2010). In corroborating with the claims of Almutiri (2007) some factors dictate the success and the failure of technology implementation, and these factors used to be identified explicitly (Chris 1957), hence this study is oblige to examine the factors that

inform the success and the failure of EG services in the most dangerous country in the world (see Table 2).

Original Unified Theory of Acceptance and Use of Technology

Venkatesh et al. (2003) conducted a study to compare the similarities and differences among prior theories and models of user acceptance to formulate Unified Theory of Acceptance and Use Technology (UTAUT). This study of comparison included the technology acceptance model (TAM) (Davis et al., 1989), theory of planned behaviour (TPB) (Ajzen, 1991), theory of reasoned action (TRA) (Ajzen & Fishbein, 1975), the combination of TAM and TPB (C-TAM-TPB) (Taylor & Todd, 1995), model of PC utilization (MPCU) (Thompson et al., 1991), innovation diffusion theory (IDT) (Rogers, 2003), social cognitive theory (SCT) (Compeau & Higgins, 1995), and motivational model (MM) (Davis et al., 1992). Unified Theory Acceptance and Use Technology (UTAUT) have four constructs to predict users' behavioural intention and behaviour of use, namely: (a) performance expectancy, (b) effort expectancy, (c) social influence, and (d) facilitating conditions (Venkatesh et al., 2003). The relationships between these constructs, behaviour intention and behaviour of use are moderated by four key factors i.e. age, gender, voluntariness, and experience (Venkatesh et al., 2003). The following Figure 3.10 shows the UTAUT diagram.

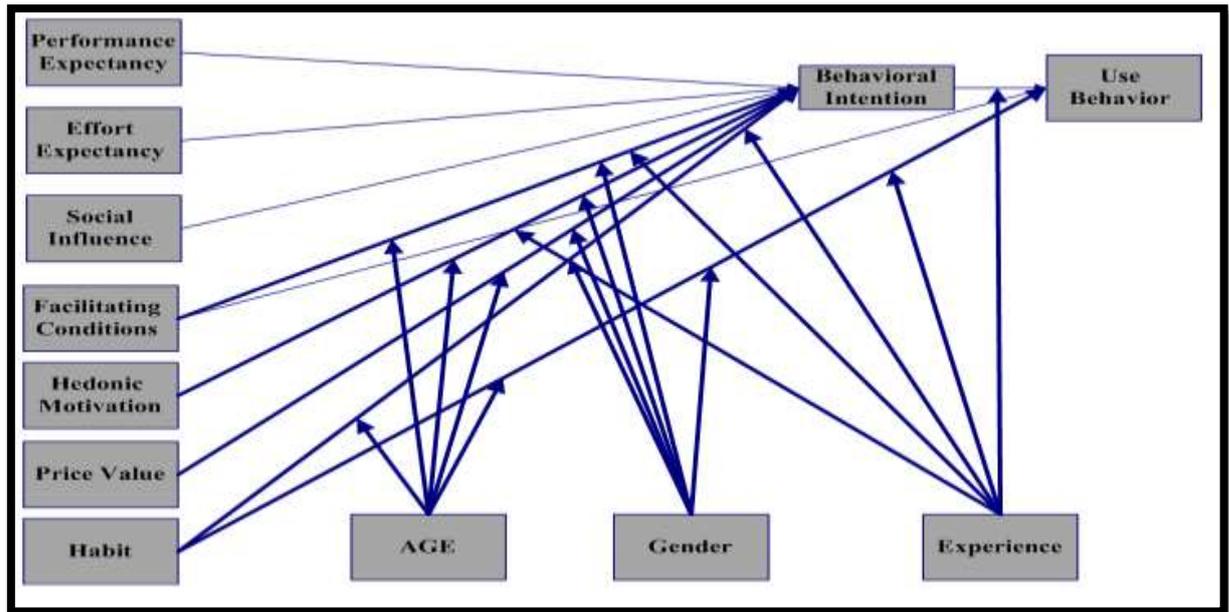


Unified Theory of Acceptance and Use of Technology Two in Context:

The aim of this study is to explore the theoretical perspective of UTUAT2 in the context of a dangerous zone. The adoption of EG would be examined in while employing the theoretical elements of UTAUT2 to set the paradigm of the examination (Venkatesh et al., 2012). Further noted that examining theories in new contexts can result new opportunities for the creation of new knowledge (Alvesson & Karreman 2007). Moreover, (UTAUT2) has seven constructs to predict users' behavioural intention and use behaviour, namely: (a) performance expectancy, (b) effort expectancy, (c) social influence, (d) facilitating conditions (e) hedonic motivation, (f) price value, and (g) habit (Venkatesh et al., 2012). The relationships between these constructs, behaviour intention and behaviour of use are moderated by three key factors i.e. age, gender, and experience (Venkatesh et al., 2003). The following Figure (1) shows the UTAUT2 diagram. Among other technology adoption and acceptance model, UTAUT2 is the most complex model that combines the elements of other models to present a more appropriate adoptable model for the purpose of this study. UTAUT2 has been adopted in bounties of researches that tend to be

relevant and recent in the realm of new innovation studies (Shao & Siponen, 2011; Slade, Williams & Dwivedi, 2013).

Figure 2. UTAUT2 (Venkatesh et al., 2012)



The UTAUT2 totally or partly has been adopted widely, and several studies have confirmed and reconfirmed the model validity and reliability in different countries (Shao & Siponen, 2011; Slade, Williams & Dwivedi, 2013; Maldonado, Khan et al. 2011), evidently that justified it suitable for this study.

Scores of studies have examined the technology use behaviour of users from developing countries (AlAwadhi & Morris 2008; Al-Shafi & Weerakkody 2009; Al-Shafi & Weerakkody 2010; Yahya, Nadzar et al. 2011). Venkatesh and Davis (2000) identified a strong relationship between successful implementation of a technology and the use behaviour of the technology. Similarly, Straub (1997) planted that successful implementation of a technology is proportionate and related to usage behaviour. Implementations and development of a technology is an inevitable crucial stage (K.Faaq, Ismail et al. 2009)

The UTAUT model is a universal model that can be employed to test for any technology adoption process, most specifically to examine user's behavioural (Liao & Jr 2000) as showed in Table 3.

This study is design similarly to examine the adoption of EG but uniquely determine to examine the adoption through the government to the citizen (G2C) view. Hence this study would focus the governmental terms of adopting EG from transactions with the citizenry. The benefits of the EG adoption on the governmental services (renewal of driver's license, paying of summons, Q card (Key card), registering and obtaining international passport, Death and Birth registration, according to the list of governmental services by (Carter & Belanger 2004).

Table 3. Studies using UTAUT and UTAUT2 variable framework.

Reference/country	Research using	UTAUT/UTAUT2	Research Focus
1-(Venkatesh, et al. (2003) U.S.	User Acceptance Of Information Technology: Toward A Unified View	UTAUT	Performance Expectancy(PE), effort expectancy (EE), Social Influence(SI), Facilitating Conditions(FC), Behaviour Intention (BI), Use Behaviour (UB), Gender, Age,

			Experience, Voluntarines of use.
2-Yu-Lung et al. (2007) (Taiwan)	Using UTAUT to explore the behaviour of 3G mobile communication users	UTAUT	PE, EE, SI, FC, Use behaviour, Gender, Age, experience, voluntariness of use, level of education Intention to Use.
3-Chiu and Wang, (2008) (Taiwan)	Understanding Web- based learning continuance intention: The role of subjective task value	UTAUT	PE, EE, SI ,FC, computer self- efficacy, Attainment value, utility value,intrinsic, anxiety, (CI)
4- Liu, G., et al. (2008) (China)	User acceptance of Internet banking in an uncertain and risky environment	UTAUT	Self-efficacy (SF) perceived risk (PR) Locus of control(C) perceived uncertainty (UC) system quality (SQ) information quality (IQ) service quality(VQ), PE
5-Al-Shafi and Weerakkody, (2009) (Qatar)	Understanding Citizens' Behavioural Intention In The Adoption Of E- Government Services In The State Of Qatar	UTAUT	PE, EE, SI, Behavioural Intention to Use eG, Gender, Age, Internet
6-Wang and Shih, (2009) (Taiwan)	Why do people use information kiosks? A validation of the Unified Theory of Acceptance and Use of Technology	UTAUT	PE, EE, SI, FC, UB, Gender, Age, BI.
7-Al-Shafi and Weerakkody (2010) (Qatar)	Factors Affecting E- Government Adoption In The State Of Qatar	UTAUT	PE, EE, SI, FC, Trust of the Internet, Trust of Intermediary (BI) and Use Behaviour
8-Yahya et al.(2011) (Malaysia)	Determinants of UTAUT in Measuring User Acceptance of E- Syariah Portal in Syariah Courts in Malaysia	UTAUT	PE, EE, SI, BI, Actual Usage(AU)
9-Al-Sobhi et al. (2011) (Saudi Arabia)	The Roles Of Intermediaries In E- Government Adoption: The Case Of Saudi Arabia	UTAUT	PE, EE, SI, FC, Trust of the Internet, Trust of Intermediary, (BI) and Use Behaviour

10-Abdul-Rahman et al. (2011) (Malaysia)	Intention to Use Digital Library based on Modified UTAUT Model: Perspectives of Malaysian Postgraduate Students	UTAUT	Information Quality, PE, EE Service Quality, User Characteristics, Intention to Use Digital Library
11-Venkatesh et al. (2011) U.S.	'Just What the Doctor Ordered': A Revised UTAUT for EMR System Adoption and Use by Doctors	UTAUT	PE, EE, SI, FC, BI, Use Behaviour, Gender, Age, Experience, Voluntariness of use.
12- Foon and Fah (2011) (Malaysia)	Internet Banking Adoption in Kuala Lumpur: An Application of UTAUT Model	UTAUT	PE, EE, SI, FC, Trust, Behavioural Intention
13-Maldonado et al. (2011) (South American)	E-learning motivation and educational portal acceptance in developing countries	UTAUT	E-learning motivation (ELM), SI, FC, PU, PEOU,COMP, FM, MM, SELF, GS
14-Adulwahab and Dahalin (2011) (Nigeria)	Effectiveness of Telecentre using a Model of Unified Theory of Acceptance and Use of Technology (UTAUT): Structural Equation Modeling Approach	UTAUT	PE, FE, SI, Management effectiveness Program Effectiveness, FC, intention to use, User acceptance
15- Chen, L. S.-L.,et al. (2011) (Taiwan)	Applicability of the UTAUT Model in Playing Online Game through Mobile Phones: Moderating Effects of User Experience	UTAUT	PE, EE, SI, FC, AT
16-Alshehri et al. (2012) (Kingdom of Saudi Arabia) (KSA)	The Effects of Website Quality on Adoption of E-Government Service: An Empirical Study Applying UTAUT Model Using SEM	UTAUT	BI, PE, EE,SI, FC, GEN, AGE, EXP.
17-Venkatesh et al. (2012) (Hong Kong)	Consumer Acceptance And Use Of Information Technology: Extending The Unified Theory Of	UTAUT2	PE, EE, SI, FC, Hedonic Motivation (HM), Price Value (PV), Habit (H).

	Acceptance And Use Of Technology		
18- Rosli et al. (2012)	Factors Influencing Audit Technology Acceptance by Audit Firms: A New I-TOE Adoption Framework	UTAUT2	PE, EE, SI, Facilitating Surrounding, HM, individual auditor's Intention, cost-benefits, risks, task-technology fit, firm's size, firm's readiness, firm's top management commitment, client's AIS complexity and actual usage.
19-Raman and Don (2013) Malaysia	Preservice Teachers' Acceptance of Learning Management Software: An Application of the UTAUT2 Model	UTAUT2	PE, EE, SI, FC, HM, H, BI, U.
20- Rodríguez and Trujillo (2013) (Spain)	Online drivers of consumer purchase of website airline tickets		H, PV, PE, EE, SI, FC, HM, BI,UB.

Research Methodology

Theoretically, there are many researches that applied UTAUT2 components and it was successful implemented among technology and innovation usage (Ally & Gardiner, 2012; Shao & Siponen, 2013; Venkatesh et al., 2012). Therefore, this study involves UTAUT2 as a frame for the current study on EG services in a most dangerous country in the world. This section discusses in further details about the current study model. UTAUT2 used because it is a new generation of UTAUT (Venkatesh et al., 2003) to the field of IS and new innovation.

Morover, Usage Behaviour of eG services was measured by four items adapted from Raman et al., (2008) and Almajali, (2011). PE was measured by six items adapted from Adulwahab and Dahalin, (2011) and Venkatesh (2003). EE was measured by five items adapted from Adulwahab and Dahalin (2011) and Venkatesh et al. (2003). SI was measure by five items adapted from (Adulwahab & Dahalin, 2011) (Venkatesh et al., 2003). FC was measure by five items adapted from (AlAwadhi& Morris, 2008). Habit measured by demographic items (Less than a year, 1-3 years, More than 3 to 5 years, More than 5 years). Additionally, hedonic motivation, price value, habit, Age, Gender, Education and experience was excluded to simplify the current model (Maldonado et al., 2011; Wang & Yang 2005). Additionally, the model is presented in Figure 2 below.

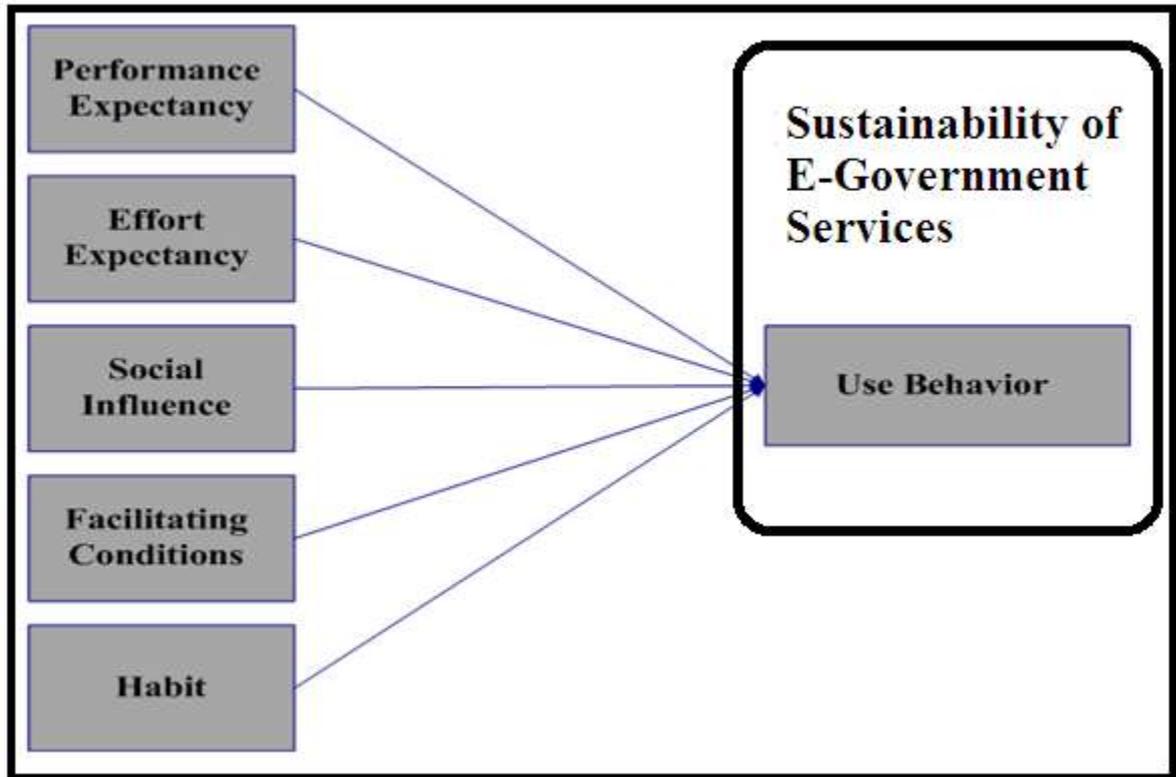


Figure 2: Research Framework of sustainability of EG.

Research Hypotheses Development

The current research model was examined in this study was shown in Fig. 2. According to the UTAUT2, performance expectancy, effort expectancy, social influence, facilitating conditions and Habit are hypothesized to be the determinants of usage behavioural in the context of EG services in risky environment. The current research hypotheses are shown below. Moreover, all of the variables and hypotheses in the current model are proposed based on the UTAUT2.

H1. Performance expectancy has a positive effect on sustainable (usage behaviour) of EG services.

H2. Effort expectancy has a positive effect on sustainable (usage behaviour) of EG services.

H3. Social influence has a positive effect on sustainable (usage behaviour) of EG services.

H4. Facilitating conditions have a positive influence on sustainable (usage behaviour) of EG services.

H5. Habit has a positive influence on sustainable (usage behaviour) of EG services.

Population and Sampling that proposed to Implementation UTAUT2:

The study will focus on the (G2C) services mainly, covering the range of all government services, such as social, economical, and the rest in the specific context of dangerous zone. Iraq citizenry from different levels of demographical features would therefore be surveyed for the purpose of this study. Additionally, this study included 75 valid questionnaires from responds from three regions in Iraq (south, middle and north) equally.

7.1 Sampling Profile

The final data sample included the staff (lecturers and administrators) in public universities. The sampling profile showed that the sample is a representative of the studied population. Following discussion the distribution of the respondents according to the demographic variable (such as: AGE, GEN, EDU, INC and EXP). Moreover, differences and uneven of results among differences between male and female in daily life, several levels of age, families and individual

states, occupation, residential area, education level, monthly income and duration of internet usage. From the analysis, the study has categorized the respondents into eight demographic variables in the sample, according to their age, gender, marital status, current occupation, residential area, education, income and duration of Internet usage (experience).

Demographic Variable	Category	(N = 90) Frequency	Percentage%
Gender	Male	36	48
	Female	39	52
Age	≤ 22	5	6.7
	23 -35	27	36.0
	36- 45 years	24	32.0
	46-55	16	21.3
	≥56	3	4.0
Marital status	Single	22	29.3
	Married	51	68.0
	Divorced	-	-
	Widowed	2	2.7
Current Occupation	Lecturer	26	24.7
	Manager	14	18.7
	Officer	26	34.7
	Clerks	6	8.0
	Others	3	4.0
Residential Area	City/Urban	54	72.0
	Rural	21	28.0
Education level	PhD	18	24.0
	Master	19	25.3
	Bachelor	26	34.7
	Diploma	9	12.0
	Secondary School	2	2.7
	Read and Write	1	1.3
Monthly Income in ID	≤ 250 (Thousand)	4	5.3
	251 -500(Thousand)	15	20.0
	501- 750(Thousand)	16	21.3
	≥751 (Thousand)	40	53.3
Duration of Internet usage		14	18.7
	Less than a year		
	1-3 years	24	32.0
	More than 3 to 5 years	61	21.3
	More than 5 years	21	28.0

Table 3
Participant's Demographic Information

Data analysis

The Partial Least Squares or PLS modeling was brought forward by Herman Wold (1982, 1985) (cited by Lohm Loller, 1987, 1989), in the LVPLS software computational aspects. The theoretical developments of the software were also attributed to world while the new graphical interface (PLS-Graph), and the improved methods of validation, were attributed to Chin (1998, 2001) and Chin and Newsted (1999). Meanwhile, the LohmsLoller's program PLSX for units x variables data presents the core of the PLS-Graph software and it allows similar options. The PLS modeling has to be used in the first stage of theoretical development in order to assess and validate exploratory models. Additionally, one of the features that stand out is its prediction-

oriented research in which the methodology is invaluable for researchers to concentrate on the endogenous constructs explanation. Moreover, all items are measured using a seven-point scale.

The PLS path modeling approach is generally utilized to estimate causal relationships in the field of path models that entail latent constructs indirect measurement by various indicators. Prior studies conducted by Wold (1982), Lohmoller (1989), Chin (1989), Tenenhaus, Vinzi, Chatelin and Lauro (2005) were dedicated to explaining the methodological basis and approaches for outcome evaluation and they offered some methodological examples.

Testing the Measurement Model, Outer Model, Using PLS Approach

Prior to hypotheses testing, the measurement model, the outer model was assessed with the help of the Partial Least Squares Structural Equation Modeling (PLS-SEM) methods. As such, the present study employed the two-stage approach recommended by Anderson and Gerbing (1988). The study model is presented in Figure 3 with its structural dimensions.

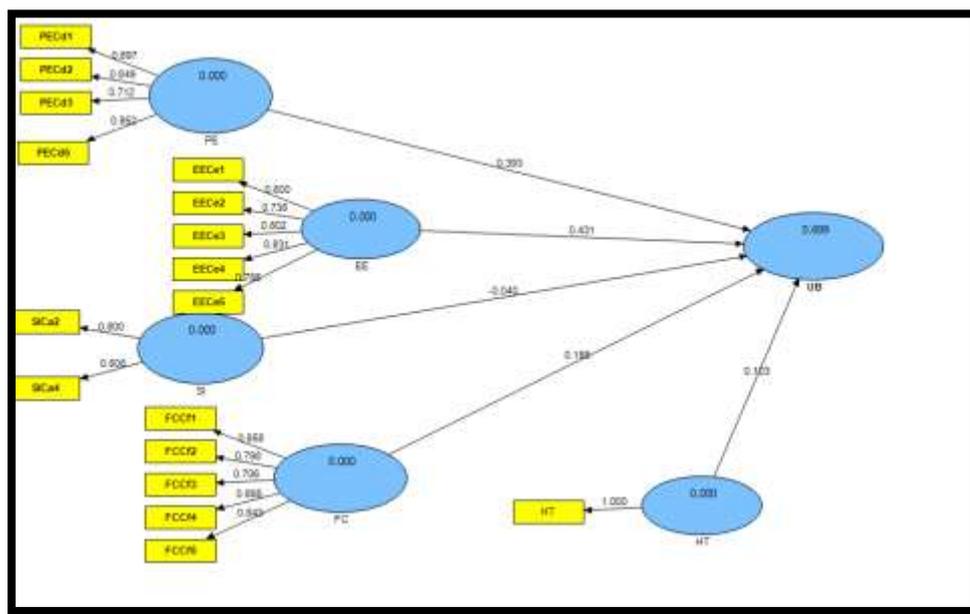


Figure 3
Path analysis result after deleting the items bellow 0.7

7.2 The Content Validity

The measure’s content validity is the degree to which the items produced to measure a construct is capable of measuring the concept they are designed to measure (Hair et al., 2010). Specifically stating, the items that were designed to measure a construct should present a higher loading on their construct compared to other constructs. The researcher made sure of this by conducting a comprehensive literature review to produce items whose validity is already tested and established by other studies. On the basis of factor analysis, constructs items and the results are presented in Table 4 and Table 5. In these Tables, the content validity of items and their measures are listed in two ways. First, the items present high loading on their respective constructs in comparison to other constructs and second, the items loadings significantly loaded on their constructs and this confirms the content validity of the measures as displayed in Table 4 (Chow & Chan, 2008).

	EE	FC	PE	SI	UB
EECe1	0.800	0.423	0.413	0.216	0.529

EECe2	0.738	0.364	0.357	0.157	0.523
EECe3	0.801	0.381	0.332	0.127	0.558
EECe4	0.831	0.517	0.524	0.395	0.687
EECe5	0.785	0.613	0.412	0.257	0.638
FCCf1	0.525	0.858	0.327	0.291	0.514
FCCf2	0.354	0.798	0.121	0.260	0.375
FCCf3	0.385	0.705	0.045	0.197	0.286
FCCf4	0.588	0.866	0.401	0.263	0.604
FCCf5	0.488	0.843	0.162	0.298	0.429
PECd1	0.411	0.278	0.897	0.544	0.579
PECd2	0.476	0.195	0.849	0.550	0.555
PECd3	0.437	0.248	0.712	0.390	0.495
PECd5	0.411	0.259	0.853	0.418	0.560
SICa2	0.250	0.418	0.404	0.800	0.292
SICa4	0.235	0.104	0.520	0.808	0.298
UBCh1	0.606	0.532	0.574	0.231	0.849
UBCh2	0.667	0.415	0.672	0.410	0.913
UBCh3	0.707	0.501	0.558	0.335	0.861
UBCh4	0.493	0.449	0.351	0.228	0.687

Table 4
Significance of the factor loading

Construct	Items	Factor Loadings	Standard Error	T Value
Effort Expectancy	EECe1	0.800	0.048	16.625
	EECe2	0.738	0.080	9.203
	EECe3	0.801	0.063	12.625
	EECe4	0.831	0.026	32.321
	EECe5	0.785	0.049	15.998
Facilitating Conditions	FCCf1	0.858	0.030	28.207
	FCCf2	0.798	0.075	10.668
	FCCf3	0.705	0.106	6.658
	FCCf4	0.866	0.024	35.732
	FCCf5	0.843	0.041	20.528
Performance Expectancy	PECd1	0.897	0.023	39.428
	PECd2	0.849	0.066	12.942
	PECd3	0.712	0.098	7.295
	PECd5	0.853	0.036	23.977
Social Influence	SICa2	0.800	0.139	5.754
	SICa4	0.808	0.133	6.063
	UBCh1	0.849	0.033	25.409
	UBCh2	0.913	0.017	54.738
	UBCh3	0.861	0.032	26.668
	UBCh4	0.687	0.109	6.323

Table 5
The Convergent Validity Analysis

Construct	Items	Factor Loadings	Cronbach's Alpha	composite Reliability	AVE
Effort Expectancy	EECe1	0.800	0.852	0.893	0.627
	EECe2	0.738			
	EECe3	0.801			
	EECe4	0.831			
	EECe5	0.785			
Facilitating Conditions	FCCf1	0.858	0.876	0.908	0.666
	FCCf2	0.798			
	FCCf3	0.705			
	FCCf4	0.866			
	FCCf5	0.843			
Performance Expectancy	PECd1	0.897	0.847	0.898	0.690
	PECd2	0.849			
	PECd3	0.712			
	PECd5	0.853			
Social Influence	SICa2	0.800	0.453	0.785	0.647
	SICa4	0.808			
Usage Behavior	UBCh1	0.849	0.849	0.899	0.692
	UBCh2	0.913			
	UBCh3	0.861			
	UBCh4	0.687			

Table 6
The Discriminant Validity Analysis

Construct	1 EE	2 FC	3 PE	4 SI	5 UB
1Effort Expectancy	0.792				
2Facilitating Conditions	0.590	0.816			
4Performance Expectancy	0.521	0.295	0.831		
5Social Influence	0.301	0.323	0.575	0.804	
6Usage behavior	0.749	0.567	0.660	0.367	0.832

Table 7
The Results of the Inner Structural Model

Hyp. No.	Hypothesis Statement	Path Coefficient	Standard Error (STERR)	T Value	Decision
H1	PE→UB	0.414***	0.108	3.817	Supported
H2	EE → UB	0.427***	0.084	5.070	Supported
H3	SI →UB	-0.070	0.074	0.948	Not Supported
H4	FC→UB	0.215***	0.086	2.517	Supported
H5	HT→UB	0.103***	0.060	1.713	Supported

*:p<0.1; **:p<0.05; ***:p<0.01

Findings

The findings of the study would practically and encouragingly contribute to the government decisions in Iraq especially over the course of sustainable EG services. Additionally, would also provide empirical lay down for the decision makers of Iraq, IT practitioners, and posterity on the sustainable of EG in Iraq specifically and technological adoption and acceptance in Iraq in general. Lastly, there are more than 28 million Iraqis have been waiting for enhancement in EG services.

Additionally, this research demonstrated UTAUT2 in the dangerous environment and sustainable context. The more of finding in details will discuss in the following paragraphs;

8.1 Performance Expectancy (PE) has a positive influence on sustainable (Usage Behaviour) of eG services.

The Performance Expectancy is defined as the degree to which an individual believes that using the system will help to attain gains in job/ life performance (Venkatesh et al., 2003, 2012). Many previous empirical studies have investigated PE in different fields and it was used in many softwares in analysis such as (SPSS, AMOS, PLS) in various countries (Al-Shafi & Weerakkody 2010; Al-Sobhi et al., 2011; Venkatesh, et al., 2003; Venkatesh et al., 2012; Yu-Lung et al., 2007; Yahya et al., 2011) who belong to developing and developed nations.

Accordingly, the researcher is particularly interested in investigating how PE contributes to effecting UB of eG services among end users in Iraq. Indeed, the present study attempts to examine the relationship between PE and UB in a risky area.

In examining the hypothesis related to the relationship between PE and UB the result of the SEM analysis implies that the effect of PE on the UB has a significant impact on the UB at the 0.01 level of significance ($\beta= 0.414$, $t= 3.817$, $p<0.01$). Therefore, hypothesis H1 was supported. The finding suggests that individual performances in terms of life performances and accomplishments of transaction/task can be improved when the individual use the eG services the unstable and risky environment.

This result is in line with previous empirical studies. Many previous empirical studies have shown that there is a positive relationship between PE and other variables (Al-Shafi & Weerakkody 2010; Al-Sobhi et al., 2011; Iawan, 2011).

8.2 Effort Expectancy (EE) has a positive influence on sustainable (Usage Behaviour)of eG services.

Effort Expectancy (EE) is defined as the degree of ease associated with the use of the system (Venkatesh et al., 2003, 2011, 2012). Based on previous works, it appears that EE is important among different innovations in the Middle East and non-Middle East countries (Abdul-Rahman et al., 2011; AlAwadhi & Al-Sobhi et al., 2011; Foon & Fah 2011; Venkatesh et al., 2011; Yahya et al., 2011).

However, there is a lack of empirical studies that examined EE in violence and dangerous situations. Therefore, further research is required to investigate the relationship between EE and UB in Iraq as a conflicted and risky region.

The finding proved that EE influences UB of eG services in Iraq, because of the degree of eG services is perceived as relatively easy to understand and use.

In examining the hypothesis of the relationship between EE and UB, the result of SEM analysis implies that the present study practically tested the relation between EE and UB. However, this study indicates EE has a significant and positive influence on UB ($\beta= 0.427$, $t=5.070$, $p>0.1$), or H₂ is supported. Therefore, hypothesis H₂ was supported.

With these findings, previous studies have provided empirical evidence of the significant positive relation between EE and UB (Yu-Lung et al., 2007).

8.3 Social Influence has an effect on a sustainable (Usage Behaviour) of eG services

Social Influence (SI) could be one of the main reasons of low usage of E-Services (Al-Majali, 2011) in general and specifically in Iraq. Moreover, the few past studies in Iraq have neglected the examination of the effects of social influence especially from family and peers, and empirical test have not been previously carried out in Iraq.

In examining the hypothesis related to SI the result of the SEM analysis implies that the present study practically tested this variable. More specifically, it was found that the SI has no effect on UB ($\beta = -0.070$, $t = 0.948$, $p > 0.1$). Also, β is negative (-0.070) among this relation, which indicates there is not a significant positive relationship of H_3 centralisation of SI. SI was hypothesised to be a significant positive effect on UB and the path was positive, as posted, it was not statistically significant within the selected .01 significant level. Thus this hypothesis did not support H_3 . Further, in this study, (β) size was -0.070 .

Previous empirical studies recommended that SI should play a critical role regarding to a new innovation. In the current study, the relationship was negative and not statistically significant, thus it was not supported H_3 .

This study suggests that the eG services users do not have any influence from their pair group or anybody influencing their usage of eG services. The finding further validates the non-significance of maintaining social influence in assessing technology. More so, in technologies that are prone to the public as revealed by (Chiu & Wang, 2008; Al-Sobhi et al., 2011). Additionally, the current study is in line with social influence result in other studies, because it is not making any significant contribution to the prediction in the Saudi Arabia eG context (Al-Sobhi et al., 2011; Alshehri et al., 2012).

8.4 Facilitating Conditions has a positive influence on sustainable (Usage Behaviour) of eG services.

Facilitating conditions is the degree to which an individual believes that an organisational and technical infrastructure exists to support the system (Venkatesh et al., 2003, 2012). Several prior empirical studies shed light on Facilitating Conditions (FC) as an important key for their studies, in different countries (Venkatesh et al., 2003, 2011, 2012). Furthermore, there is a lack of Facilitating Conditions (FC) in terms of Infrastructure (Al-Dabbagh, 2011; Portal Iraq, 2011), and of teeming challenges and barriers faced in Iraq. To overcome that challenges, the government of Iraq spent 20 million USD in an agreement between Iraq and Italy in 2004 to achieve eG project (Tai, 2008).

The SEM is also capable of performing analysis of the investigation of the relationship among FC and CUI. For research question number two, the results show that FC has a significant and positive influence on UB ($\beta = 0.215$, $t = 2.517$, $p > 0.1$) this appears to recommend that FC has a positive and statistically significant effect on UB. Thus hypothesis H_4 is supported. (Please refer to Figure 5.3 of Path Model Results). FC was observed to have significant influence on user adoption of eG services in Iraq.

With these finding, previous studies have provided empirical evidence of the significant positive relationship between FC and UB (Wang & Shih, 2009; Venkatesh et al., 2011; Adulwahab & Dahalin, 2011).

8.5 Habit and sustainable (Usage Behaviour) of eG.

Habit in this study means the time (duration) that a citizen in Iraq used the internet services. The results of this study show that habit has an insignificant effect on UB among Iraqis ($\beta = 0.039$, $t = 1.148$, $p > 0.1$).

Evidences that the Habit affect the usage of eG services, because it is possible that some Iraqi users have

Use the technology and or EG services as habit for example some EG services user have a daily or weekly habit to check his or her care fine by using e-fine through EG services or obtain their salary from the key card monthly (is the name given to one of eG services,

equivalent to what is commonly known debit card). This is the evidence that prove that H₇ is also supported. Many studies have involved the habit such as (Venkatesh et al., 2013;).

9. Conclusion

The findings of the study confirm that same theories and same variables have different results in different countries among different culture, sample size, nations, economic, environment and political circumstances. In specific there is a contribution by investigating a theory in new environment such as wars area, disaster region, risky environment, and so on. Additionally, there is a lack in testing UTAUT2 and usage issues in dangerous and unstable environment.

The finding also clarified that there is a clear gap to measure the usage issue (adoption an acceptance). Regarding to usage issue and by examine the literature there is a lack in applying UTAUT2 in conflict and dangerous environment.

In parallel, the findings of the study would practically and encouragingly contribute to the government decisions in Middle-East nations especially over the course of adopting an E-G technology .

Suggestion of future research

It is a high priority and important significance to measure the sustainable by use behavior of technology among the users in such as this environment specially the Middle-East in different parts facing different challenges and misfortunes such as wars in Yemen spicily civil war in north of Yemen, conflicts in Egypt and Libya, violence in republic of Iraq. Moreover, to include UTAUT2 as an underpinning theory to a determinant the effects of unstable circumstances on the environment affect citizen (users) among E-S technologies. Therefore, there is a need to involve various theories to measure the sustainability of eG services and unstable circumstance effects on users in Middle-East area. Moreover, this study carries out E-G spicily Government to Citizen services in risky environment, the next research could be concern on Government to Government, Government to Employee and Government to Business. At the same time, there is a lack of testing the variables that affect usage behavior and satisfaction of users as well. Additionally, there is a need to measure the adoption and acceptance in different context. Furthermore, there is a necessity to measure the electronic banking, electronic commerce, electronic learning, electronic system, electronic health record, electronic ticket, key card, Q card, smart card, visa card, master card, computer/ iPad adoption, mobile government (M-G), Telecenter services adoption and acceptance, under different forms of environments in developing and developed countries among different cultures and sample size.

Limitations of the Present Study

This study is proposing to including UTAUT2 as an underpinning theory to a determinant the effects of civil conflicts on environment and sustainability of EG services. Therefore, there is a need to involve another theory to measure the conflict's effects on users. Moreover, this study carryout one services out four, in another word this study concern on government to citizen services and there is a clear gap to measure the effect of conflicts on different types of EG services such as; government to government, government to employee and government to business. In same time, there is a lack of testing the variables that affect **sustainability of E-G** services and satisfaction of users as well Furthermore, there is a necessity to measure the sustainable services of electronic bank, electronic commerce, electronic learning, electronic system, electronic healthy record, electronic ticket, key card, Q card, smart card, visa card, master card, computer/ iPad adoption, mobile government (M-G), sustainable Telecenter services, under different forms of conflicts in developing and developed nations.

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The impact of external public debt and Foreign Aid to capital expenditure in Jordan (2000-2014) In light of the competitive advantage

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Abstract:

The purpose of the study is to build an estimation model for the impact of the external debt and Foreign Aid on the capital expenditures in the Hashemite Kingdom of Jordan for the period of (2000-2014). A multiple regression model is used and the major findings are: (1) there is a negative and statistically significant impact of external debt on capital expenditures; (2) there is a positive and statistically significant impact of foreign aid on capital expenditures.

1. Introduction

The capital expenditure has a main role in economic and social development process, without it there the country cannot be build product projects and service projects, and other capital formations (investments). Because of the lack or scarcity of domestic savings, most developing countries, which intend to speed up the development process are demanding foreign loans, to encourage its foreign investment in the national economy, as this has a direct and indirect positive impacts on many of the economic indicators, such as balance of payments, general budget, gross domestic product, total demand, employment, prices, and income and wealth distribution.

Jordan government's, during the past twenty years focused on reducing of external public debt, while the increase in government capital expenditure - which was seen as sufficient - were not among the list of priorities of fiscal policy in Jordan. The Jordanian government considers that increase private sector partnership in the field of capital expenditure is the best way to move forward towards increasing capital expenditure in the country (International Monetary Fund, 2005, pp. 37).

Research problem,

external public debt conceder's big issue for developing countries which is obstructing development financial policies plans, even threatening future financial stability of countries economics. over time the Jordanian state depends on financing both government capital expenditure , current government e spending and private capital expenditure: through finance external debt because of deficit in the domestic savings and weaknesses of the public revenues and deficit in the general budget, which is pushing the Government to search for new sources of funding were foreign loans of the most important sources of financing Capital expenditure in the Jordanian economy as a whole from government and private (investment). Public external debt value has reached in (2000) year to (5.044) billion JD has increased by (2014) year to (8.033) billion JD. Thus, the purpose of this paper is to determine the impact of external public debt to capital spending in Jordan for the period (2000 -2014). due to enormity of the necessary funds to finance the development process, there are a huge

investment is difficult to execute from private sector , therefore they cannot be invest, as a result of weakness revenues, investment activity , low income levels , low savings domestic rates and the lack of justice in developing countries including Jordan, many of These countries depend on external sources to finance investment projects, through external borrowing and foreign aid and foreign direct investment (ESCWA 0.2003, pp. 40-45). 2000-2014

Components of research problem,

explaining this study problem by asking the following key questions:

1. What is the impact of external public debt to capital expenditure in Jordan In light of the competitive advantage?
2. What is the impact of foreign aid on capital expenditure in Jordan In light of the competitive advantage?

Research hypotheses,

this study is based on the following main assumptions:
Ho1: No impact with statistically significant at the level of significance ($\alpha = 0.05$) of the external public debt on capital expenditure in Jordan In light of the competitive advantage
. Ho2: No impact with statistically significant at the level of significance ($\alpha = 0.05$) of the foreign aid on Jordan in capital expenditure In light of the competitive advantage.

Importance of research,

the importance of searching through highlighting the impact of external public debt on Jordan capital expenditure, according to researchers aware of Arab libraries are generally lacking and Jordanian particularly for such research and the researchers hope that the public and private sectors in Jordan benefit from the study results which we hope investigate. Hence the importance of studying impact of external debt on capital expenditure in Jordan, and the ability of external debt to mobilize domestic savings, and directing capital expenditure to achieve real economic growth, and exploiting funding from external debt effectively to improve investment and development the national economy.

External public debt:

Is the amount of debt-based (required) from a particular country and in other words is the amount based from actual liabilities and is not contingent on the residents of an economy, at any given time, for non-residents, which requires payments from the debtor to pay the original amount and / or interest at some point or points of time in the future. (IMF, 2003, p. 7).

Capital expenditure:

The definition of gross capital formation in the national accounts with the concept of capital expenditure in capital goods system corresponds to a concept used by economists. And gross capital formation does not include only the capital goods-producing (machinery, buildings, roads and assets artistic and otherwise, and the improvements that are made to non-produced assets) also the gross capital formation measures what is added to the capital stock of buildings, equipment and inventory which is in addition to the ability to produce more goods and income in the future. (United Nations national accounts, manual, 2005, p. 24).

Foreign aid: Include financial and technical assistance to be provided in aid of the state of foreign stats and institutions, to be allocated to finance development projects (the Central Bank of Jordan Annual Report 2008, p. 2)

2. Literature Reviews

Many researchers discussed this issue, external debt as a phenomenon represents an economic problem (Njern, 2003, P.32 & Griffin, 1970, Pp.99-112) it requires repayment deducted share of income or gross national product, it increases public spending, and reduce savings, in addition to the accumulation of external debt is a heavy load on the national economy if the public debt continues cumulative increase in rates greater than the rate of increase in the gross national product. (Alraheema, 2006, pp. 1941-1945)

The external public debt is a global phenomenon, the countries turn to because of the lack of internal economic resources to achieve desired rates of economic growth, increase the incomes of individuals, for the implement of development plans to reach a real growth in income and gross national product, and to meet the deficit in the balance of payments and public budgets from the shortage of local resources in achieving economic, social, political objectives, and to meet the change of population growth and demographic changes, as is the case of Jordan. Where the growing impact of this type of financing to increase the size of public revenues.(Awni 0.2005, pp. 165-159).

The causes of external financing.

As a result of the decline in foreign aid introduced to Jordan. Jordan dramatically goes to external borrowing, at the beginning of the eighties (Momani, 1987, pp. 8-7). We can be referred to a series of important reasons that prompted Jordan goes to external funding sources as an important source of access to financial resources:

Capital expenditure (investment):

. The investment process is more complicated than just a trade-off between interest rate and the marginal efficiency of capital, its affected by the prospects and forecasts conducted by the investor, and dimensions of political and planning and financial state. government's investment in Jordan's has been associated with the government's investment plans for economic and social development of the state, which aimed to increase the national income as a clear indicator of the progress of the country's economy, raise the living individual level, the provision of basic needs, the development of the structure of the national economy and achieve social utility that cannot be achieved by any other sector exception through the government sector. The marginal investment tendency and the sustainability of the development at high rates rise, requires capital-intensive and advanced technology, which is lacking in Jordan, like other developing countries, which is forcing Jordan to external borrowing for the purchase of machinery and equipment. (Kasasbeh, 1993, pp. 34-18).

Jordan general budget described with continuing structural long-term deficit due to the large expansion in public expenditures of the state, both current and capital expenditure.

Second: capital expenditure Government investment still importance in the development process and promote the economy National (Mshorab, 1997, pp. 120-103). This confirms that some of the projects countries need to modern technology, private investor sometimes hesitated to engage in some of the high cost despite of the high investment return, so the state participate and enter to transfer technology and reduce its primary costs of the projects, in addition to the state's ability to mobilizations of appropriate technology for economic and social conditions compared to the ability of private sector. The profit is private investor goals to enter into the projects, while the main motivations for most of the government investment is the social and economic development, to achieve a balance between the different sectors of the economy and income redistribution and the government investment objectives to least developed regions to achieve a balanced growth between regions or governance. (Ajamiyeh, 1984, pp. 348-347) .

Public investment could adversely affect investment when financed from internal loans of direct and indirect taxes and of inflationary financing, where the savings of individuals transfer through government, which reduces the funds available for private investment. However, the public investment has positive effects on private investment, as it works to motivate by providing infrastructure, lines of transport and communication and skilled workers

trained, etc. this is lead to reduces the cost of production and increase private sector productivity, as well as by increasing effective demand resulting from increased government spending (ESCWA 0.2005, pp. 2-1).

There's nothing wrong with the government sees as modern thought leading to public borrowing or increasing it, as long as it does not produce bad economic effects. And Bastyl seen the necessary of differentiate between public loans held for economic production purposes and loans, If it will invest in projects that generate physically revenues at least equal to the loan amount and interest it will be a feasibility to borrow. (Draz and Samira Ayoub, 2002, p. 299 y 304, Nasser 0.2005, p. 50, p 222).

Capital expenditure determinants,

Investment policy based on encouraging the mobilization of domestic savings through work on sustainable development, which is reflected the individual's income-level, maintaining the stability of the currency exchange rate and interest rate. motivated domestic savings , attracted foreign investment, and stimulated local investments needed to achieve sustained economic growth and domestic investment, it is essential to the local investment environment to create and increase confidence in the investment climate and investment promotion, through the provision of incentives and exemptions, facilitate the registration and licensing procedures for investment projects, create the appropriate legal environment to protect investment, also must develop and strengthen the financial market (ESCWA, 2003, p 43-47). the researchers choices the most important determinants of spending capital as follows:

external public debt,

States went to the external source of financing if local revenues insufficiently to meet local spending state needs to provide the desired level of growth, and services that state take upon itself, the external public debt contributes to increase capital formation and thus increase GDP. On the other hand, there are a repayments and interest, and debt services according to the terms of agreements in terms of dates, currency and so on. (Momani, Riad, p. 365).

the external public debt impact on investment may be positive or negative, sometimes depending on the nature and results of the economic policy followed in the debtor country, some studies concluded that a negative relationship on the Jordanian economy as a bug load of external borrowing swallow a large part of Jordan exports and national income, the external borrowing did not significantly contribute to increased domestic production and domestic savings, and the trade balance deficit reduces and has a negative impact on economic growth for the period a year ago (1985) (Momani, Riad, p. 371).

Foreign aid, the value of foreign aid raised from 240 million Jordanian dinars since (2000) to (1237) million dinars a year (2014). Foreign aid conceder of the most important sources of free fund, they are financial transfers to Jordan treasury from institutions and foreign governments as grants, and exploited by countries receiving aid in the financing of capital and current expenditures, as well as soft loans, which are within the framework of foreign aid which is reflected on investment. (Central Bank of Jordan report, 2014).

Workers' remittances abroad, recently growing interest in financial flows associated with the transfers' overseas workers as a source of funding externally from Jordanian , in the year (2000) Jordanian Workers' remittances abroad transferred (1.177) billion dinars compared to (2388) billion dinars in the year (2014), which means that overseas workers' remittances It jumped (1.03). The Jordanian remittances are one of the most important sources of financing in Jordan.

Economic growth,The economic growth means GDP growth, so the economic growth measured by GDP growth rate, while the development is economic growth accompanied by a series of structural changes that affect all economic and social aspects of the population. economic growth affected by the level of financial available resources through the labor force growth , development of skills, increase the production capacity of the agricultural, industrial

and service economy, because of growth is influenced by technical progress. (Taher, 1998, pp. 50-45).

Economic openness, Openness affects the economy through liberalization of trade goods and services import, export and transfer of production elements. Impact of imports on economic growth by saving capital goods and intermediate materials to developed the national investments. In opposite the imports are a loading on the state's foreign currency reserves. (Meshaal, et al., 2007, p. 7-1). Economic openness is measured on the basis of total exports and imports.

Interest rates, the changes in interest prices have many reflects on investment decisions, borrowing and saving. The interest rate is one of the monetary policy, which contribute to maintaining the balance between savings and investment, as the change in the interest rate affects the distribution of funds available for investment tools, so the interest rate determined investment. (Khryosh et al. 1999, p. 4-2).

Capital expenditure depends in Keynesian theory on the investment cost of the interest rate and linked relationship counterproductive, in addition the capital expenditure depend on investors' expectations for investment return, high interest prices pushed borrowing countries to look for other sources of lending and interest rate minimum cost. (Ali and Nizar Al-IssaSaadEddin, 2004, p. 303-325).

the capital expenditures or capital investments are investments which is expected return distributed to a number of years more than one year, for example, investments in various types fixed assets which are considered as productive assets (equipment, stock, tools and means of transportation). Long-term investments that do not give a profit quickly in the short term and not the logic of assessed on the basis profitability in the short term. (Hanafi 0.2001, p. 263-257).

ESCWA (2005) The aim of the study to identify macro-economic factors that may contribute to GDP growth which might be promote economic growth in the ESCWA region, was used model to straighten confrontations errors and self-retreat confrontations and models Granger causality to highlight the gross domestic product (GDP) in member countries growth determinants, and do practically determine the relationships between GDP and public debt and private and private investment growth rate. The study found that public investment a positive impact on private investment, the study recommended that Jordan should seek to further stimulate public investment in infrastructure, financial and human capital, and will achieve growth of public investment in health and education in GDP. Moreover, the public investment in infrastructure, it seems a major role in stimulating private sector initiatives

ESCWA (2007)The study examined the role of foreign aid in the Arab region's development over the past three decades, with a focus on Jordan, Palestine, Egypt and Yemen, the study was presented to policy-makers in governments and international institutions whom concerned with a comprehensive analysis of macroeconomic development, the most important trends in the flow of foreign aid to the Arab region and the characteristics of these Aid, and its impact on economic growth and social indicators, the study identified a number of key areas that should be addressed in the economic policy in order to increase the effectiveness of flowing aid to the Arab region to reducing poverty and enhancing development, also to know the impact of aid on economic growth and social indicators, the study found through analysis on Jordan, Egypt, Yemen and conclusions of the other studies, that foreign aid is more volatile than other macroeconomic variables, such as GDP .

Khalidi study (2008) The study focused on the analysis of the impact of foreign aid on economic development in Jordan, its suggest that poor countries mainly depend on foreign aid as a resource to meet their financial deficit. There are many external resources such as foreign direct investment, foreign loans, loans and technical assistance, and other forms. Jordan remained one of the countries that do not have foreign investment, Jordan has to be depend on

foreign aid and debt instead of other external funding sources, the study found that the flow of foreign capital has a direct and clear impact on economic development in Jordan

Alfred Greiner, (2014) The study the macroeconomic effects of public investment in low-income countries, the investment-growth linkages, public external and domestic debt accumulation, the fiscal policy reactions necessary to ensure debt-sustainability. Well-executed high-yielding public investment programs can substantially raise output and consumption and be self-financing in the long run. However, even if the long run looks good, transition problems can be formidable when concessional financing does not cover the full cost of the investment program. Covering the resulting gap with tax increases or spending cuts requires sharp macroeconomic adjustments, crowding out private investment and consumption and delaying the growth benefits of public investment. Supplement with external commercial borrowing, can smooth these difficult adjustments, reconciling the scaling up with feasibility constraints on increases in tax rates. But the strategy may be also risky. With poor execution, sluggish fiscal policy reactions, or persistent negative exogenous shocks, this strategy can easily lead to unsustainable public debt dynamics. Front-loaded investment programs and weak structural conditions (such as low returns to public capital and poor execution of investments) make the fiscal adjustment more challenging and the risks greater.

Jaejoon Woo and Manmohan S. Kumar, (2014) This paper explores the impact of high public debt on long-run economic growth. Analyze, based on a panel of advanced and emerging economies over almost four decades. The empirical results suggest an inverse relationship between initial debt and subsequent growth, controlling for other determinants of growth: on average, a 10 percentage point increase in the initial debt-to-GDP ratio is associated with a slowdown in annual real per capita GDP growth of around 0.2 percentage points per year, with the impact being somewhat smaller in advanced economies. There is some evidence of nonlinearity with higher levels of initial debt having a proportionately larger negative effect on subsequent growth. Analysis of the components of growth suggests that the adverse effect largely reflects a slowdown in labor productivity growth mainly due to reduced investment and slower growth of capital stock.

3. Methodology

This study aims to test the effect of the independent variables: external public debt, foreign aid, on the dependent variable of capital expenditure in Jordan, to achieve the goal of the study we testing the impact of these three independent variables on capital expenditure in accordance with specific procedures and using the data collected, categorized and analyzed, so that they are subject to testing and draw conclusions

approach of the study: The study relied on the related subject of the study of financial statements, in order to identify the impact on public external debt and foreign aid as a dependent variables on the dependent variable; capital expenditure in Jordan for the period for the period (2000-2014).

The data of the study consisted of data available for the main variables study, which have been available from the Jordanian general budget Department, Ministry of Finance, the Central Bank of Jordan, the Department of Statistics of Jordan, International statistics and reports of the World Bank to get the study data during the study period.

The study method Researchers relied on descriptive analysis and benchmark in data analysis and interpretation in order to test hypotheses of the research. The analysis used the time-series to explain model variables, which was estimated using analysis software (Eviews 5) to test the impact of the external public debt and foreign aid on capital expenditure.
the study variables: below is an overview of the variables used in the research used in the standard model:

Independent variables A. External public debt: the expression of the outstanding public external debt. The researchers have got data from the central Bank publications, Jordanian Ministry of Finance and the Directorate of Public Debt.

B. Foreign aid has been expressed in financial and technical assistance they provide in aid for the state from foreign countries and institutions, the data were expressed in Jordanian Dinars. It was obtained on foreign aid from the Central Bank of Jordan publications data. **Dependent variable:** the total government and private capital spending. capital expenditure values expressed in the published reports and location of the Central Bank of Jordan and the Jordanian Department of Statistics As for the last two years (2014-2013) it has been estimated by the researchers because its not available.

study design and statistical treatment, In order to study the relationship between the dependent variable (capital expenditure), and independent variables (external public debt, and foreign aid) researchers have been building a standard form to express the changing relationship of capital expenditure and independent variables, as follows: This is the model that has been estimated using analysis program (Eviews 5) and it can be applied directly and the same on this form of statistical data used to summarize the results of the research. Following is the standard model of the relationship between the variables:

$$CE = f(CE (-1), (ExD, FA,))$$

Where it symbolizes:

CE: capital expenditure.

CE (-1): capital expenditure in the previous period.

ExD: external public debt.

FA: foreign aid.

a1 a3: regression coefficients for independent variables.

The statistical treatment of research was based on a standard model building using multivariate regression equation estimated by using analytical software (Eviews 5) to conduct statistical tests of hypotheses of research to make sure it is correct. Since the data is time-series, the researchers have been test the model (stationary test) to make sure that the model does not suffer from the problem of inconsistency.the standard model of the relationship between the variables:CE = f(CE (-1), (ExD, FA,) :

$$CE = 1.070+0.901CE (-1) -0.101ExD+ 0.110FA+e$$

4. Results and recommendations: Hypotheses testing

Multiple and simple regressions have been used for testing the study hypotheses.

Hypotheses No1: There is no statistically significant impact of external public debt to the capital expenditures in Jordan In light of the competitive advantage.

Analysis shows that (R²) =0.0001 It means that the external public debt has been interpreted to 0.001% of the variance in the dependent variable (capital expenditure). Taking all other variables constant, as it can be seen that the value of significance of (F) its 0.975 which is more r than 0.05 as a result of this. (Ho1) would be accepted, which mean that there is no statistically significant impact of external public debt to the external capital expenditure.

Hypotheses Ho2: there is no statistically significant impact of public external debt to capital expenditure In light of the competitive advantage .

Analysis shows that the coefficient of determination (R²) =2.73% the computed (F) value 6.634 which is more than tabulated (F) value, or value significance for (F) is 0.022 which is less than 0.05. As a result of this testing, Ho2 be rejected which means that there is statistically significant impact of foreign aid to the capital expenditure.

Testing the main hypothesis: There is no statistically significant impact of external public debt & foreign aid to the capital expenditure during the study period.

Based on Analysis it can be said that (R²) reached 9.48% and significance value (F) reached 0.000 less than 0.05 according to this result the main hypothesis would be rejected in its null form, and the alternative hypothesis would be accepted.

Recommendations, Based on the research results, the researchers concluded the following:

1. The importance of establish an independent department dealing with public debt, both internal and external managed debt sustainability, debt decision, determine currency, time, and size , type of public debt and its source.
2. Enhancing partnership between the public sector and private sector to promote private investment and should attention to crowded competition between public and privet investments, and reduce the role of the public sector in direct production for the private sector which is reducing the external debt.
3. Perpetrate many studies and researches on external debt and capital expenditure.

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The Effect of Low Morale and Motivation on Employees' Productivity & Competitiveness in Jordanian Industrial Companies

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Abstract:

The current study aims to examine the effect of low morale and motivation on employee's productivity and competitiveness. Low productivity and losing competitiveness is an outcome of low morale and low motivation and sometimes may lead to further undesired symptoms such as absenteeism and sabotage. Non-recognition of the employees' contributions their motivation and morale will not improve, nor will their productivity as well.

A questionnaire has been designed for this purpose, and it was distributed to selected accounting and management employees working in different Jordanian business environments. The number of questionnaires analyzed were (138) questionnaires. Regression data were analyzed using the statistical program Smart PLS, (Partial Least Square). The Study concluded that Low Morale and Low Motivation affects Productivity and Competitiveness and makes on limiting its consequences, and the study also recommended that management should work on increasing productivity by increasing employees' satisfaction through re-engineering systems and processes, providing incentives, education and training.

Keywords: Low morale, Low Motivation, Productivity, Competitiveness, Jordanian Industrial Companies.

1. Introduction

In General, high morale leads to high productivity, but there is not always a positive correlation between the two. Close supervision, time studies, and scientific management can be used in order to reach a high level of productivity, but sometimes we can reach to high productivity by low morale, but it is doubtful whether this combination can last. [1]. Renis Likert explained different combinations of morale and productivity: high morale and low productivity; high morale and high productivity; low morale and high productivity; and low morale and low productivity [2]. We can say that managers have to work for improving the morale of their employees, as high morale makes the work a better working environment, and it helps the organization to attain its goals easily.

Organizations want its employees to be more productive, so will motivation will be enough to get things done? And what motivates our behavior. Employees are considered the most important resources, and the winning card in the hands of management. Low productivity may be traceable to poor employee motivation. The success and effectiveness of any firm depends to some extent on how well employees are motivated. Theories of human resource management, as well theories of motivation suggest that motivated employees tend to be more creative and productive, and wise management is the management which could use theories of motivation in order to increase productivity and competitiveness [3].

Competition can be defined as a contest between individuals or groups where they strive to attain and reach particular goals [4]. The concept of competitiveness has been linked to early socialization processes between parents and children. Parents often teach individualism to their

children and this is often characterized by making distinctions between themselves and others [5]. Motivation and competitiveness go hand in hand together. Individuals who are extremely motivated are also extremely competitive as they know the way and the means to accomplish their goals. On the other hand, other individuals use competition in a negative way. These individuals use competition selfishly to achieve their goals without considering the consequences to themselves and others [6].

Society places a great emphasis and pressure on competition. There is a controlling focus on being competitive and successful [7]. This kind of focus can cause low intrinsic motivation as the individuals may feel lost between the ways and the gains. This concept is known as the hidden cost of reward. That is, it is having the opposite effect on the individual. So instead of motivating them to win, it is causing them lower intrinsic motivation [8].

The current research problem focuses on how low morale and motivation of employees, who feel they are not being recognized as valuable contributors to the system, and get no rewards for the good work that they do, may lead to low productivity, losing competitiveness, and sometimes may lead to further undesired symptoms such as absenteeism and sabotage.

In order to stand on study importance, the current research is going to cover all aspects of low morale and motivation and its effects on productivity and competitiveness. These two important aspects are attributed to employee's negative psychology. From the researchers point of view these two factors are very important and it worth discussion.

The objectives of the current study aims to examine the effect of low morale and motivation on employee's productivity and competitiveness. This research will try to attain the following objectives:

To stand on the causes of low morale and motivation

To point out the effect of low morale and motivation on employee's productivity and competitiveness.

2. Literature Review

Moral is an elusive quality which involves feelings, emotions, attitude and perception towards the organization and its members. Positive moral is usually characterized by discipline, confidence and willingness to perform.

Low moral can be attributed to many factors such as job security, lack of fair compensation policy, uncertain business conditions, and excessive outsourcing practices. Low moral effects company income, productivity, financial competitiveness, and effect organizational objectives [9]. Low morale is an outcome of managerial behavior where managers addresses their employees from atop-down command, and don't communicate directly on work place issues [10]. This kind of communication results in a gap between employees and managers, which in turn leads to employee distrust, disrespect, and reduction of morale and workforce motivation [11]. Low moral also causes employees to lose interest especially when managers don't appreciate employee's efforts and tasks performed [12]. A costly indicator of low morale is high employee's turnover. This happens when employees leave their jobs as they feel unhappy and have no incentives to stay. The negative effect of employee's turnover is disconcerting because of its great effect both financially and on productivity levels. Financially means, the company has to hire new employees either by higher salaries or by additional recruiting expenses. At the production level, the employees who leave, they will take with them the knowledge, skills and ability that helped contribute to the goals, profit and performance of the organization [13].

Absenteeism is another costly indicator of low morale. Unjustified absenteeism increases cost and decreases productivity [14]. According to an article in The Leading Edge, "dissatisfied employees or discontent with their bosses can have a high price tag". [15]. Management should work on controlling the effects of low morale throughout understanding of their employees' potential and their core work processes, understanding their abilities, enriching employees' job and recognizing their achievements [16].

The second perspective of this study is motivation. Motivation has been the core of many studies. The early studies carried out in the eighties and nineties of this century have discussed this concept widely. Mitacheel (1982), and Steers & Peter (1983), Baron (1991) stated that motivation is the internal process that activate, guide and maintain behavior [17]. At the beginning of the twentieth century other researchers such as Buchanan & Hueznski (2004), stated that motivation is “the cognitive decision making process through which goal directed behavior is initiated, energized, directed and maintained” [18]. Butler & Rose (2011), defined motivation as the course of movement, the inspiration behind activity, and the feeling within individual that makes him want to achieve personal need or expectation [19]. Recently Osabiya (2015) defined motivations as the driving force within individuals by which they attempt to achieve specific goal in order to fulfill some needs or expectations [20].

Achieving sustained high levels of performance is usually the aim of every organization. Employees are considered the main tools of such aimed performance, and motivation is considered the mean to achieve such performance. In other words, high attention should be given to methods of motivating individuals in order to achieve the desired goals.

The current research study is linking motivation with productivity. The recent research studies indicated a positive correlation between motivation and the level of productivity in many organizations. Companies that use motivation to enhance a higher level of productivity are considered a world class and compete globally, and which in turn create sustained competitiveness [21]. Also research indicated that a person who is motivated works hard, sustains a pace of hard work, and has self-directed behavior to achieve the desired goals. On the other hand, low motivation with low productivity is often considered to be the problem. To fully understand motivation, studies stated that, there are two types of motivation extrinsic and intrinsic. Extrinsic motivation is concerned tangible, real rewards that are received by the employee while intrinsic motivation is a built inside the person and which is natural in nature [22]. According to individual’s psychology, there is an inherent set of needs in each individual which can be satisfied through rewards of their job work performance [23].

The other element concerning this study is productivity. Productivity is defined as the effective and efficient utilization of all resources, material, labor, capital, information and time [24]. Low productivity is indicated through many signs which include poor quality of domestic outputs, lack of competitiveness of products in international markets, shortages of skills, low production technology, poor industrial relations, and poor human resource management. Research finding indicate that there is a link between motivation and productivity in the industrial sector. When an employee’s needs are met, it means that he derives his satisfaction from the job and eventually it creates a motivated employee [25]. All motivation theories tend to support the idea that a motivated worker willingly uses his ability in a constructive way to accomplish the tasks assigned to him. A motivated employee’s work attitude is wholesome and tends toward high performance and productivity [26].

In General, high motivation and high morale leads to high productivity as it was mentioned in the introduction of this research paper. There is not always a positive correlation between them. Close supervision, time studies, and scientific management can be used in order to reach a high level of productivity, Renis Likert as it was stated earlier he mentioned different combinations of morale and productivity: high morale and low productivity; high morale and high productivity; low morale and high productivity; and low morale and low productivity. Managers have to work for improving the morale of their employees, as high morale makes the work a better working environment, and it helps the organization to attain its goals easily [27].

The final element of the study variables is competitiveness. As early stated, motivation and competitiveness go hand in hand together, competition is found in all aspects of life, even between brothers and sisters. Competition has great impact on the motivation of an individual. Some individuals use competition in a positive way, they use it in order to gain personal growth and to help them reaching their potential goals. Other individuals use competition in a negative way. These individuals use competition selfishly to achieve their goals without considering the consequences to themselves and others [28]. Individuals who are extremely motivated are also extremely competitive as they know the way and the means to accomplish their goals.

3. Method

The primary data needed for the study objectives were collected through a survey conducted among Different Jordanian industrial companies. The total listed industrial companies in Jordanian are 64 companies, and a total of 580 employees working in different managerial levels. The research study sample size is 295 employees which were determined using the sample size formula at 95% confidence level, and 4 confidence interval, and a total of 580 employees which constitute the study population.

A questionnaire has been designed for this purpose, and it was distributed randomly to the working employees taking part in actions and activities on carrying out business in their companies in November 2015, and to different managerial levels. The number of valid questionnaires analyzed were (276) questionnaires out of (295) distributed which constitute 93.5% of total questionnaires distributed. The questionnaire was designed out of 24 questions, which (9) questions were specified to low morale, (8) questions were specified to low motivation and finally (7) questions were specified to Productivity and Competitiveness. Resolution data were analyzed using the statistical program Smart PLS.

Quantitative data were collected using a self-administered questionnaire, in which the employees were asked to state the likelihood (on a 5-point scale: [5] strongly agree; [4] agree; [3] neutral; [2] disagree; [1] strongly disagree).

Other Data is collected from secondary sources. Secondary data is collected from articles published by the well-known periodicals, books, and dissertations.

3.1: Statistical Analysis

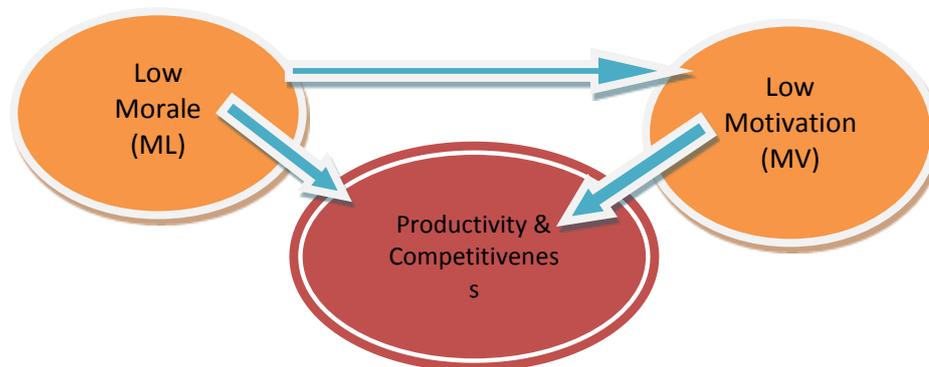
The Statistical Package for Social Sciences Smart PLS was applied in analyzing the data received; Statistical Analysis tools include the followings:

Descriptive Statistics, mainly frequencies and percentages, were used to analyze sample characteristics according to job, educational level, professional certificates, and experience.

Correlation, Inter-correlation, Regression, and Path Coefficient were used to analyze and describe study variables from a statistical point.

Reliability Test using Cronbach's Alpha was used to test the reliability of the scale.

3.2 Research Design (Exhibit-1)



Research design is formed out of three main elements which constitute the research design. The Model in Exhibit-1 shows the effect of low morale, and low motivation on the Productivity and Competitiveness.

3.3 Study Hypothesis

H1: There is an effect of low morale on low motivation.

H2: There is an effect of low morale on Productivity and Competitiveness.

H3: There is an effect of low motivation on Productivity and Competitiveness.

3.4 Data Analysis and Findings

3.4.1: Reliability test:

Cronbach’s alpha was used to test the internal reliability of the measurement instrument. According to Uma, Sekrran a Cronbachs Alpha of 0.60 or higher is considered acceptable [29]. As shown in Table (1) the Cronbach’s Alphas (α) ranged from 0.692 to 0.916, thus establishing the reliability of the survey questionnaire. It is obvious that all values of alpha are acceptable and relatively high. This indicates that for each measurement of a variable, the items are correlated and hence highly consistent. Table (1) shows the Cronbach's alpha for each scale:

Table 1: Cronbachs Alpha

	Cronbachs Alpha
Low Morale	0.825959
Low Motivation	0.692194
Productivity & Competitiveness	0.916212

3.4.2 Sample Characteristics

The respondents were 74% male and 26% female; most of them were between the age of 26 years and 45 years. Most respondents had average experience more than 5 years. Most of the Job title of 67% of the respondents were Office Clark, 19% Deputy managers, 9% Head of department, and finally 5% were Executive managers. Most of respondents 70% had Bachelors’ degree, and the remaining 30% were having other degrees. Demographic data is shown in Table No. 2

Table No. 2 Demographics Data for the Pivot Study

Variable	Group	Frequencies	%
Sex	Male	204	74
	Female	72	26
Total		276	100%
Age	Less than 25 years	46	17
	From 26 years—35 years	82	30
	More than 36 years—45 years	88	32
	More than 46 years	60	21
Total		276	100%
Professional Certificate	Bachelors' Degree	192	70
	Other Degree	84	30
Total		276	100%
Job Title	Executive	16	5
	Head of Department	24	9
	Deputy Manager	52	19
	Office Clark	184	67
Total		276	100%
Experiences	Less than 5 years	28	9
	From 6 years – 10 years	112	41
	More than 11 years – 15 years	90	33
	More than 16 years	46	17
Total		276	100%

3.4.3 Smart PLS Results:

The structural model results are shown in Exhibit 2. Examining the path coefficients; the numbers on Table 3 enables us to determine, that Low Morale has the strongest effect on Low Motivation (0.985), followed by Low Morale on Productivity and Competitiveness (0.354), and the effect between Low motivation and Productivity and Competitiveness was (0.630). The results show that the relationship between the three variables is statistically significant. Based

on their path coefficient scores, it would appear that the influence of Low Morale and Low Motivation on Productivity and Competitiveness is significant. However, it seems very unlikely that the hypothesized path relationship between Low Motivation and Productivity and Competitiveness is (0.354) is relatively weak compared to path relationship between Low Morale and Low Motivation (0.985), and Low Morale on Productivity and Competitiveness (0.630) but still significant, as the findings of Smart PLS rule explains that the path Coefficient is significant if it is above 0.015.

Table 3: Path coefficient

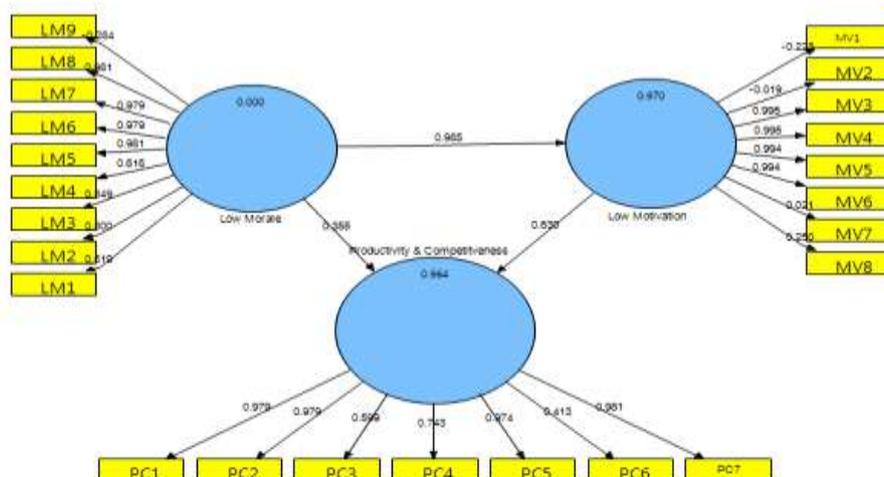
Path coefficient	Low Morale	Low Motivation	Productivity & Sustainability
Low Morale		0.985097	0.354857
Low Motivation			0.630448
Productivity & Competitiveness			

Examining the outcomes of R Square which represents the proportion of variation in the responses that is explained by the original model using predictor values from the test data. Moreover, the three constructs explain between 57% to 66% percent of the variance of the endogenous latent construct Low motivation ($R^2 = 0.570$), and endogenous latent construct Productivity and Competitiveness ($R^2 = 0.664$). According to R square results it is considered moderate. Table 4 illustrates the R square results.

Table 4: R square

	R Square
Low Morale	
Low Motivation	0.570416
Productivity & Competitiveness	0.664157

Model Results: Exhibit-2



The convergent validity assessment is associated with the Average Variance Estimated (AVE)

value. The evaluation of validity criterion in table 4 illustrates that the AVE values of Low Morale (0.531), Low Motivation (0.508), and Productivity and Competitiveness (0.701) are all above the cutoff point of 0.50. Therefore, all reflective constructs demonstrate high levels of convergent validity [30].

Table 4: AVE

	AVE
Low Morale	0.531549
Low Motivation	0.508221
Productivity and Competitiveness	0.701575

4. Conclusions & Recommendations

4.1 Conclusions

The results show that the relationship between the three variables is statistically significant. Based on their path coefficient scores, it would appear that the influence of Low Morale and Low Motivation on Productivity and Competitiveness is significant, so the research hypothesis stating that Low Morale and Low Motivation affects Productivity and Competitiveness and makes on limiting its consequences.

The Real cause behind low employee morale can include uncertain business conditions, limited upward rewards, job security issues, lack of fair compensation policy, and excessive outsourcing policy.

4.2 Recommendations

Management should ensure a positive work environment which encourages confidence, discipline, and willingness to perform the job in the best possible manner.

Management should also work on strong and sustained compensation policies that bridge the gap between the payrolls of the employees.

Management should work on increasing productivity by increasing employees' satisfaction through re-engineering systems and processes, providing education and training.

Encouraging practices that focus on learning of personal development competitive attitudes.

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STATIC COGNITIVE SIMULATION MODEL EVALUATING THREATS SURVIVABILITY OF COMPLEX TECHNICAL SYSTEMS

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Abstract:

The paper presents a dynamic cognitive simulation model of complex technical systems that allows monitoring the impact of adverse external influences and factors affecting units of the system on its common state. Unlike previous models, which evaluated only static patterns of the behaviors of complex technical systems, this model makes possible tracking changes of the system over time. The model is constituted of a directed graph, and simulating the processes of degradation and recovery of complex technical systems units in a discrete time mode. The model can serve stand alone mode, as the core component, or part of the framework of decision support system. It is also possible to use models for risk management for a complex technical system in accordance with ISO 31000:2009.

Keywords: complex technical systems, cognitive simulation model

1. Static cognitive simulation model evaluating threats survivability of complex technical systems

Today, decision support system widely used - both in form of a "situation room", and in form of systems that collect and visualize information about the status complex technical systems (CTS) and predict the further development of the situation. (Mallach, 2000)

In the case of CTS combination of object management and the context external environment is a complex set of processes and factors that significantly influence each other. Existing methods for the evaluation of threats and risks are largely static assessment of threats to the functional, structural and cyber survivability of CTS. So accurate assessment of the dynamic behavior of CTS under the impact of adverse external influences and factors affecting survivability is facing difficulties as a "combinatorial explosion" which significantly complicated tracking all possible scenario of CTS behavior. For example, cognitive simulation model (CSM) ship power plant (Fig.1) in the minimum structural form has more than 130 units, and static analysis generation about 1206 scenarios. (Boyko & Vychuzhanin, 2013) Applying the dynamic component to model can significantly complicate it.

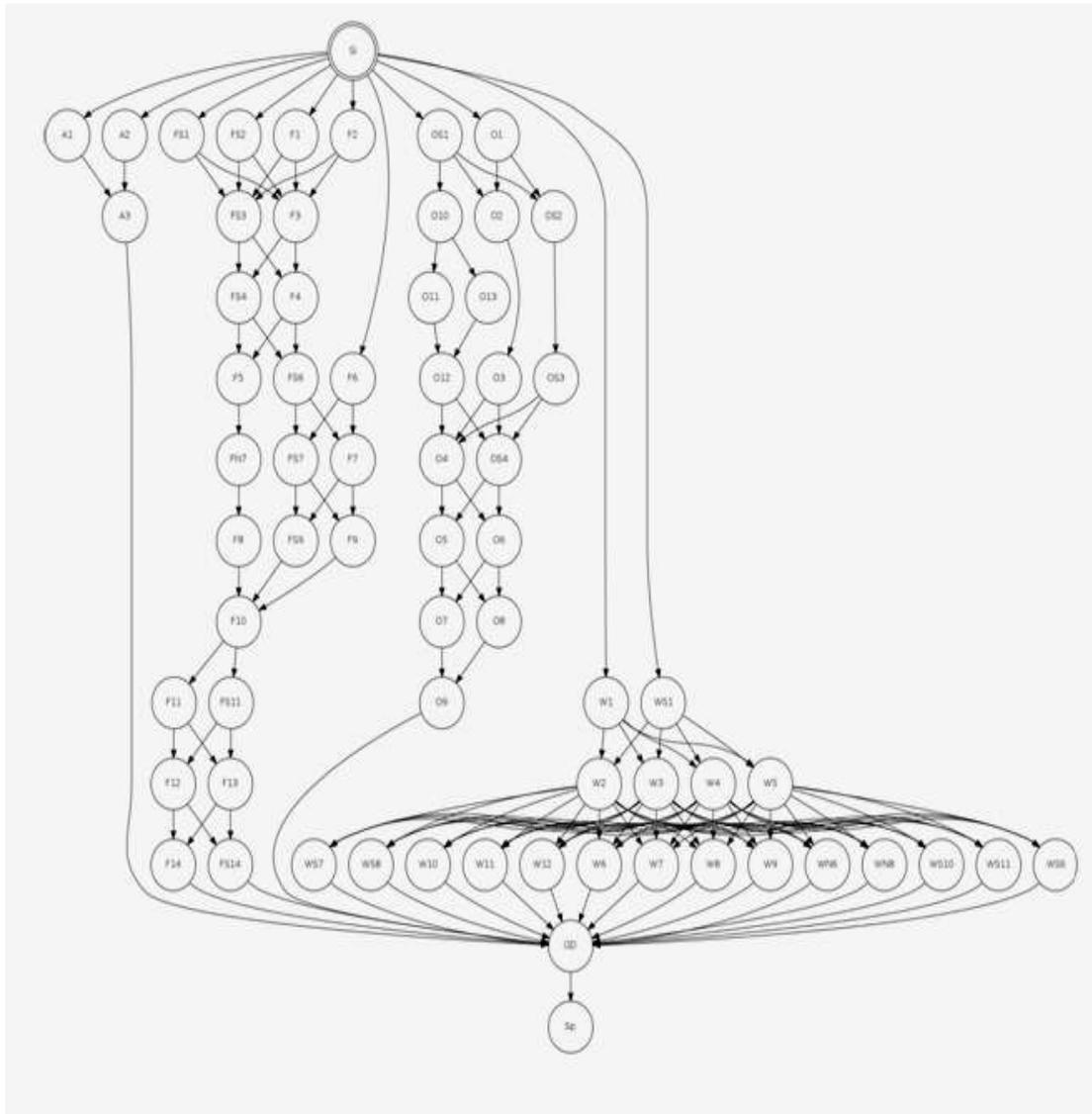


Fig. 1 – Example of minimal base CSM of ship power plant.

In this paper, a dynamic extension of the existing static model are proposed. This extension is done by integrating into model nodes additional dynamic characteristics. These characteristics can change the functional parameters of nodes that represents the real functional performance in a model unit CTS.

Basic CSM CTC is a weighted directed graph, where nodes model CTS units, and directed edges – inter-unit communications. Each node in model bind parameters determining the performance of the real unit CTC, and with each edge – parameters defining the characteristics of inter-unit communications.

At listed papers are discussed methods and techniques of analysis of the connection between individual units and the complex overall all-state system survivability.

These approaches have connected a number of different aspects of threats to the survivability of individual unit (Boyko, 2012). All three aspects – structural, functional and cybernetic, which are characterized by structural, functional and cyber threats, respectively. Structural threat determines the dependence of the effect of one unit on the overall survivability of the CTS according to the "geographical" position the unit in the overall CTS hierarchy. Functional performance criteria are used to determine the effect functional state of a single unit for the total functional survivability (secondary functional performance) of CTS. Finally, cyber threats, defines the role and position of the unit in the overall control of the complex and the impact on the general state of the machine control CTC. Cyber threat can be considered as a property of the system to maintain the observability and controllability in its context, where

observability - the system's ability to provide complete and accurate information about the status of its units and inter-units communications and control - the ability to properly and respond to control commands in a finite time.

According to the proposed approach for evaluating the structural, functional and cyber threats survivability for each node CSM CTS is done by modeling pulses, which permits to avoid complicated analytical calculations and accordingly simplifies software component of the model. Therefore structural, functional and cyber survivability are evaluated by the distribution modeling impulses along the orgraph of CSM CTC. Model complemented artificial units - for the distributing of the diagnostic pulse addition nodes of "super-source" and "super-receiver" are required. Upon receiving values of threats and risks for each of the system units they are ranked in ascending order of threat, thus allowing to identify and account of potential all-system risks.

From software realization point of view CSM CTS is combination of associative arrays (dictionaries of terminology Python language). These dictionaries store the state, name and parameters nodes CSM CTS, communication configuration between the nodes and the status of these inter-unit communications. Furthermore, for each discrete point of time software model stores vectors for each of simulating pulses. They are used for recursive modeling of distributing pulses along the model. One of vectors represents a nodes status at time t , and the other at time $t + \Delta t$, where Δt - discrete time step. Distribution of pulses is calculated by a special algorithm which is implemented in python language. (Schult & Swart, 2008)

Along evaluating of the functionality of threats and risks, the model is complemented by artificial nodes "super-source" and "super-receiver". "Super-source" is node, which is connected with all "real" source-nodes of model (nodes which have no predecessor in graph). "Super-receiver" is node, which is connected with all "real" receiver-nodes of model (nodes which have no successor in graph). Cognitive simulation modeling for evaluating observability and controllability of the model, models graph also is complemented by artificial units - "sensors", and "controllers". Both may or may not have hardware analog in CTS, in the latter case they simply presents external observer abstraction. Sensors presents nodes which receive information of the status of units or inter-units bonds of CTS. Node controllers transmit control signals to model units. Also, edges and nodes of model may carry a different parameters depending on what type of resource connections ("substance - energy - information") they model.

The initial value of CSM CTS units are stored in an external file, which can be set as a dialect of JSON or YAML standard (see. Fig.2) - this is done to ensure simple serialization of data from one side, and on the purpose make system data maximal language independent, "self-describing" and easy to understand (Crockford, 2006). Also this approach beneficial from safety and consistency of model software realization. In the extremal case, the model file can be edit manually even in a text editor. In addition, plain text format allowed wide use of version control system using the traditional centralized or distributed system of version control (svn, mercurial, git), and successfully solve issues of distributed backup and software distribution scheme of model data between different centers of decision-making support.

The output data of the model are table values with threats that can be displayed either as a simple csv format (which allows them to further processing by simple command-line utils), or in human formats json/yaml, or, if necessary, a fully automated processing and serialization format – for example in xml.

```
{
  "rej": "bin",
  "row_razd": ";",
  "decimal_razd": ",",
  "v":
  {
    "V01":{"V06":1},
    "V02":{"V06":1},
```

```

    "V03":{"V06":1},
    "V04":{"V07":1},
    "V05":{"V07":1},
    "V06":{"V08":1},
    "V07":{"V09":1},
    "V08":{"V09":1,"V10":1},
    "V09":{"V10":1,"V11":1, "V12":1},
    "V10":{"V13":1,"V14":1,"V15":1},
    "V11":{},
    "V12":{"V16":1,"V17":1},
    "V13":{},
    "V14":{},
    "V15":{},
    "V16":{},
    "V17":{}
  },
  "w":
  {
    "V01":1.0,
    "V02":1.0,
    "V03":1.0,
    "V04":1.0,
    "V05":1.0,
    "V06":1.0,
    "V07":1.0,
    "V08":1.0,
    "V09":1.0,
    "V10":1.0,
    "V11":1.0,
    "V12":1.0,
    "V13":1.0,
    "V14":1.0,
    "V15":1.0,
    "V16":1.0,
    "V17":1.0
  }
}

```

Fig. 2 – Example of a simple JSON-file which represents 17 elements CSM

Additional use-case of software realization is a presentation of threats, processes and scenarios of evolution of the state of the simulated CTS illustrated with diagrams in a graphviz format, as well as their visualization in the form of image files in the png format, which can be implemented either in a command-line independent utility (via graphviz program dot), or directly from the python-script (via python module pydot, or via python package networkx).

2. Dynamic cognitive simulation model evaluating threats survivability of complex technical systems

Dynamic CSM CTS can operate in standalone mode (as a separate micro system), or as the core of decision support system (DSS) using for survival risk management of the CTS. Main purpose of model – risk management according to format of ISO 31000:2009 (maximal system reduction of uncertainty in all stages declaring by ISO - defining context of risk, risk assessment and risk treatment).

Suggesting extension of the static model is adding to nodes of CSM CTS functional delta-parameters that reflect process of degradation or recovery efficiency of each of nodes and/or

edges of CSM CTS, which permits transition from static assessment of the survivability of the system to evaluation based on dynamic view of changing characteristics of CSM CTS.

Let, be a weighted, directed acyclic graph:

$$V = u_i, u_i \in u, i = 1, 2, \dots, k, \quad (1)$$

and

$$E = e_{ij}, e_{ij} \in V, i = 1, 2, \dots, k, j = 1, 2, \dots, k, \quad (2)$$

where V – a plurality of nodes;
 E – a plurality of directed edges;
 u_i – node number i ;
 u_j – node number j ;
 e_{ij} – directed edge, which connect nodes v_i and v_j ;
 k – number of nodes in the graph.

Change units CTS states are defined by four groups of factors: the natural elements failures, restoring unit functionality, shutdown when triggered means of emergency protection and reconfiguration actions of external impact. Connections between elements are all defined and stationary in time, so that at any time the state of the element can be set as an element of health and of other elements. Signs of system performance unchanged over time and allow uniquely identify the state of the system at the aggregate state of its elements.

Add to model following vector:

$$D(u) = \delta, u_i \rightarrow \delta_i, \delta_i \in \Delta, i = 1, 2, \dots, k, \quad (2)$$

where $D(u)$ – function of dynamic delta-parameters model nodes;
 δ – array of dynamic delta-parameters;
 δ_i – dynamic delta-parameter of node u_i ;
 u_i – node number i ;
 k – number of nodes in the graph.

Dynamic delta-parameters model function (vector) $D(u)$ using for prediction state of CSM CTS nodes per discrete time steps by superposition. Then re-determination "top-list" of threats and risks survivability recalculated.

A positive value of $D(u)$ for a particular system node (δ_i for node u_i) would mean that the functional unit operation is increased and thus simulating unit recovery. A negative value $D(u)$ would mean that the functional unit operation is reduced and thus simulating unit degradation because of natural causes (wear) or as a result of destructive factors and adverse effects.

Condition of nodes dynamic characteristics at each instant of discrete time defined by the following relation:

$$\delta_i(t) = w_i(t) / w_i(t-1), i = 1, 2, \dots, k, \quad (3)$$

where t – instant of discrete time;
 w_i – numerical expression of nodes condition (0 – node out of order);
 $\delta_i(t)$ – value of dynamic characteristics for node with number j at moment of discrete time t ;
 k – number of nodes in the graph.

So, from relation (3) we can get recursive relation expressing difference between condition of node at any moment of discrete time:

$$w_i(t) = \delta_i(t) w_i(t-1), i = 1, 2, \dots, k \quad (2.4)$$

Thus, for the vector of discrete time-values $T = 0, 1, 2, \dots, t$ is possible to obtain a series of images, graphs, determine the development of the state CSM CTS in time.

Dynamic delta-parameters can either remain stable or vary at each step of discrete time – in the simplest case it can be left unchanged. In a more complex use-case it changes at each step depending on the expert assessment or technical information retrieval systems with CTS.

3. The algorithmic implementation of the delta-parameters vector

Vector $D(u)$ at the program level is implemented as a single JSON/YAML standalone independence file (Fig. 3). Thus, its filling and editing can be performed either manually or automated manner. Additional advantage of using such file format is that it is already facilitate the integration of the dynamic component of an existing CSM CTS. On level of software realization, dynamic change of nodes CSM CTS has been implemented in two different ways.

The first way – a simple summation of the dynamic characteristics from delta-parameters vector with the values of nodes CSM CTS. Such solution has the advantage that greatly simplify software implementation and scaling of model. Also overall clarity of the model turns simpler. On the other hand, the expansion and complication of the model (for example, the addition complexity of connections or implementation into model complex variable cross-dependencies and dynamic characteristics) may be much more complicated and demands additional time and resources. This complication can be partially realized by supplementing CSM new connection and nodes which will be put in an additional communication and solve the problem analytically, rather than systemically.

The second way - is transition from a purely oriented graph computer model to the object-oriented. This method involves a common graph approach extended with object-oriented representation of nodes, where each node is a separate entity, and common analysis made with use of multi-agent simulation methods and object-oriented programming paradigm. This will allow involvement of different characteristics for different nodes and cross-link units to complement conventional bonds IF... THEN (for example, "to ensure efficiency, unit must..."), which in the future perspective allow build deeper simulation model of behavior CTS.

```
{
  "rej": "D(u)",
  "delta":
    {
      "D01":0.5331,
      "D02":0.5695,
      "D03":0.6422,
      "D04":0.4578,
      "D05":0.7847,
      "D06":0.6428,
      "D07":0.0975,
      "D08":0.6719,
      "D09":0.2234,
      "D10":0.6864,
      "D11":0.3974,
      "D12":0.5995,
      "D13":0.9379,
      "D14":0.4000,
      "D15":0.6365,
      "D16":0.9571,
      "D17":0.7811
    }
}
```

Fig. 3 – Example of JSON-file $D(u)$ for the small vector of seventeen elements. On the level of software building has been used discrete-event simulation framework SimPy (Muller, Vignaux, & Chui, 2014), based on standard Python, which allow modeling simulation of the interaction of distributed objects using the object-oriented model (Matloff, 2008). Each

node has been formed by a call to an individual constructor objects. Initialization of the model has several stages. First JSON-file has been read, then iteratively object constructor (as python generator with special method yield) has been called to build required set of objects with the specified characteristics of the model.

The advantage of this way is the ability to better simulate the behavior of CTS, and therefore more accurate analysis of the model. The downside – complexity of all-system representation and some loss of transparency for an untrained operator.

3. Risk management issues

According to ISO 31000: 2009 risk assessment process should include the following steps: risk identification, risk analysis and risk evaluation (ISO, 2009), (Knight & others, 2010). Information system for evaluating risks and threats, based on CSM CTS may be used on all stages of risk assessment as a standalone micro decision support system (DSS) that evaluates risks and provides all necessary information for decision support. Such a way using of CSM CTS possible at all the stages of ISO format risk management and equally may be used for preventive measures to identify and reduce risks of CTS. Information for CSM CTS can be provided by the systems of technical diagnostics and/or expert assessments of CTS operator.

Using of CSM CTS can improve the effectiveness of risk management at all stages, allow monitoring the impact on CTS caused by both external and internal adverse influences. Model also allow modeling and identification such complex scenarios as "domino effect", cascade and cumulative (accumulation) degrading of units. Dynamic extension of model allows monitoring and identification risks on a wide range of time and "on the go" analysis.

At the stage of risk identification the main task is creating complete list of risks. It is important to identify not only the "real" risks but also "secondary" "silent" risks, related to the decision not to action or to use opportunity. The risks included in the list irrespective to controlled or not their source, even if the source or the reason may not be obvious. One of the benefits of information systems based on CSM CTS is the ability to monitor the impact and response to the risks of CTS with non-obvious sources and causes.

On risk analysis stage one of the first tasks are examination of causes and sources of risk, and taking into account existing management tools, their efficiency and effectiveness. ISO standard emphasizes that the effects of the risk can be expressed in the form of tangible or intangible impacts. In some cases more than one numerical value or describing parameter to specify the degree of feasibility, impact and risk for various times, locations, groups or situations. At the stage of risk analysis CSM CTS may be used not only to determine the effects of moves to management risk and consideration possible scenarios for risk management, but also introduces an additional "categorical framework", which determines the overall risk as the sum of the structural, functional and cyber risks of CTS.

Risk evaluation stage based on preparing for decision-making, based on the initial results of the risk analysis for evaluation of exposure to risk and establishing priority to reduce risk. CSM CTS is used as an "interactive map" of possible alternative states of CTS units, ranked by criteria of the categorical framework of risk – their structural, functional and cyber impacts. This saves time and simplifies the process of making decisions on risk control.

Thus CSM CTS can be effectively used for risk management process at the all aforementioned stages. Deployment such a system will enhance the efficiency of the staff, reduce the time of decision-making and increase the percentage of correct decisions on damage control. In addition, the use of the system will increase the visibility and transparency of the processes.

In the future, the proposed model can be extended by an analysis of the dynamics of the component, where each dynamic parameter may be determined independently, and can be calculated on the basis of statistics collected by means of technical diagnostics and the hardware and software interfaces. On the basis of these statistics can be carried out ahead prediction of each of the elements, which can be carried out both locally and centrally – with the collection of statistics from all the available CTS.

4. Conclusion

CSM CTS presented in a paper was designed for using as a DSS reference core and can be used at any stage of risk management: defining context of risk, risk assessment and risk treatment. Main purpose of the model is identification and prediction threats by modeling dynamic changes in the units of CTS, as well as providing the operator (or decision maker), visualization of current systems state and the possible scenarios of the situation.

The proposed model significantly extends and complements the existing approach for determining aspects of the impacts, as components of the model that are not static, but dynamic. This allows evaluate effect of individual units state to whole system and monitoring scenarios of general processes of the CTS. It additionally makes possible modeling time-extended processes of degradation and/or recovery of individual parts of CTS.

Modeling of dynamic processes are performed using a process-based discrete-event simulation framework SimPy, based on standard Python. As interface files computer model use an open standard format JSON or YAML, which allow CSM CTS to operate its nodes as an independent entity objects programming model, and simplifies standalone operation of CSM CTS or its integration into DSS.

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Constructing Sustainability and Competitiveness in Jordanian Private Universities through a SWOT Analysis Model

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Abstract:

Privatization of higher education is gaining momentum in some Arab countries, such as Jordan, the United Arab Emirates, Qatar and Egypt. In Jordan, for instance, private universities have gained recognition and accreditation in providing quality education and were able to attract Jordanian as well as Arab students, who are unable to be enrolled in public universities. However, as sustainability and competitiveness are two concerns facing higher education institutions, private universities in Jordan need to achieve a sustainable competitiveness to face competition from other public and foreign universities in the region. The relationship of these two dynamics to higher education, however, is not clearly stated which has obstructed an effective strategic planning for constructing sustainability and competitiveness for Jordanian private universities. This paper aims to provide an analysis of the relation of sustainability and competitiveness to higher education and offers a SWOT framework that analyzes private universities internal strengths and weaknesses and external threats and opportunities which they need to work on to sustain a competitive development.

Keywords: Sustainability, Competitiveness, Jordan, Private Universities, SWOT Analysis

Introduction

In their attempt to join a knowledge-driven economy, nations trust that higher education is a major source of economic competitiveness but without qualified resources, higher education institutions will be unable to function. Therefore, countries struggle to develop their human resources skills through an emphasis on quality of teaching and learning. Thomson, Strickland and Gamble (2008) argue, however, that to establish their resource abilities, countries as well as corporations must recognize their resources' strengths and competitive advantage and develop those that drive sustainable competitiveness. Hence, universities, like other organizations, need to pay attention to existing internal and external environmental factors and assess their strengths and weaknesses to enhance the opportunities and decrease the threats facing their operations.

Arab countries consider sustainability and competitiveness major issues facing universities and higher education institutions. However, the relationship of sustainability and competitiveness to higher education is not clearly defined which resulted in obstructing the effective strategic planning for constructing sustainability and competitiveness for Arab universities. Badran (2014) believes, for instance, that higher education in the Arab countries was unable for long to meet market demand for certain skills. A key point in this regard is the privatization of higher education which is gaining momentum in some Arab countries, such as Jordan, Egypt, Lebanon and other Gulf countries such as the United Arab Emirates and Qatar who also have opened their doors to foreign universities in order to internationalize their higher education provision and standards. These foreign universities are competing with the national universities in their quest to gain a sustainable competitiveness in higher education.

A situation of concern in this direction is the Jordanian private universities who acquired recognition in providing an established higher education institutions, gained Arab and foreign accreditations and succeeded in attracting and enabling Jordanian as well as Arab students to be enrolled in its programs. However, private universities in Jordan have their weaknesses and threats which limited their ability to accomplish sustainability and competitiveness due to several factors among of which is the competition from other public and foreign universities in the region.

Study Objectives

The aim of this study is two folds:

Provide an analysis of the relation of sustainability and competitiveness to higher education and

Offer a SWOT framework of Jordanian private universities strengths, weaknesses, opportunities and threats that they should consider in their endeavor to achieve sustainability and competitiveness in higher education.

Relevance of Sustainability and Competitiveness to Higher Education

Scholars maintain that competitiveness is a major issue at the national as well as corporate levels (Rusinko, 2007; Kuh, 2009). At the national level, meanwhile a country's competitiveness describes a nation's ability to effectively manage its human resources and competencies; sustainable competitiveness of a country describes the process of identifying the key factors that support national competitive advantage to achieve better quality of life for the population over time (Vargas-Hernández, J. G. & Luis Vladimir, 2013). The concept of "International competitiveness" was provided by Porter in his book "The Competitive Advantage of Nations", who also combined the concept of sustainable development with competitiveness (Esty & Porter, 1998). Scholars maintain in this regard that the most enabling factors of a country's sustainable competitiveness are macroeconomic stability, openness to the global environment and sound social infrastructure for investment in human development in education and healthcare. Moreover, to have efficient businesses, countries should provide transparent legal environment for investors and entrepreneurs that support their futuristic competitive advantages.

Corporate competitiveness, on the other hand, describes an organization's continuous productivity through cost effectiveness or product variation and constant improvement to remain innovative ahead of the competitors (Vargas-Hernández, J. G. and Luis Vladimir, 2013).

Based on these facts, Henard (2010) maintains that as any knowledge driven economy requires educated and capable work force to compete and excel in the ever changing and complex business environment, the role that higher education institutions play in the nation's building, economic competitiveness and human resource development is totally acknowledged. Moreover, signifying higher education importance, higher education and training have been located at the fifth pillar within the World Economic Forum Global Competitiveness Index. This pillar measures the quality of higher education and extent of staff training by business leaders to ensure continuous increase of skills and capabilities (WEF, 2015). Cusick (2009) also considered the role that academic institutions play and asserted their needs to search for strategies that enable them develop and incorporate sound sustainability and competitiveness in their operations. Moreover, it is evident that entrepreneurs' growing interest and demand to invest in higher education, over the past decades, have increased competition among and between private and public higher education institutions which granted students better and varied choices of institutions and academic disciplines.

Development of Private Higher Education in Jordan

Higher education in Jordan started in 1962 with the establishment of Jordan public university, which started with 69 students and few faculty members. Currently, there are 30 universities in

Jordan (10 public and 20 private), about 299,324 students, and 8823 faculty members (MoHESR, 2016).

The rise of private, for profit, universities in Jordan came after the Jordanian Council of Higher Education authorized the establishment of the first private university (Amman University) in the early 1990s in response to a growing demand of higher education. Currently, there are twenty private universities; two of them are registered as regional universities (The World Islamic Science & Education University and Arab Open University). Table 1 illustrates private universities in Jordan according to their date of establishment.

Since their establishment, private universities have seen a rapid increase in enrollment which grew by about 18 percent annually from 36,642 to 55,744 during the period from 2000 to 2006. According to the Ministry of Higher Education and Scientific Research statistics (2016) the current enrolled students in private universities in the academic year 203/2014 at 75,110 thousand students (72329 undergraduate and 2781 graduate students), out of them 16,840 thousand undergraduate and 576 graduate students come from Arab and foreign countries. Moreover, the total of faculty members at private universities in 2013/2014 reached 8823 among them 621 Arabs and 125 foreigners (MoHESR, 2016). In the academic year 2013/2014 a total number of 16024 students have graduated from private universities compared to 41022 graduates from public universities (MoHESR, 2016).

Table 1: Private Universities according to their date of Establishment

	Name	Date of Establishment	Website
1	Al-Ahliyya Amman University	1990	www.amman.edu
2	Jordan Academy of Music	1990	www.jam.edu.jo
3	Princess Sumaya University (PSU)	1991	www.psut.edu.jo
4	Applied Science University	1991	www.asu.edu.jo
5	Philadelphia University	1991	www.philadelphia.edu.jo
6	Al-Isra University	1991	www.isra.edu.jo
7	Petra University	1991	www.uop.edu.jo
8	Al-Zaytoonah Private University	1992	www.alzaytoonah.edu.jo
9	Jerash Private University	1992	www.jerashun.edu.jo
10	Faculty of Educational Sciences & Arts-UNRWA	1993	www.fesa.edu.jo
11	Zarqa University	1994	www.zpu.edu.jo
12	Irbid National University	1995	www.inu.edu.jo
13	Amman Arab University	1997	www.aau.edu.jo
14	Arab Open University (Regional)	2002	www.aou.edu.jo
15	Jordan Applied University College of Hospitality and Tourism Education	2004	www.jau.edu.jo
16	Middle East University	2005	www.meu.edu.jo
17	Jadara University	2005	www.jadara.edu.jo
18	Ajloun National University	2008	www.anu.edu.jo
19	The World Islamic Science & Education University (Regional)	2008	www.wise.edu.jo
20	American University of Madaba	2013	www.aum.edu.jo

Source: Ministry of Higher Education and Scientific Research, 2016 <http://www.mohe.gov.jo/en/Pages/PrivateUniversities.aspx#sthash.hBAAPksG.dpuf>

Fundamentals of A SWOT Model

A SWOT model illustrates the Strengths, Weaknesses, Opportunities and Threats of work organizations. Specifically, SWOT analytical framework can be achieved by collecting needed information from the environment that assists the organization in evaluating the challenges and strong points that offer it opportunities in order to set a strategic action plan for achieving the

objectives (Singh, 2010). Strengths and weaknesses describe the internal factors that are responsive and controllable by the management who has the main obligation to handle them.

Opportunities and threats constitute the external uncontrollable environmental factors that have positive and/or negative impact on an organization’s operations (Helsloot and Jong, 2006).

The Internal Factors: Strengths and Weaknesses

Strengths: include the power factors that help an organization maintain a continuous and effective operation (such as employing skillful and experienced employees, product branding, reliable resources provision and supply, substantial assets, advanced technology, innovation, strong culture...etc.).

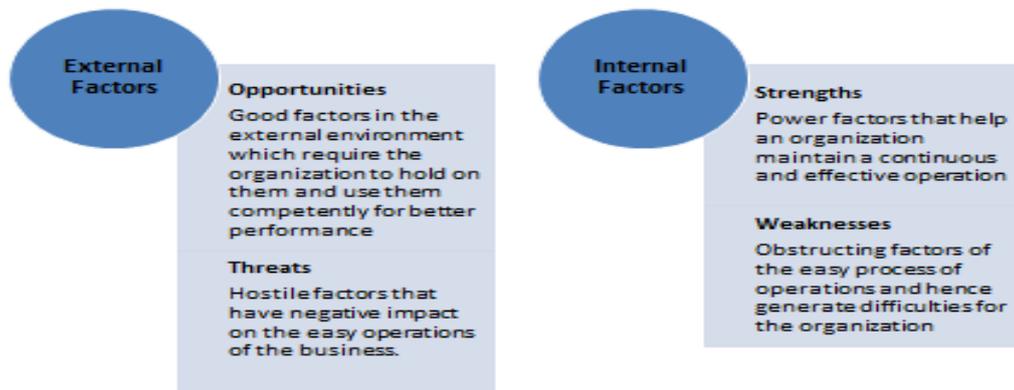
Weaknesses: include the challenging factors that obstruct the easy flow of operations and generate difficulties for the organization (such as dissatisfied or unqualified employees, outdated technology, lack of capable and visionary leadership, ineffective marketing strategy, inadequate location, bureaucracy, weak culture...etc.)

The External Factors: Opportunities and Threats

Opportunities: include unmanageable but good factors for the organization that reside in the external environment which require the organization to hold on them and use them competently for better performance (such as positive shifts in the economic, social, governmental, technological matters, or legislative matters..etc.)

Threats: reside in the external uncontrolled and hostile factors that have negative impact on the operations of the business. Similar to the opportunities, the organizations must screen and classify the possible threats before their occurrences (such as intensifying competition from new entrants, political insecurity and conflicts, social unrest, bad reputation, governmental pressures, terrorism...etc.). Figure 1 illustrates the external and internal factors in the SWOT model.

Figure 1: A SWOT Model



A SWOT Framework for Private Universities in Jordan

The value chain analysis was provided by Porter (1990) to link an organization internal ability with its external opportunities. Providing a SWOT analysis for higher education institutions is used, as an assessment or quality control tool, to alert the university administration, faculty and staff of the points of strength and weaknesses in their educational systems as well as the environmental factors that might enhance or obstruct their operations.

Therefore, setting a SWOT model can impact the university's decisions on all matters including teaching, planning, financial and technological activities.

This section presents a SWOT framework for Jordanian private universities, illustrated in Table 2. The framework outlines the internal strengths and external opportunities that have positive impact which universities need to sustain and pursue. The framework also outlines the challenging factors embedded in the internal weaknesses and external threats which universities need to regulate and control in their search for sustainability and competitiveness.

Table 2: A SWOT Framework of the Internal and External Factors facing Private Universities in Jordan

	Positive Factors (Strengths & Opportunities)	Negative Factors (Weaknesses and Threats)
Internal Factors	Strengths Providing alternate HE institutions choices for students and the society Reputation of value education Geographic location covering many areas of the country Offering broad disciplines and subjects Extensive faculty research	Weaknesses Lack of an integrated strategy for HE Modest impact on local community Inconsistency between graduates' output and academic research and the needs of society Students' unrest and violence Reputation and status
	External Factors	Opportunities Economists' support Attracting and retaining qualified faculty members Increased demand on higher education especially from refugees of the neighboring countries. Fostering brand names in HE

Discussion of the SWOT Framework

The Positive Factors: Strengths and Opportunities

People in Jordan consider Private universities as constructive academic institutions that provide an appropriate alternative option for a large number of students who are keen to pursue their education but do not have the chance to be enrolled in public universities. Private universities have developed a reputation for the educational services they offer to students. Moreover, they employ capable and experienced faculty members who ensure that students receive value education and who are recognized for their extensive research in varied subjects and disciplines.

Another major strength about private universities is their geographical spreading. Although many are established within the Greater Amman municipality but they are also found in other major governorates of Jordan, such as Balqa, Irbid, Ajloun, Zarqa, Madaba, and Jerash. The fact that they are located in these places means that students can have access to these institutions. However, they need to expand their presence to the south of Jordan, and specifically to the governorates of Aqaba, Tafileh and Maan. Private universities have the opportunity of gaining the economists' support who sustain that higher education in Jordan is

an important sector that constitute a major provision for the Jordanian economy, its balance of payments and saving funds as Arab and international students studying in Jordanian universities spend an average of USD 13,000 per year on university fees and about USD 500-1,000 per month for living expenses (Chemonics International Inc., March 2006; Istaiteyeh, 2012). A USAID Phase II, Jordan vision 2020 report recommended, therefore, that Arab and International students be granted an admission quota in Jordanian universities as well as the removal of restrictions on private universities' admission of students that is limited to 8,000 for each university and 800 students for each discipline. Moreover, as students' families' visits constitute a major support to tourism, higher education should be assigned a seat on the Jordanian tourism board (Chemonics International Inc., 2006).

The growing number of students, Jordanian as well as refugees from other neighboring countries, demands a continued increase of higher education institutions (Kanaan *et al.*, 2009). This demand is an opportunity for private universities to expand and get more licenses for establishment in other areas of the country.

The Negative Factors: Weaknesses and Threats

Private universities in Jordan have recorded accomplishments, however, being for profit entities, therefore, they are struggling, like any other business, with different challenges that they need to overcome. Challenges facing private universities stem from their major weaknesses which include the educational systems, quality of programs, and demographic challenges. Critics point out, in this regard, that private universities are losing their strength and advantage due to difficulties arising from an ineffective and average performance, lack of a well-defined strategy and inconsistency between their output of graduates and the needs of society (Majdoubeh, 2015, Badran, 2014, Sabri, 2011). Badran (2014) believes, for instance, that most of the universities in Jordan still adopt traditional based education far from raising students' ability for critical and analytical problem solving to many societal issues and concerns. Moreover, Badran (2014) argues that universities have introduced enormous number of graduates in terms of quantity more than quality in creativity, problem-solving, and entrepreneurial skills. Moreover, scientific research in private universities is not up to expectations although each private university is required, accordance to the Jordanian higher education law, to allocate at least five percent of its budget for scholarship and research which should be entirely fulfilled otherwise unused quantities be given back to the research fund of the Ministry of Higher Education and Research (MoHER).

Among the major threats that confront private universities are conformity with accreditation requirements. Unlike public universities, private universities in Jordan are subject to the accreditation and quality assurance system instituted in 2007 by the Higher Education Accreditation Commission (HEAC) that is responsible to evaluate, inspect and accredit higher education institutions to guarantee their compliance with stated higher education regulations. Accreditation is granted to private universities on several measures such as teaching, learning-assessment, student achievement, student support and guidance, learning resources, and quality management. However, because there is no comprehensive assessment tool, each Jordanian university is responsible to set its own standards.

Competition from other Jordanian universities for students and faculty also put threat in front of private universities in Jordan. Regional competition from other universities in some Arab countries in the MENA and Gulf region that are undergoing a process of privatization and internationalization of higher education (Mazawi, 2004).

Conclusion

This study aimed to explore the factors that can impact the ability of Jordanian private universities to build and create sustainability and competitiveness. The analysis revealed that in order to be supportive to competitiveness, private universities should have a strong academic culture that is alerted to the mentioned points of strengths and weaknesses and fit them in all its policies and activities. It is important for private universities to be primary initiators of

social responsibility, idol in moral conduct, considerate of environmental issues, and caring of faculty and students' safety and satisfaction. Moreover, to remain competitive private universities must be flexible and open to constant change. Therefore, the faster private universities can adapt to technological changes or new educational methods, the more rapidly they will present modern quality education. Moreover, private universities need to be more competitive in delivering quality education to students and trained graduates to meet the needs of the market. Moreover, they need to focus on formulating innovative approaches of learning that require new methods of education to develop human resources skills, meet uncertainties in global business environment, and continue transforming to meet competition and gain sustainable competitiveness.

In addition, to support their sustainable competitiveness it is necessary for private universities to reinforce their provided services to society by means of cooperating with government and other educational groups; revising their curricula and teaching and learning methods; and providing research that serve the requirements of the society.

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Using The Unified Theory of Acceptance and Use of Technology to Explain E-commerce Acceptance by Jordanian Travel Agencies

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Abstract:

This study examines the possibility of adapting a technology acceptance model designed in the context of the developed world to a developing nation. Jordan will be used as a case study for this purpose because it experiences similar challenges and opportunities that other Arab countries encounter in their technology acceptance. Qualitative and quantitative techniques were used to collect data for this research. The results indicated that performance expectancy, effort expectancy, social influence, competitive pressure and facilitating conditions had a positive impact on behavior intention to use e-commerce. In contrast, perceived risk, government support and compatibility had insignificant relationship with behavior intention. Furthermore, the result pointed out that age and gender did not affect the relationship between performance expectancy, perceived risk and behavior intention. The study outcome holds implications and recommendations for future research.

Keywords: E-commerce, Technology Acceptance Models, Jordanian Travel Agencies, Information Technologies, Developing Countries

1. Introduction

The use of information technologies is vital for the sustainable development of the economies of developing countries. Bowonder et al. (1993) recognized the importance of IT and its implications for developing countries. They argued that the developing countries need to understand the persistent nature of changes created by new IT applications and the consequences of not keeping pace with the changes occurring in the developed world. Lightner et al. (2002) underlined this importance and indicated that with the globalization and the increased use of e-commerce, it is imperative to ensure that these systems can be effectively used across cultural boundaries.

This implies that the global digital gap between the developed and developing countries should decrease. The world is a global market today; both firms and consumers in developed countries would like to exchange information, products and services with their counter parts in the developing countries. Therefore, Elbeltagi et al. (2005) underlined the importance of understanding the drivers behind technology adoption in developing countries to help companies remain competitive in the global market.

While e-commerce has become a significant driver of change in business practice, there have been few studies relating to its acceptance in developing countries, specifically in the Middle East area, and more particularly in Jordan. The limited research on technology acceptance in the developing countries indicates conflicting results with regards to the appropriateness and predictive power of these models in the developing countries (Abu Shanab et al., 2010; Bandyopadhyay and Fraccastoro, 2007; Lin and Bhattacharjee, 2008). Researchers

explain that the culture of a specific country and the type of technology investigated are the reasons behind this inconsistency (Steers et al., 2008; Abu Shanab et al., 2010). Therefore, one of the objectives of this study is to validate and test the appropriateness of the Unified Theory of Acceptance and Use of Technology model in a different culture, more specifically Jordan. The literature indicates that this model has not been extensively tested after it has been developed by Venkatesh et al. (2003). Only two studies used this model in the Arab World, namely the work of Al-Gahtani et al. (2007) and Abu Shanab et al. (2010).

Furthermore, despite the fact that the travel industry has a history of being among the first businesses to use particular forms of information technology, for example, computer reservation systems (CRS), followed by the global distribution systems (GDS), there are few studies of technology acceptance in the tourism sector, in both the developing and developed nations. To this date, there are very limited studies that examine technology acceptance in the tourism industry (Mette Hjalager, 2010; Buhalis and Law, 2008). In fact there is no single study that examines technology acceptance in the tourism industry in the Arab World. Therefore, one of the objectives of this study is to examine the factors that affect e-commerce acceptance in Jordanian travel agencies. This study examines the possibility of adapting a technology acceptance model designed in the context of the developed world to a developing nation. Jordan will be used as a case study for this purpose because it experiences similar challenges and opportunities that other Arab countries encounter in their technology acceptance.

2. Review of Literature

The technology acceptance models depend on various theories to explain the use of information technologies, such as the diffusion of innovation theory introduced by Rogers (2003), the theory of reasoned action by Fishbein and Ajzen (1975), the theory of planned behaviour introduced by Ajzen (1985, 1991), and the social cognitive theory was presented in the work of Bandura (1977, 1978, 1986). Researchers used these theories as a background to explain the adoption and use of information technologies. Consequently, most of the proposed technology acceptance models used the behaviour intention construct as a mediating variable between the independent variables and the dependent variable, or used it as a dependent variable by itself. This implies that these models share the same underlying concept in explaining information technology use.

The most frequently cited model was the technology acceptance model, originally developed by Davis in 1986 (Davis et al., 1989). Their model suggested that the two main beliefs (e.g. perceived usefulness and perceived ease) affected individuals' attitudes. The attitude construct would determine the behaviour intention and consequently the use of information technology. Later, the construct of attitude was omitted from the model because it did not fully mediate the independent variables (Venkatesh and Davis, 1996). This means that the construct of perceived usefulness and perceived ease of use had a direct effect on behaviour intention without the moderating effect of attitude.

Another important model that explained the use of information technologies was the combined theory of planned behaviour and the technology acceptance model. This model used the independent constructs of TAM (perceived usefulness, perceived ease of use) and the independent constructs of the theory of planned behaviour (subjective norms, perceived behavioural control) to explain the behaviour intention and use of information technology. The technology acceptance model was extended to TAM2 to explain the use of information technologies. Venkatesh and Davis (2000) explained how independent variables (perceived usefulness, perceived ease of use, subjective norms, image, job relevance, output quality and result demonstrability) affected intention to use and usage behaviour of information technologies. To be specific, their model illustrated the major determinants of perceived usefulness and how the perceived usefulness construct affect intention to use information technologies. Furthermore, they showed in their model the moderating effect of experience and voluntariness between subjective norms and intention to use.

The unified theory of acceptance and use of technology operationalized various independent constructs from the aforementioned behaviour technology models. Venkatesh et al. (2003) used the independent constructs of (performance expectancy, effort expectancy, social influence and facilitating conditions) to explain the behaviour intention and use of information systems. In addition, they used the moderating variables of gender, age, experience, and voluntariness to explain technology use.

The UTAUT was validated and examined in different fields and settings. Using the UTAUT for accepting various information technologies was tested in both developed and developing economies, such as the work of Parameswaran et al. (2015), Conrad et al. (2015), Martins et al. (2014), Zhou et al. (2010) and Chan et al. (2010). However, the literature indicated the scarce application of the UTAUT in the context of the Arab World; with the exception of the study by Al-Gahtani et al. (2007) in Saudi Arabia, Abu Shanab et al. (2010) in the banking sector in Jordan, Al-Qeisi (2009), Alawadhi and Morris (2009) in the adoption of e-government in Kuwait and Riffaie et al., (2012) in explaining online banking in Oman. In addition, the literature indicated the scarce application of the UTAUT in the hospitality and tourism field, particularly in e-commerce.

Al-Gahtani et al. (2007) measured the effect of the UTAUT in explaining the behaviour intention and the use of computers in Saudi's organizations. They used the four constructs used in the original UTAUT introduced by Venkatesh et al. (2003). However, they substituted the social influence construct by subjective norms and they used four and three items to measure each construct without clear explanation for choosing these specific items. They concluded that performance expectancy and subjective norms affected the system use. In contrast, facilitating conditions and effort expectancy had no significant effect.

In addition, Abu Shanab et al. (2010) investigated the factors that affect consumers' acceptance of Internet banking in Jordan. They replicated and extended the UTAUT to examine its applicability in Jordan. They investigated the effect of performance expectancy, effort expectancy, social influence and personality dimensions (Personal innovativeness, perceived trust, and perceived risk) on the behaviour intention. However, they excluded the construct of actual use and substituted it by behaviour intention, and some of their constructs were measured by only two items that is not adequate to measure a construct.

In the context of the developing countries, Gupta et al. (2008) examined the adoption of ICT in government institutions in India. They investigated the effect of performance expectancy, effort expectancy, and social influence on the behaviour intention to use the technology. Furthermore, they investigated the effect of facilitating conditions on user behaviour and did not explain how they measured the user behaviour. In their investigation, they used the structural equation modelling to validate five of the major constructs and then used multiple regression analyses for each construct separately using only four measuring items. They found out that performance expectancy, effort expectancy, social influence and facilitating conditions had a positive impact on ICT use, and that gender did not moderate these relationships with behaviour intention.

Bandyopadhyay and Francastoro (2007) examined the effect of culture through the social influence variable of the UTAUT on users' acceptance of Prepayment Metering System (new innovation in India). In their investigation, they used only three constructs (performance expectancy, effort expectancy and social influence) to test the acceptance of the new technology on a consumer sample. The researchers excluded actual use and facilitating conditions constructs without any justification. The results indicated high discriminant validity between some of the constructs, such as performance expectancy and effort expectancy. Their results indicated that social influence, performance expectancy and effort expectancy were significant determinants of behaviour intention to use the new system.

In addition, Neufeld et al. (2007) integrated the charismatic leadership theory with the UTAUT to examine the role of leaders influencing user adoption of information technology in seven organizations. They used only three items to measure each construct. They concluded that the leadership characteristic was positively associated with increased performance expectancy, effort expectancy, social influence and facilitating conditions perceptions of the system users.

Furthermore, Im et al. (2011) conducted a cross-culture comparison study using the UTAUT model. They examined the UTAUT using data from Korean and American college students and office workers to accept the MP3 player and Internet Banking. The results suggested that the effect of effort expectancy construct on the behaviour intention and the effect of behaviour intention construct on actual use were greater for the American sample. However, they used a student sample that has a different perception on the IT use. In addition, they used three items to measure each construct thus jeopardising the content validity.

With reference to e-commerce use, Qingfei et al. (2008) used the UTAUT to propose a model to understand mobile commerce acceptance and use in China from the consumer perspective. They incorporated different constructs, such as trust, privacy protection, and cost and user satisfaction in their revised model. They also introduced system and information quality, demographic variables and Chinese culture as moderating factors rather than experience and voluntariness.

In addition, Guo (2010) conducted an exploratory study to determine the factors affecting users in B2C e-commerce environment. He criticized the UTAUT and TAM for excluding the threat appraisal and perceived coping appraisal constructs in their models. The threat appraisal deals with the psychological threats encountered in e-commerce transactions and the perceived coping appraisal is concerned with the users' perceived control over the Internet transactions. These factors affect performance expectancy and consequently behaviour intention in his proposed model.

In the education sector, Anderson et al. (2006) examined the drivers for Tablet PCs (a new technology that is used in higher education) acceptance by business faculties using the UTAUT. Their results highly validated the UTAUT and suggested that performance expectancy and voluntariness were the strongest drivers of technology acceptance when applying the model to business faculty in higher education. Furthermore, Robinson (2006) used the UTAUT to test students' behaviour towards using administrative and instructional technology tools in South-Western University. The results indicated that the students' attitudes and intention to use technology were affected by performance expectancy, effort expectancy and social influence.

The previous discussion illustrates that the UTAUT has not been extensively tested in the Arab world. In addition, the literature indicated that there is limited use of the UTAUT in the tourism sector and in examining e-commerce acceptance. There is an indication that the results of the UTAUT have been conflicting due to the technology being investigated, the methodology of data analyses and the culture of a specific country. To be more specific, results of the UTAUT in the developing countries have been inconsistent (Abu Shanab et al., 2010; Lin and Bhattacharjee, 2008). Therefore, there is a need to examine the UTAUT in Arab countries, such as the case of Jordan.

3. Research Conceptual Model and Hypotheses Formulation

The research conceptual model is partially based on the qualitative interviews and the review of literature and demonstrates six major constructs that are direct determinants of behavioural intention and consequently, intended degree of e-commerce use (see Fig.1). The following section explains the major constructs that determine e-commerce use.

Performance Expectancy: It is defined as “the degree to which an individual believes that using the system will help him or her to attain gains in job performance” (Venkatesh et al., 2003, p. 447). From the review of literature, it is apparent that this definition is similar to the definitions of perceived usefulness construct in the Technology Acceptance Model, the Combined Technology Acceptance Model with the Theory of Planned Behaviour, and TAM2, extrinsic motivation construct in the Motivation Model, job-fit variable in the Model of PC Utilization, relative advantage construct in the Diffusion of Innovation Theories and outcome expectations in the Social Cognitive Theory. All of these constructs proved to be major determinants of behavioural intention and use of information systems.

Several models illustrated the positive relationship between the constructs related to performance expectancy and behaviour intention to use the information systems. The job fit “measures the extent to which an individual believes that using a PC can enhance the

performance of his job or her job” (Thompson et al., 1991, p. 129). The perceived usefulness construct enhances the job performance according to Davis (1989). The relative advantage construct in the diffusion of innovation theory indicates that the positive characteristics of the innovation affect its adoption. Finally, the outcome expectations from using the system affect the intentions to use it (Compeau and Higgins, 1995). Therefore, the higher the advantages that are gained from the system use, the faster the decision to adopt will be. Hence, the following hypotheses are proposed:

H1: Performance expectancy will have a significant positive relationship with behaviour intention to use e-commerce.

Effort Expectancy: It is defined as “the degree of ease associated with the use of the system” (Venkatesh et al., 2003, p. 450). This definition is related to the definition of perceived ease of use in Technology Acceptance Model (Davis, 1989), and Motivational Model (Van Der Heijden, 2004); complexity construct in the Model of PC Utilization (Thompson et al., 1991) and the Diffusion of Innovation Theory (Rogers, 1995); and ease of use construct in the Decomposed Theory of Planned Behaviour (Taylor and Todd 1995a), and the Combined Technology Acceptance Model with Theory of Planned Behaviour (Taylor and Todd, 1995b). All of these constructs had a positive relationship on the intention to use the system. Therefore the following hypotheses are proposed:

H2: Effort expectancy will have a significant positive relationship with behaviour intention to use e-commerce.

Social influence: is defined as “the degree to which an individual perceives that important others believe he or she should use the new system” (Venkatesh et al., 2003, p. 451). Three constructs are related to this definition: the first construct is subjective norm in the theories of Reasoned Action (Fishbein and Ajzen, 1975), Theory of Planned Behaviour (Taylor and Todd, 1995a) and Combined Technology Acceptance Model with the Theory of Planned Behaviour, TAM2 (Taylor and Todd, 1995b). The second construct is social factors in the model of PC Utilization (Thompson et al., 1991), and the third construct is image in the Diffusion of Innovation Theory (Rogers, 1995). These entire constructs had a positive effect on the intention to use the system. Hence, the following hypotheses are developed:

H3: Social influence will have a significant positive relationship with behaviour intention to use e-commerce.

Perceived risk: is an important factor that affects the individual’s confidence in their decisions. Risky conditions can be those where the chances of the outcomes are not clear or known (Im et al., 2007). Risk is argued to be a multidimensional construct (Tsaour et al., 1997). For example, Cunningham (1967) and Bettman (1973) developed a plan for identifying the dimensions of risk. Cunningham suggested that certainty and the consequences of an act as two dimensions of the risk factor, while, Bettman suggested that there are two types of risk: the inherent risk and the handled risk. Moutinho (1987) classified the tourists’ risks into five dimensions: functional risk, physical risk, financial risk, social risk and psychological risk. Roehl and Fesenmaier (1992) classified tourists’ risk into seven items: equipment risk, financial risk, physical risk, psychological risk, satisfaction risk, social risk and time risk. Hence, the following hypotheses are proposed:

H4: Perceived risk will have a significant negative relationship with behaviour intention to use e-commerce.

External Factors: Several external factors affect the intention of individuals to use e-commerce in their organizations, such as government support, competition and external pressure.

Government agencies play a vital role in setting policies that facilitate or hinder the use of e-commerce in developing nations. Government support is defined as the extent to which government facilitates conditions in order to adopt new technologies (Calantone et al., 2006; Looi, 2005). This ranges from lowering the cost of using the Internet and setting up e-commerce facilities to developing e-commerce laws for different sectors and informing people on the advantages of using e-commerce in business activities (Calantone et al., 2006; Looi, 2005).

Furthermore, competitive and external pressures are important factors that affect the adoption of innovation at organizations (Looi, 2005; Hsu et al., 2006). It is rivalry that

encourages firms to be more innovative and to increase the rate of innovation adoption (Premkumar and Roberts, 1999). Research on communication technologies indicated that the existence of these technologies is a necessity to compete in the market place (Premkumar et al., 1994). Hence, the following hypotheses were developed:

H5: Government support will have a significant positive relationship with behaviour intention to use e-commerce.

H6: Competitive pressure will have a significant positive relationship with behaviour intention to use e-commerce.

Organizational Factors: The organizational factors relate to two major constructs that affect the use of e-commerce at the travel agencies, namely facilitating conditions and compatibility. Resource-facilitating conditions refer to the availability of the financial and technology resources at an organization that have a positive effect on the intention to use the technology system (Taylor and Todd, 1995a). In addition to the facilitating condition construct, compatibility of the technology with the values, needs and culture is an important factor that affects the adoption of new technologies at organizations. Rogers (1995, p. 15) defined compatibility as “the degree to which an innovation is perceived as being consistent with the existing values...” He clarified that when the innovation is well-matched with the values and the culture of a certain society, it will be adopted easily. Similarly, Tornatsky and Klien (1982) concluded that the compatibility of the innovation with the users’ norms have a positive influence on the adoption. Hence the following hypothesis is developed:

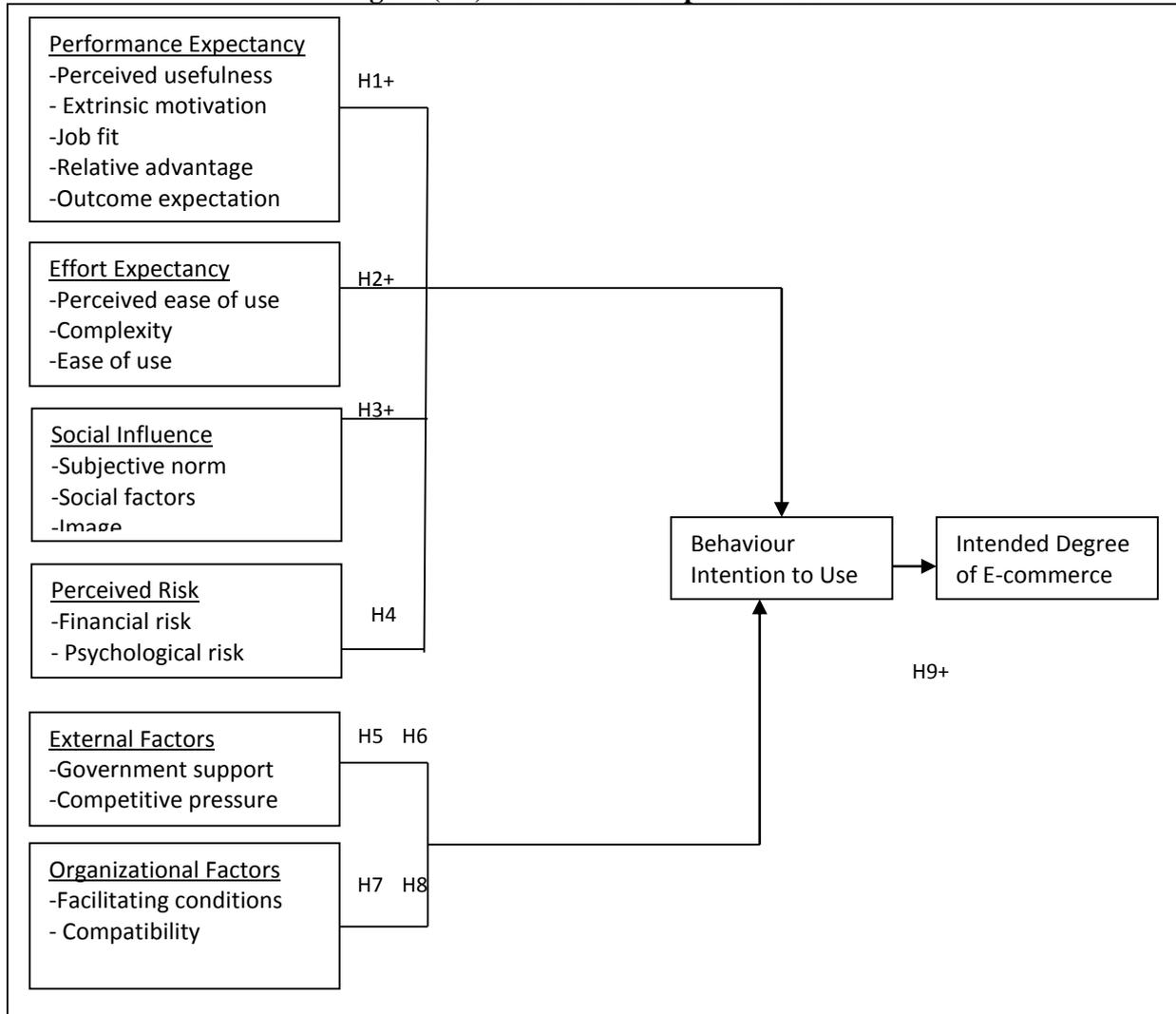
H7: Facilitating conditions will have a significant positive relationship with behaviour intention to use e-commerce.

H8: Compatibility with values, beliefs and preferred work practices will have a significant positive relationship with behaviour intention to use e-commerce.

Behaviour Intention: It is defined as a “measure of strength of one’s intention to perform a specific behaviour” (Fishbein and Ajzen, 1975, p. 288) and is a useful predictor of how individuals will behave in the future. Behaviour intention is considered as an important mediator in the relationships between the independent variables and the use of the information systems. From the review of literature, all of the technology intention models illustrated the positive relationship between behaviour intention and intended use.

H9: Behaviour intention has a significant positive relationship with the intended degree of e-commerce use.

Figure (1.0) Research Conceptual Model



3. Methodology

3.1 Research Sample

A list of the total number of travel agencies (330 travel agencies) in the area of Amman was prepared. All of the travel agencies were organized alphabetically in a list with the names of the owners or operating managers and contact addresses, then each of the travel agencies was assigned a number and entered through statistical software (Excel) that randomly selected 320 travel agencies (using simple random sample technique). After multiple telephone calls, all of the travel agents were ready to participate with an exception of three travel agents. Two of the travel agents were going out of business, and one did not provide the reason for not participating. This decreased the total sample to 317. Given that only three travel agents did not participate from the desired sample, we can conclude low levels of non-response error (Malhotra, 2004).

3.2 Measurements

A broad set of indicators (items) were generated to measure the model constructs. The measurements of the constructs were derived from the extensive review of literature and the in depth interviews with travel agencies' owners. These items were submitted to a group of experts in multi-cultural and multi-lingual contexts to comment on their clarity and suitability. This

procedure minimized construct bias and item bias that could occur due to the application of measurement developed in a Western culture to an Eastern culture without careful amendments (Mitchell, 1996; Van De Vijver and Hambleton, 1996). The items that survived this procedure were those incorporated in the questionnaire and represented the measures for the constructs used in this study.

Data was collected from 313 travel agencies in the area of Amman through a questionnaire survey. The survey instrument was despatched following a pilot test. Initial data analysis provided descriptive statistics relating to demographic variables, key informants and actual use of the Internet. The reliability and validity of each construct was established using item-to-total correlations, Fornell and Larcker's (1981) test of validity and exploratory factor analyses. The results of factor analysis were used as inputs in successive multiple regression analyses. E-commerce use was measured by time and frequency of the Internet use.

To calculate the discriminant validity, the researcher calculated the standardized item loadings and error terms for every item and construct in the conceptual model. Then, the researcher calculated the individual AVE for every construct and compared this with the squared correlation matrix as illustrated in table 1. The variance extracted (VE) is the average squared factor loading. The VE should be .5 or above to indicate convergent validity which is the case of all the constructs. In addition, the VE estimates for two factors are greater than the square of the correlation between the two factors and thus provide evidence of discriminant validity (Hair et al., 2006). Furthermore, the AVE values ranged from .50 to .64. These figures are all within the acceptable levels ($\geq .50$), and illustrates a sufficient AVE score (Hair et al., 2006). Furthermore, all squared correlations were lower than the AVE for each construct. This provides evidence of discriminant validity among the constructs in this study (Hair et al. 2006; Fornell and Larcker, 1981). Finally, construct reliability (CR) values ranged from .72 to .83 that provides evidence of adequate convergence or internal consistency (Hair et al., 2006).

Table 1: Squared Correlation Matrix (ρ^2)

Measures	X	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10
Performance expectancy	X1	1									
Effort expectancy	X2	.36**	1								
Social influence	X3	.05**	.08**	1							
Perceived risk	X4	.05**	.31**	.19**	1						
Government support	X5	0.00	.04**	.02**	.16**	1					
Competitive pressure	X6	.35**	.07**	.20**	0.02*	.11**	1				
Facilitating conditions	X7	.31**	.13**	.05**	0.00	0.00	.26**	1			
Compatibility	X8	.03**	.07**	0.00	.13**	.24**	0.01*	.01	1		
Behaviour intention	X9	.47**	.17**	.13**	0.00	.03**	.47**	.29**	.00	1	
Intended degree of use	X10	.19**	.08**	.04**	0.00	0.00	0.12**	0.12**	.05**	.23**	1
VE	$\frac{(\sum_{i=1}^n \lambda_i^2)}{n}$	.68	.79	.71	.67	.82	.74	.93	.71	.80	.68
AVE	$\frac{(\sum_{i=1}^n \lambda_i^2)}{(\sum_{i=1}^n \lambda_i^2) + (\sum_{i=1}^n \varepsilon_i)}$	.50	.50	.51	.56	.50	.50	.64	.51	.50	.54
CR	$\frac{(\sum_{i=1}^n \lambda_i)^2}{(\sum_{i=1}^n \lambda_i)^2 + (\sum_{i=1}^n \varepsilon_i)}$	.83	.75	.75	.72	.75	.80	.77	.76	.80	.70

** Correlation is significant at the 0.01 level

* Correlation is significant at the 0.05 level

3.3 Data Analysis and Results

After checking the regression assumptions, multiple regression analyses were carried out using the Enter Method to evaluate and to test the hypotheses. The results indicated a significant model ($F_{8, 304} = 62.639$, $P < .0005$, $R^2 = .622$, Adjusted $R^2 = .612$). The significant variables emerged from the results are shown below:

Table 2: Results of Significant Variables

Predictor Variables	Standardized Coefficients Beta	Sig
Performance Expectancy	.287	.000
Effort Expectancy	.170	.004
Social Influence	.159	.001
Competitive Pressure	.322	.000
Facilitating conditions	.116	.010

In contrast, the perceived risk, government support and compatibility constructs are not significant predictors in the model; hence H4, H5 and H7 are not supported. The following illustrates the results of these predictor variables:

Table3: Results of Insignificant Variables

Predictor variables	Standardized Coefficients Beta	Sig
Perceived Risk	.019	.702
Government Support	-.066	.144
Compatibility	.046	.277

In order to test the relationship between the behaviour intention to use e-commerce and Intended actual use of e-commerce, a bivariate regression analysis was carried out. As the name indicates, this analysis is used when we need to analyze the relationship between an independent variable (behaviour intention to use e-commerce) and a dependent variable (intended actual use). The results of the analysis indicate a significant relationship between the two variables ($F_{1, 311} = 93.849$, $P < .0005$, $R^2 = .232$, Adjusted $R^2 = .229$). The beta value in the standardized regression coefficient is .481. This means that behaviour intention contributes around .481 in explaining the dependent variable (actual use of e-commerce). Thus the results support H9 hypothesis that indicates a positive relationship between behaviour intention and actual use of e-commerce.

Table 4: Results of Significant Relationship between Behaviour Intention and Intended Actual Use

Predictor variables	Standardized Coefficients Beta	Sig
Behaviour Intention	.481	.000

Intended actual use is measured by the frequency of using the Internet to sell tourism products and services online and the time spent on using the Internet. Table 7.6 illustrates that 78.9% of the travel agents will use the Internet from 6-10 times a day to sell tourism services. Furthermore, almost 50% of the sample will use it around 5 hours a day. None of the respondents indicated a rejection to use e-commerce at their travel agencies. These high percentages of use provide an indication of the e-commerce acceptance by the travel agents.

Table 5: Frequency of Using the Internet

Items	Frequency	Percent
Frequency of Use		
Not at all	0	0.0%
1-2 times a month	2	0.6%
1-2 times a week	2	0.6%
1-2 times a day	11	3.5%

3-5 times a day	12	3.8%
6-10 times a day	247	78.9%
More than 10 times a day	39	12.5%

Time

Never use	0	0.0%
Shorter than 15 min	1	0.3 %
15-30 min	7	2.2 %
30 min 2 hrs	15	4.8%
From 2-3 hours a day	24	7.7%
From 4-5 hours a day	147	47.0%
Longer than 5 hours	119	38.0%

In summary, the results of the multiple regression analyses indicated a significant model and supported most of the theorized hypotheses. The results indicated that hypotheses 1, 2, 3, 6, 7 and 9 are supported. That is, performance expectancy, effort expectancy, social influence, competitive pressure, facilitating conditions and behaviour intention. In contrast, hypotheses 4, 5 and 8 were rejected (perceived risk, government support and compatibility). Furthermore, the results pointed out that age and gender did not affect the relationship between performance expectancy, perceived risk and behaviour intention. However, gender affects the relationship between social influence and behaviour intention and the relationship between effort expectancy and behaviour intention, but not age moderator. Table 6 provides a summary of the findings.

Table 6: Hypotheses Conclusion

Hypothesis Number	Independent Variables	Dependent Variables	Moderators	Results
H1	Performance Expectancy	Behaviour Intention	None	Accept
H2	Effort Expectancy	Behaviour Intention	None	Accept
H3	Social Influence	Behaviour Intention	None	Accept
H4	Perceived Risk	Behaviour Intention	None	Reject
H5	Government support	Behaviour Intention	None	Reject
H6	Competitive Pressure	Behaviour Intention	None	Accept
H7	Facilitating conditions	Behaviour Intention	None	Accept
H8	Compatibility	Behaviour Intention	None	Reject
H9	Behaviour Intention	Intended Actual Use	None	Accept

4. Discussion

Considering all of the results, it was concluded that the UTAUT, which was originally proposed and tested in developed countries, can also explain e-commerce adoption in Arab countries, such as Jordan. The modified UTAUT explained 62% of intention to use variance, and 23% of actual use variance. These findings are consistent with the limited scholarly work using the UTAUT in the developing countries, such as that of Gupta et al. (2008), Al-Gahtani et al. (2007) and Bandyopadhyay and Fraccastoro (2007).

The research model provides better explanatory power than previous work conducted in developing countries using different technology acceptance models, such as the TAM, to predict e-commerce adoption. For example, Seyal et al. (2004) investigated the factors that influence e-commerce adoption in Pakistan using different constructs, such as organizational culture, management support, government support and perceived benefits of the innovation. Their model explained 47% of the variance in the adoption of e-commerce. This implies that the unified model used in this research provides a higher explanatory power for e-commerce adoption rather than using a simple technology acceptance model to explain e-commerce adoption in the developing countries.

Furthermore, the UTAUT considers the cultural differences between Jordan and Western culture (wherein the UTAUT and most of the technology adoption models originated). The results suggest that adapting to the Jordanian hierarchical managerial style reduced the need of the managers of the travel agencies to incorporate individual attitudes related to the adoption of e-commerce. This implies that the decision making in Jordanian firms evolves through top management rather than employees. As such, when an organization's top management decides to use a new innovation, his or her decision is unquestionable, and an employee's attitude toward the technology does not mediate the relationship between the independent factors and the actual use.

Therefore, the senior managers and owners of travel agencies have the authority to make innovation-decisions, whereby decisions to adopt or reject innovations are made by a few individuals in an organization, who possess high authority, high social status and excellent technical skills (Rogers, 2003). This result is consistent with the work of Hofstede (2005), who suggested that subordinates expect to be told what to perform in a hierarchical culture, such as in Jordan.

The research model highlights the importance of government support for e-commerce adoption. In particular, the construct of government support was not a significant factor to influence the e-commerce adoption in the Jordanian travel agencies. This means that the Jordanian government does not provide adequate assistance for the travel agents to facilitate the use of e-commerce. This finding is important because it is distinct from the Western cultures, in which government support was not investigated as a possible influential factor on the adoption of new innovation. This might be due to the low level of government support and interference in the Western markets. In contrast, the Jordanian government is responsible for taking decisions related to the technologies that are or are not allowed in the country, and is also responsible for setting up e-commerce laws in the country (INTAJ, 2000). As such, in the view of many Jordanian travel agents, the government plays a fundamental role in assisting in the adoption of e-commerce, but their performance to-date has been inadequate.

The previous discussion provides evidence that the modified UTAUT is appropriate for the context of developing countries, such as Jordan. In addition, the model could be appropriate for other Middle Eastern countries that are similar to Jordan, such as Lebanon and Syria.

5. Theoretical and Practical Implication

As a contribution to theory, this study is one of the first to examine the modified UTAUT in the hospitality industry in the Arab world. Despite the extensive use of information technologies in the hospitality and tourism sector, only limited studies have recently applied the TAM and its extended versions to evaluate technology acceptance in this sector (e.g. Huh et al., 2009; Kim et al., 2009; Lam et al., 2007; Lee et al., 2006). Thus the application of technology acceptance models in the hospitality and tourism settings is still in its early stages, specifically in the Arab countries. Most of these studies focus on the critical factors influencing user acceptance in different settings in the hospitality industry, but not specifically in the travel agencies (Kim et al., 2009; Lam et al., 2007; Kaplanidou and Vogt, 2006; Wober and Gretzel, 2000). Moreover, none of these studies investigated the role of age and gender as potential moderators on the acceptance of technology. This study is the first to utilize the UTAUT model to analyze the critical determinants of e-commerce acceptance among Jordanian travel

agencies. Therefore, researchers need to evaluate the UTAUT in travel agencies in both the developed and Middle East/ Arab countries.

The research model adjusts for cultural differences between Jordan and other developed countries where technology acceptance models have been originally formulated. For example, the research model differs by the exclusion of some of the constructs, such as attitude toward adoption that is included in several technology models (e.g. TRA, TPB, C-TPB-TAM) and the inclusion of government support and technological benefits. The exclusion of attitude is consistent with the initial suggestion from Davis et al. (1989) where they have indicated that in certain contexts, attitude has a less important role in technology acceptance. Thus, the exclusion of attitude is appropriate in this study because the decision to adopt technology in the Jordanian travel agencies is made at the top management level. Furthermore, most of the decision makers in the developing and Arab countries might have a positive attitude towards adopting an innovation, but they do not adopt it. This is what Rogers (2003) referred to as the "KAP-gap". In addition, attitudes are believed to be long-term beliefs, and as such, some technology acceptance researchers (e.g. Thompson et al., 1991; Venkatesh et al., 2003) have excluded this construct from their work.

From a methodological perspective, the research considered the specific characteristics of the Jordanian business society that is traced to the Arab Islamic culture. The study indicates the importance of conducting depth-interviews in cross-cultural research to identify the exact meaning of some constructs integrated in the conceptual model, to capture the domain of key constructs investigated in the model (e.g. compatibility), and to include imperative constructs that could affect e-commerce use in the Jordanian travel agencies (e.g. government support and competitive pressure).

The results of the study provide Arab senior managers and travel agencies owners with useful insights of the factors that could affect the acceptance of e-commerce at their agencies. The study indicates that innovation characteristics, such as performance expectancy, effort expectancy and compatibility can increase the acceptance of e-commerce. Therefore, programmers and designers of tourism websites should pay attention to the usefulness, the ease of use and the compatibility of the system. It is recommended to create websites that are easy to browse, interactive and compatible with the needs of the users so as to help them to understand and find what they are searching for. Furthermore, the language and the instruction of browsing should be easy to understand (Kim et al., 2009; Huh et al., 2009). Software engineers should develop software and programmes that have bi-lingual interface (Arabic and English) to be used and understood by all of the employees in the Arab organizations. Explicitly, user-friendliness of the e-commerce websites is essential to increase employees' acceptance.

Additionally, an important determinant of e-commerce use is compatibility. This implies that travel agents should have websites that are easy to update and flexibly to change. The travel agents should find it easy to update the information on their websites and change or add some tourism packages that are demanded by their clients. This requires Arab website designers to develop websites that are compatible with the needs of the staff in the organization. The websites should contain important and sufficient information that is understood by all of the staff. In addition, the layout, graphics, links and animation should be simple and attractive for both the employees and consumers.

Furthermore, the result of this study shows that awareness of e-commerce benefits and advantages has significant effect on the adoption of e-commerce in the Arab organisations. Therefore, the Jordanian government should launch campaigns illustrating the benefits of using e-commerce for Jordanian organisations. The government should formulate a national plan that increases the awareness and use of e-commerce to the Jordanian organisations and its consumers. The government should invest more in the ICT infrastructure and improve the Internet quality. In addition, the Jordanian government should encourage the development of more network service providers. This will increase the competition among service providers and allow the prices of The Internet to decrease

6. Conclusion and Future Research

The study reveals that the UTAUT, which was proposed in developed countries, can be used to explain e-commerce use by Jordanian Travel agencies. The modified UTAUT is crucial for assessing the acceptance of e-commerce and other information technologies that are important for the development of developing economies. It explained 62% of behavior intention variance and 23% of intended actual use variance. Furthermore, some constructs showed significant relationship with behavior intention, such as performance expectancy, effort expectancy, social influence, competitive pressure and facilitating conditions. While the constructs of perceived risk, government support and compatibility had insignificant relationship with behavior intention.

Despite the study's contributions and practical implications, it has also several limitations and unexplored future research directions. Evaluating the modified UTAUT with a broader sample (in other Arab countries, such as Syria, Egypt and Lebanon) could considerably increase the generalizability of the results. In addition, Future research efforts in Arab countries should examine the conceptual model in other tourism sectors or in other industries to assess the extent to which these findings can be generalized since the application of the Unified theory of Acceptance and Use of Technology model is very minimal. Future research can be built on this study by testing the effect of different moderators such as, age, gender and experience on the relationship between the independent constructs and dependent constructs. Lastly, future research can investigate other variables that explain the intention and use of e-commerce in tourism sector.

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THE DEVELOPMENT OF USER INTERFACE PROTOTYPE OF DECISION SUPPORT SYSTEM FOR RISK MANAGEMENT OF COMPLEX TECHNICAL SYSTEMS

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Abstract:

The article describes the specifics and stages of the development of user's interface of prototype the decision support system (DSS) for risk management of complex technical systems. The use specificity analysis of the existing DSS for tasks of risk assessment and management of technical systems was carried out. The existing software architecture and implementation of the modern DSS was reviewed considered. The building of the mind-map for the design of the user interface prototype DSS to form concepts domain was conducted. The block diagram of the software architecture subsystems of the proposed DSS was developed. The operation algorithm developed by DSS was formed. The interface prototype of the main form DSS for risk management of complex technical systems was developed and implemented in software using java language and NetBeans IDE. The developed abstract UML-class model of DSS was introduced. The class structure of the DSS software project in NetBeans was showed. The results of testing and profiling of the developed user interface prototype DDS for risk management of complex technical systems were described.

Keywords: decision support systems, prototyping, risks, risk management, complex technical systems, the user's interface, Java, UML, mind-map

1. The analysis of the specificity of existing DSS for risk assessment and management

In the modern world in technical fields it is often necessary to automate not just the calculation processes for performing routine technical tasks, but also to delegate analytical operations to information systems. The results of this analysis can be used when making control decisions aimed to minimizing levels of risks in technical systems. However, there is a necessity for processing and analyzing of multidimensional amounts of data of different nature. Especially this problem is important for the business areas, ie the use of advanced DSS for the tasks of risk assessment and management to reduce the coCTS of repairs and reduce the probability of emergency situations leading to significant financial coCTS.

The number of criteria and indicators that can be incorporated in the process of analysis of possible alternatives when evaluating risks of different technical systems can reach several hundreds and thousands, that leads to great computational and time-expenses. Currently, the decision support system (DSS) are used for the problems like these.

The conducted analysis of the number of sources (Gerasimov B.M., Divizinjuk M.M., & Subach I.Y., 2004; Klochko V.I., Shumkov E.A., & Vlasenko A.V., 2013; Popov A.L., 2008 Tereljanskij P.V., 2009;) allowed to find out that at the moment there is no clear and universal definition for this term, which would not restrict the range of tasks of the DSS. The most correct definition for risk assessment of technical systems, according to (Gerasimov B.M., Divizinjuk M.M., & Subach I.Y., 2004) performs the following wording: the " decision support systems are human-machine objects that allow decision makers use data, knowledge, objective and subjective models for analyzing and solving semistructured and unstructured problems."

The possibility of using a DSS for risk assessment and management is quite broad, however, the key purpose is to provide the user-friendly interface for performing analysis of priority scenarios of possible development risks to the management personnel, analysts and experts (Grinchenko M.A., 2011; Zagorul'ko Y.A., Zagorul'ko G.B., & Kravchenko A.Y., 2010).

The basic functions of modern DSS for risk assessment of technical systems are providing automated input, the structured storage and analysis of data for various scenarios of risks development.

However, at the moment, the analysis of literary sources (Gerasimov B.M., Divizinjuk M.M., & Subach I.Y., 2004; Timochko A.I., 2013) have shown that the mechanisms of complex accumulation of new knowledge were not fully researched in the existing concepts of DSS. No flexibility to bring knowledge of different nature to the form, able to ensure their swift development and use by DSS operators.

According to (Popov A.L., 2008) for making management decision it is for the appropriate situation necessary to consider the interactions between all factors influenced on the system. Direct and indirect linkages between elements and inter-element connections. There are hundreds and thousands in technical systems. Because of in there are additional demands on architecture, software implementation and processing power of the DSS for task estimations and risk management in technical systems

A priority task is to provide an ergonomic user's interface for interaction responsible persons who make decision makers with such systems for minimizing the probability of errors due to "human factor (Haettenschwiler P., 1999; Marakas, 1999). This is due to the fact that there is a need to ensure with the system not only the possibility of conducting operational search and formalization of information about the risk scenarios, but also to build conceptual models of building of further consequences in the minds of the service operator. I.e. DSS can form and visualize qualitative assessments and resumptive characteristics. In particular, the system is necessary to nut capabilities: to distribute tasks between the control operator and the system; to identify and classify some priorities of individual tasks, solved by the DSS; to assess the information content of signs and concepts used by the system, to the formation of step-by-step algorithms of the operators work with the DSS in a variety of modes both in normal and in critical conditions; to formalize the main operators possibilities on the processing of information, which the system outputs into the means of visualization.

2. Existing architectural and software solutions of the DSS

Modern architectural solutions of the DSS vary greatly, depending on the application. The most universal structure of the DSS, according to (Klochko V.I., Shumkov E.A., & Vlasenko A.V., 2013), consists of the following blocks: data input, data search, data validator, knowledge bases, data storage, operational databases, data analysis, methods of making operating decisions, the methods correction of making decision. The knowledge base can consist of: the system knowledge base, General knowledge bases, application knowledge base. However, due to the constant growth and improvement of intellectual analysis of data and theory of decision making methods, it is necessary to use new architectural solutions. In particular, the urgent task is the realization of the following opportunities: support the client-server architecture based on a decentralized distributed network, the use of web technologies for the purpose of security of access to corporate data, the introduction of cryptographic techniques to protect against unauthorised access, aggregation of statistics logs on the current

and predicted scenarios of development of emergent situations, support for efficient search in the multi-dimensional structures of data, the treatment of not regulated and not formalized queries, reliability, scalability, fault-tolerance. The implementation of these functional possibilities is time-consuming, but it is rewarding in operation due to the high degree of flexibility in configuration and administration.

A number of authors (Tereljanskij P.V., 2009) note that, among the existing modern DSS the most functional solutions are the offer from Oracle, SAS, Cognos and Hyperion. However, the functional sets of these products more focus on the financial planning implementation, the formation of different kinds of reporting, cost management, value analysis and business event management than on the conduct; on of the analysis and evaluation of risk scenarios, i.e. it has an applied economic nature.

There are more simple solutions like "Choice DSS" or "Advisor", they are less demanding to the resources. Their functions include: gathering appropriate information from various data sources; transformation of the processed information to the standardized data format; automated querying to the datastores with the post-processing; flexible search of information relevant to the query, providing information in a structured way; the easy use in the administration of the system by the user without additional knowledge; flexibility of the job metadata. However, to have the functionality of these software packages is not also enough for embedding as a full DSS for complex technical systems.

There are narrow mathematical standardized software products used for statistical analysis performance such as S-Plus, Statgraphics, Statistica, "Mesosaur", SPSS, Systat, TimeLab, Data-Desk, Scenario and others. However, because of the lack of flexibility of settings, no one of these software systems are not able to take fully into account the specificity and the structural design of a concrete technical system, interaction between system components.

3. The purpose of the article

The purpose of this article is to describe specific of stages of development of the user's interface prototype of the DSS for risk management of complex technical systems to improve the use of the system by operators and persons who makes decision by reducing the negative impact on the process of risk management of technical systems of the human factor.

The main stages of development of the user's interface prototype of the DSS for risk management CTS are: to design a "mind map" (mindmap) for the concepts domain formation of the developed system, to build the structural diagram of the subsystems of the software architecture of the DSS, to develop the algorithm of the system functioning, to create of the main form interface prototype, to develop the UML class diagram of prototype implementation, to Assembly and profile the developed prototype interface, to debug and curry out the automated module testing of the ready software application.

4. A mind-map development for the identification of the domain concepts

Due to the previously conducted analysis of the existing DSS and methods of their development it can be said that there is a necessity to form domain concepts for solving problems of risk management of CTS. Nowadays, for the formation and systematization domain concepts, "mind maps" (mind map) (Gul'tjaev A.K. & Mashin V.A., 2000; Tidvell D., 2011; Varfel T. Z., 2013), are widely used. A fragment of mind-map o the DSS for risk management is presented in fig.1. To implement this "mind map" as the software package for making of conceptual visual models XMind 6 was chosen, due to its high performance, broad functionality, cross-platform and low demand to resources of a PC.

The basic blocks that make up the structure of the developed DSS are: analytical (AB), imitational (IB), the database on the elements of CTS (BDE), the database on MS CTS (BDMS), a block of interactive user's interface (BII), the block implementing internal logic (BVL).

The AB structure consists of identification modules, analysis and forecasting. The analysis conducted within the framework of this module is carried out according to two criteria: the risk level priority and the criticality of potential emergencies.

The IB structure consists of modules of cognitive maps construction, failure scenarios trees, event trees. The building of cognitive maps is based on the use of graph theory and determined for 2 types: structural cognitive maps, reflecting the static topological structure of the items and MS systems, and functional which are designed to accommodate the specific dynamic of interaction between the elements and MS in different conditions. Each cognitive map is a directed graph whose nodes are elements and edges MS.

The structure of the BDE is presented in these data tables:

name (including the full name of the item and the description of its functional purpose);
a shorthand notation (the subsystem to which the element belongs, the name and unique identifier in the form of a 5-digit symbol record are indicated for each item);
the risk level of (the date in the italicized "Year.Month.Day.Hour.Minute" format the current risk value for a given element, the maximum and minimum risk values that were fixed by the system during the entire period of operation);
additional parameters the duration of the operation in the italicized format, the average cost of a new item on the market, expressed in U.S. dollars, the type of the EVI resource used or generated during the functioning and the operation mode of the element that is presented in discrete form: O-regular, I-irregular;
the regular probability (failure – in accordance with the regulations, it is predicted, taking into account the current technical condition of the element and statistically averaged, based on available statistical data for the entire period of the element).
The EVI resource is understood: energy, substance or information, depending on the structural design of the element and its functionality.

The BDMS structure mainly follows the structure of the BDE, except for some additional fields. In particular, the additional parameters table contains the type of the transporter for each MS EVI resources, as well as the element source fields and the element receiver were created for making easy diagnosis and the state CTS monitoring.

The BII structure consists of the following modules:

The operating module that contains the components of the decision accounting control, the control decisions choice, the automated visualization, the view item statistics for MS and CTS;
The monitoring module that contains the components of the online visualization risks of the values, parameter values and States of the elements and MS CTS, the values of probability of elements and MS CTS failure;
The diagnostic module that contains the components of technical parameter visualization and simulation models;
The risk assessment, module that contains the components visualization values of the structural and functional risks and damages, the probability of failure on the selected items and MS CTS.

The structure of the BVL consists of the following modules:

The module of formalization the accident scenarios and the components operation conditions of CTS;
The module of formation of reporting documentation in the form of an events log, a taken actions register, a list of accidents with reference of the date;

The module of automation of risks, and probabilities damages calculations.

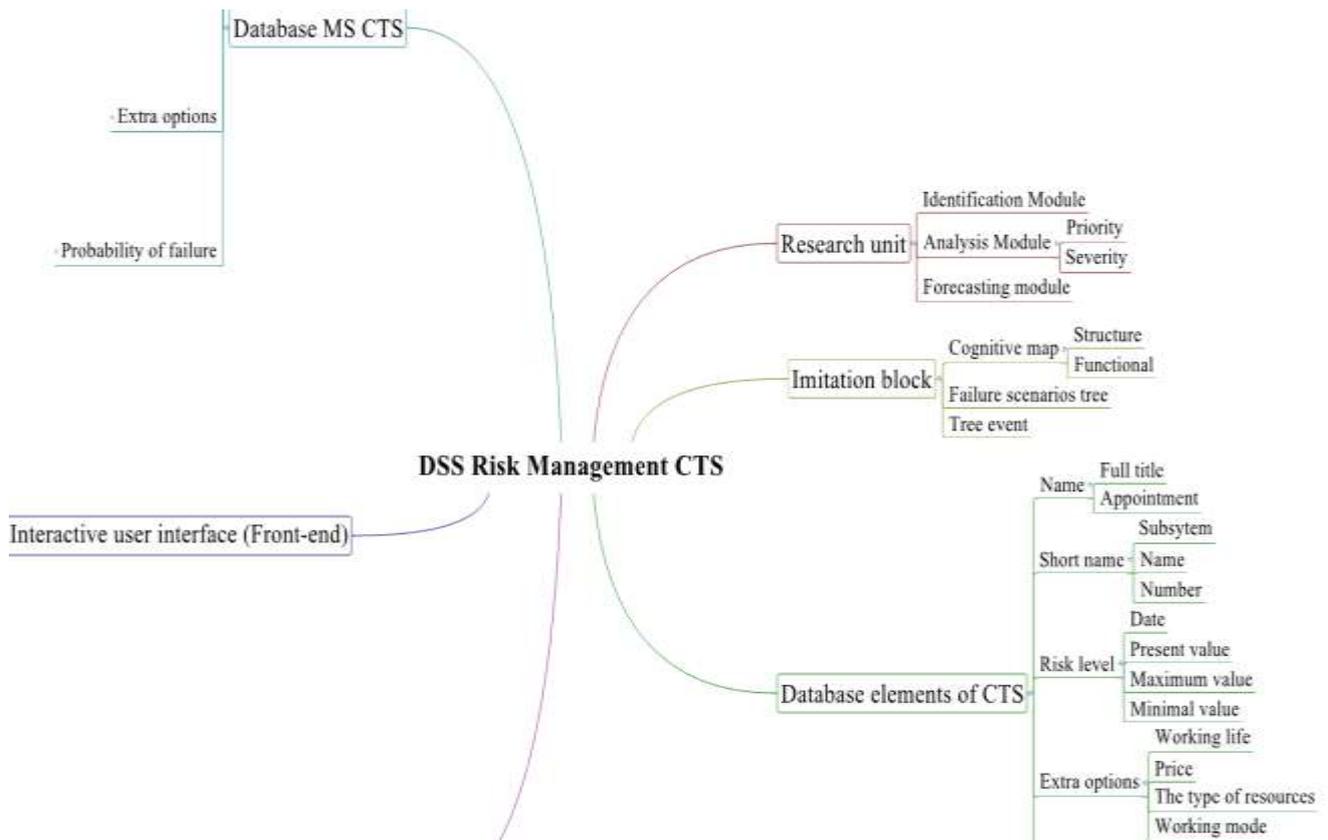


Figure 1 – Fragment of a developed mind map of the DSS for risk management

It becomes possible to detail the specifics of the system components development based on the created concept domain and the formed mind map. In particular, it is necessary to develop the software architecture of the DSS.

5. The construction structural diagram building of the software architecture of the DSS subsystem

The developed software architecture of the DSS is presented in Fig. 2. It contains the subsystem of (as a part of the future software product of they are separate packages): identification (for dynamic determination of potential accident scenarios and faults in the system), analysis (the formalization of the criteria for possible damages and risks assessment, with the subsequent identification of correlations in the priority accident scenarios), evaluation (the conducting numerical evaluation of the coefficients of structural and functional damages and risks for each priority of the risk development scenario, forecasting (the elements and the MS condition assessment in dependence on the taken control decision), confid (the insurance of the verification and validation of the taken control measures and actions to minimize risks), logging (to make the detailed reporting information about changes in the functioning of the elements and the MS CTS, action taken in emergency and extreme conditions of the system operation) and monitoring (tracking and visualization of changes in the CTS operation in the online mode).

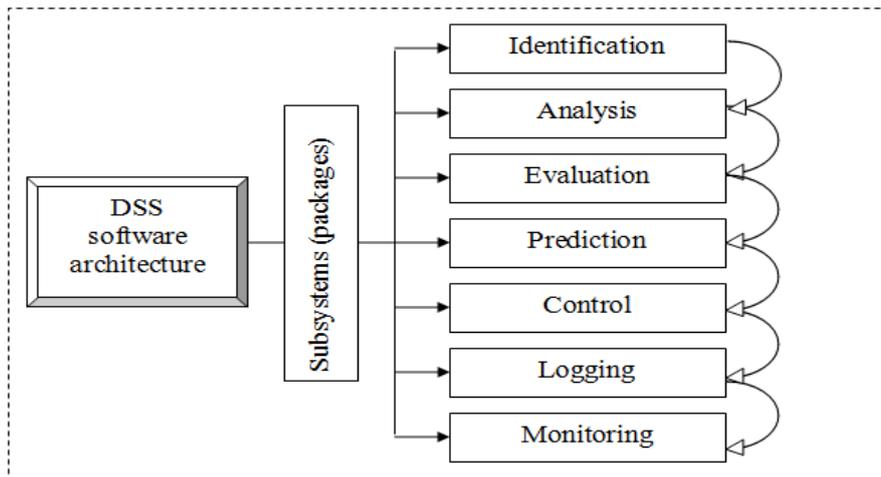


Figure 2 – Block diagram of the subsystems of the software architecture of DSS

The structural scheme of the software architecture of the DSS subsystems can be a conceptual basis for the functioning algorithm implementation of the DSS which reflects the operating cycle of the developed system.

6. Development of algorithm of functioning of the DSS

The idea of the developed algorithm of the software operation of the DSS (Fig.3), is in the constant operation of all modules of the subsystem in parallel-distributed multi-hown mode. This reduces the amount of time for using the production capabilities of the computational devices and allows quickly to record all changes in the elements and the MS, operation that occur in the system.

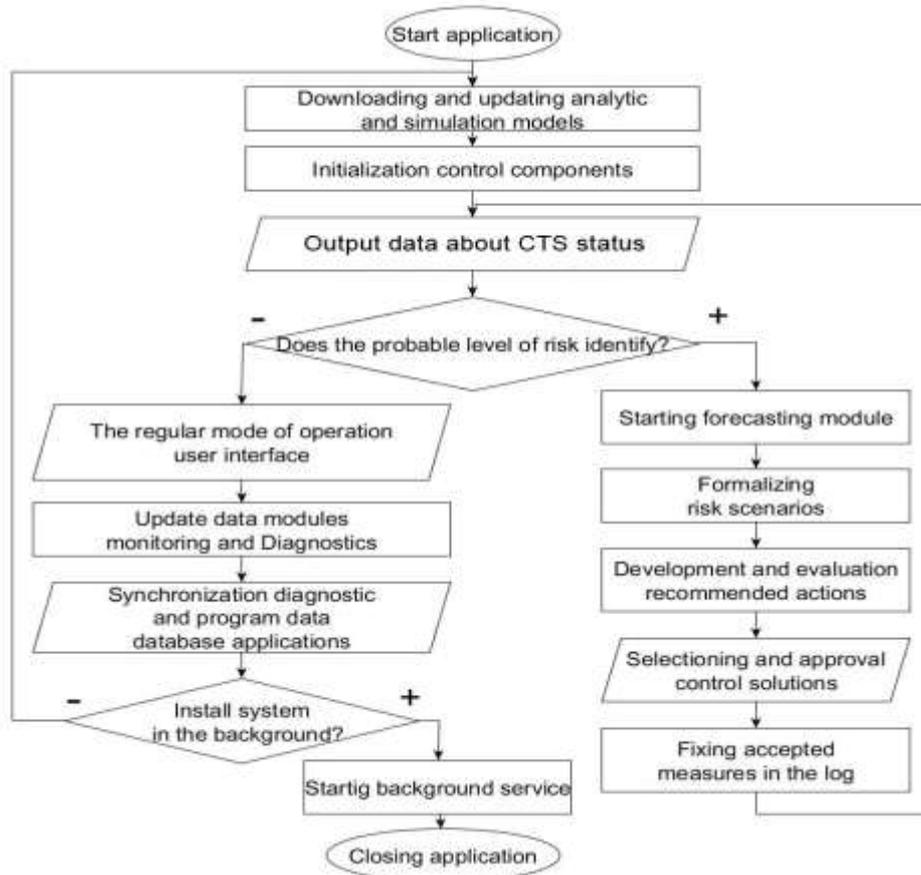


Figure 3 – the algorithm of functioning of the DSS

The start of the DSS application is performed from the operator's panel, in a direct or remote mode. After the running application computational processes for downloading and updating of the existing analytical and simulation modules that are responsible for the building of the actual cognitive maps of the CTS are carried out. Initialization of control components, distribution of memory resources and computing devices is performed. The current data on the state of the CTS and all its elements and the MS is displayed on the screen, into the log file and in to the appropriate DB tables. The identification of the potential risk level in the system is checked. In the case of potentially high level risk detection the forecasting module is challenged to form the priority emergency development scenarios. The formalization of the priority risk scenarios, the development of a recommended action list and a comparative evaluation of their effectiveness is carried out. On the basis of these actions the formation of operating decisions alternatives, with the possibility of selection and confirmation by the operator is mode. The decisions made on the risks management are recorded in the logs and the program displays again the current data on the user's screen. In the case of the possible risk in the elements and the MS operation disfunction the system continues its operation in the normal mode, visualizing the data which come into the DSS. Data is updated by monitoring and diagnostics modules, with a given regularity (by default it is once half an hour). The synchronization of the software diagnostic module operation with the database, queries on filling of its fields with the updates data, and the creation of database backups is carried out. To save computational resources to monitoring and graphical virtualization of the status of the DSS in th case of stable mode of the CTS operation, it is possible to turn the system in to the background.

When choosing this mode the background service (daemon) that moves to the system tray and closes the main interface window of the DSS is run and initialized. In the case of identification of the possible risk level the system informs the operator. Depending on the program notification settings the following can happen: a message box or a appears an email to the specified email address or SMS to mobile phones with the fixation of performed actions in a log is sent. Due to the elaborated algorithm of the DSS it is possible to turn to the implementation of the visual part of the user's interface prototype.

7. The development of the main form prototype interface of the DSS for the risks management CTS

The analysis of several literature sources (Mashnin T.S., 2009; Nouton P. & Shildt G., 2003; Weisfeld, 2005) allowed us to that find out that for the development of the visual part of the user's interface prototype of the DSS it is advisable to use an integrated environment of NetBeans 8.0.2 development, Java programming language, Swing GUI framework, the automatic Maven build. These software tools were chosen because of the easy configuration of their joint work, the development of applications based on the popular MVC model (Model-View-Controller), absence of pay-per-use (all tools are free and distributed under a General Public license). The composition of the main form visual components of developed user's interface prototype of the DSS is presented in table 1. The appearance of the main form interface prototype of the DSS for the risk management CTS is presented in Fig. 4.

Table 1 – Composition of used visual components of the developed prototype DSS

Type	Name	Description of functional purpose
JPanel	OperatingUnit	The display area of the control module component
	HistoryLogUnit	The display area of the events logging module components
	CtsStructureUnit	The display area of the components of the structure CTS output module components
	RiskEvaluationUnit	The display area of the risk assessments output module components
JTabbedPane	MenuTab	The tabs form

JLabel	ListLabel	The display component of the action list label
	ElementTableLabel	The display component of the elements table label
	IEConnectLabel	The display component of the table MS label
	CBCtsDiagLabel	The display component of the risk diagram label
	HistoryLogLabel	The display component of the log information output label
	NormImpactLabel	The display component of the normalizing impact activation label
	StartStrMomLabel	The display component of the striking modeling impulse activation label
JButton	ApplyButton	The component of the selected solution application
	CancelButton	The component of the selected solution cancellation
JTable	ElementOutTable	The component of the output of the CTS elements parameter values
	IEOutTable	The component of the output of the MS CTS parameter values
JText Area	LogTextArea	Log information output component
JCheck Box	ViewCtsDiagChBox	The component of the CTS risks diagram output activation
	ViewCtsGraphChBox	The component of the CTS cognitive maps output activation
	StartNormImpChBox	The component of the normalizing impact activation
	StartModMoMShBox	The component of the striking modeling impact activation
JComboBox	DesitionList	The display component of control solutions
JFrame	GraphOutFrame	The CTS cognitive map visualization component
	DiagOutFrame	The risk distribution diagram visualization component

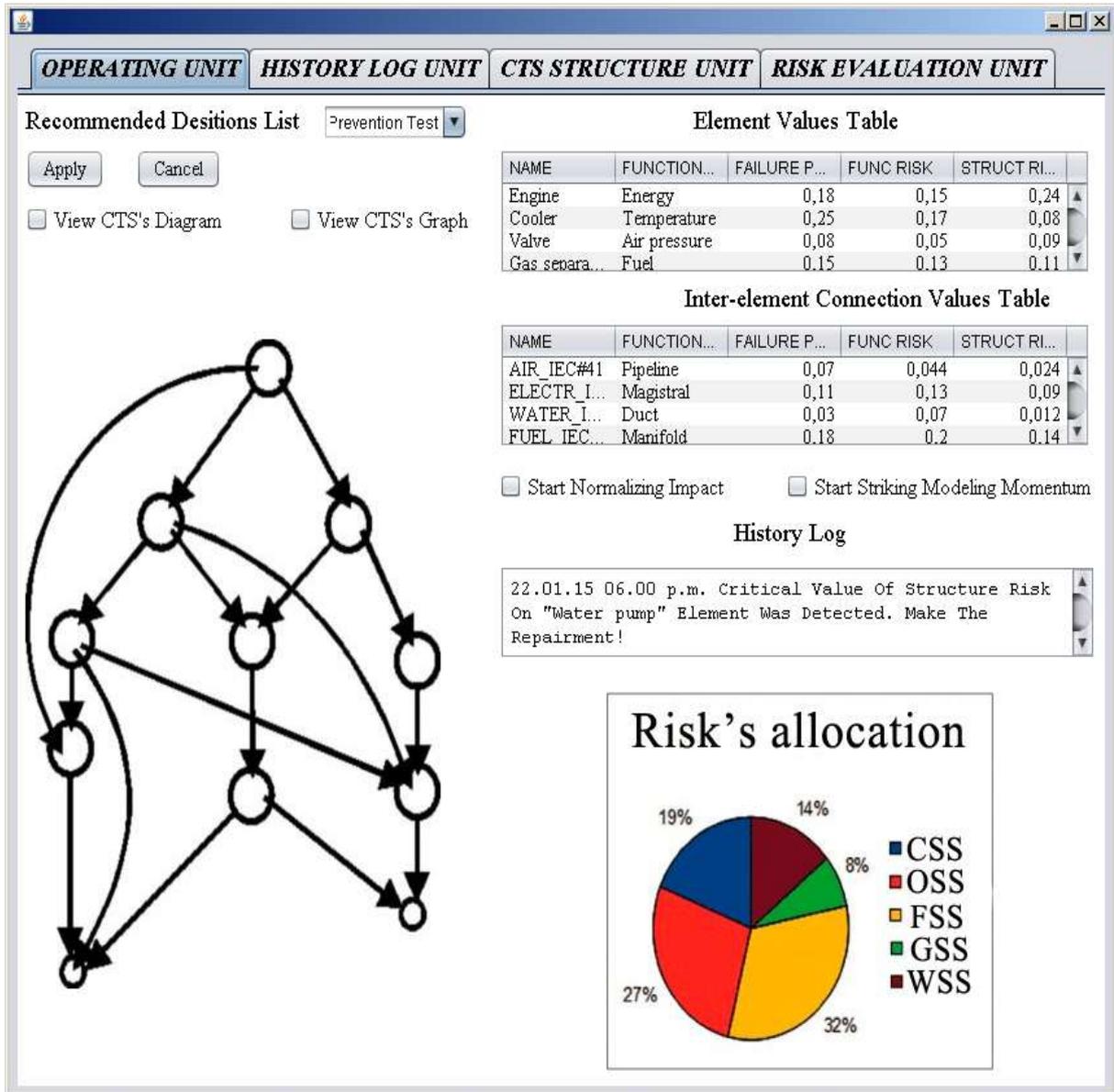


Figure 4 – The appearance of the main form prototype interface of the DSS for the risk's management CTS

The developed interface contains the implementation of flexible functionality, however, at this stage it does not contain the program code that is characteristic for prototype application (Varfel T. Z., 2013). As the implementation of the basic methods (Mocks and Stabs) are used. It is necessary to use this approach for proper testing of the application with a partial or no implementation of the control logic and functionality. It is possible to fill the project with a program code on the basis of the application abstract structure development, i.e. a class diagram building.

Conclusions.

The use of the modern software tools has allowed to realize the complex approach to the prototype development process organization and coding based on the use of object-oriented programming paradigm and Java language.

The applied methodologies, technical tools and graphics libraries for quick prototyping reduced time and programming code amount to develop the user's interface prototype of the DSS for risk management of the CTS.

The testing and profiling of the developed user's interface prototype of the DSS for risk management of CTS has demonstrated its efficiency, the variety of the potential put in the application, due to the use of the modern technologies of software implementation, as well as the possibility of taking into account for the specific of the various elements risk impact and the MS systems on the control action value.

The developed prototype allows to automate the process of monitoring risks, reduce material and time coCTS for the development and adoption of management decisions.

The developed user's interface prototype of the DSS for risk management CTS cross-platform and advanced software application with a low degree of classes connectivity and can be used with the further implementation of the back-end part of the DSS based on modern design patterns due to the flexibility of implementation.

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Towards Sustainable Enterprise Resource Planning and Management Approach for Universities

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Abstract:

Enterprise Resource Planning and management systems (ERP) are very important integrated and crucial solutions to the success of small to medium enterprise (SMEs) businesses. Such solutions are very risky and not straightforward solution and may lead to business failure if not implemented correctly, hence many critical factors play important roles in a successful implementing of an ERP system. Recently, smart and innovative universities started to look at ERP systems so as to solve their problems in controlling, managing and sustaining the ever expanding business functions related to university daily and strategic activities. This includes the integration and automation of all university activities, services, resource planning and decision making activities such as student life cycle, staff recruitment and assessment, financial issues and human resources management. Information technology plays a very important role in the sustainable implementations of such university ERP (UERP) solutions. In this paper, a presentation of best practice approach on how to plan for successful UERP systems. Palestine Polytechnic University (PPU) will be considered as a case study

Introduction

The information technology era has created new patterns in all aspects of our lives in general and in entrepreneurial and smart universities in specific. This includes the adoption of intelligent strategic planning that is based on the correct usage of processed information from all units and departments of such universities. This amount of information is becoming more and more huge and complex due to the emersion of different academic, social and economic factors, needs and resources in each smart university activities to achieve their entrepreneurial strategic goals and objectives. This means that such universities should highly invest in different new tools and systems in order to achieve the best quality in sustainable and efficient use of all available resources including time and cost. Consequently, this increases the overall performance and competitiveness of these universities and makes it more sustainable and robust in our high demand and changing world [1, 2].

The concept of enterprise resource planning and management ERP began clearly in the 1990's, it is an integrated system that integrates the business functions, where information flows between different functional modules with a centralized database [3]. ERP systems focus on how information will be collected, stored, used, accessed, gathered, and summarized [4]. ERP started as Inventory Control (IC), then it has been developed into Material Requirements Planning (MRP) in 1970s which focused into planning and controlling the production cycle, then in 1980s it advanced into Manufacturing Resource Planning (MRP II), its goal is to increase the efficiency of manufacturing using integrated technologies. ERP integration includes business functions, software, and hardware [4].

ERP implementation is a complicated process and needs deep involvement from all departments of the organization [5]. The benefits of a successful ERP system are very large.

These benefits can impact all operational, managerial, strategic, IT infrastructure, and organizational aspects of an organization [6].

Universities as large organizations can take lots of advantages in using ERP systems. The continuous increase of student numbers, global directions, high operation quality, competitive environment, and the increment of performance are attracting factors for universities to adopt the ERP systems [3]. However, the complexity of the ERP system planning and implementation increases the rate of failure, so the critical success factors are the most important aspects that must be taken into consideration during any ERP system implementation life cycle [6].

Critical Success Factors in ERP Systems

In order to have a successful implementation of an ERP systems, many factors should be considered in order to be sure that the final implementations leads to the required objectives by such an implementation. Such factors are called Critical Success Factors (CSFs) [6]. CSF can be defined as series of activates with special and continuous consideration for ERP planning and implementation [5].

According to [11] there are 37 CSFs are summarized after validation, ranking and classification processes. Also these factors are categorized into four categories: critical, active, reactive, and inert; according to the roles which are played in the implementation of the system as shown in table 1. Critical factors: are factors that strongly impact other factors and impacted by other. Active factors: these factors which are less affected by other factors. Reactive factors: factors which are the opposite of active ones. Inert factors: are factors that less involved in the system dynamics and they are be opposite of critical ones.

Dozens of studies about the CSFs and their impact in success and failure of ERP implementations led to conclude their significance to find the CSFs which ensure the success in higher education sector [3]. CSFs can be categorized into 4 groups [7]. Also [8] summarized the 11 main CSFs after studying a 1000 companies and set sub factors inside each main factor. Others studies mentioned 9 CSFs [9]. Finally, [10] present the CSFs and ERP's performance according the regions and countries.

University Information Technology Systems

It is known that information is the result of row data processing. Huge amount of information need special tools to analyze it in order to make use of the valuable results needed to make suitable and fruitful decisions. Such advanced tools include intelligent systems, data mining tools and expert systems. A university that makes good use of such tools will lead to knowledge based, experienced, smart and wise university that responds to different critical situations in the right manner and right time.

Table 1: CSFs groups according to [11]

Critical Factors	Active Factors
Top management support	Change management
Management of expectations	Organization politics and characteristics
Business process reengineering	Interest groups
Project (ERP) team composition and competence	Management style and decision making
Education and training of users	National and organization cultures
Interdepartmental cooperation and communication	Rules and practices
Involvement of users in systems development and integration	
Culture of resistance within an organization	
Vendor and consultant support to users	
Systems changes and upgrade to new versions	
Reactive Factors	Inert Factors

Flexibility and efficiency of use of ERP user friendliness of the ERP system and the availability of help functions and Documentation in the form of user manuals Learnability User satisfaction Attitude towards the system Motivation Use of vendors' tools	Complexity Minimum customization Data quality, analysis, and conversion Software development, testing, Network reliability and system response time Visibility of the system status Robustness and error prevention Behavior, roles, policies and standards Norms and availability of applications Political influence
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A university information technology system consists of all issues and resources related to the good use of information technology to achieve the university vision, mission and objectives. Such resources include all administrative and technical staff, users, network infrastructure, computers, and electronic services that are used to maintain an efficient administration of all university academic and administrative functionalities. The university information technology systems should be secure to preserve confidentiality, integrity and availability [12]. To effectively and efficiently manage the various academic, administrative and operational activities of a university, the university information system objective can be summarized as shown in table 2. Achieving these objectives will insure a high level of induction of transparency and accountability in operations of the objective university [13].

Table 2: University Information System Objectives

<p>To computerize the core university functions to maintain efficient information processing.</p> <p>To manage and process all university examinations and results.</p> <p>Accurate report generation to all administrative layers for monitoring and decision making.</p> <p>To provide automation to other work flow related activities.</p> <p>Redundant employee's workload reduction.</p> <p>Dissemination of information for public requirements.</p> <p>Business intelligence and data mining features for decision making support.</p> <p>Security of university information system assets.</p>

Universities ERP Systems (UERP)

ERP system for universities: "is an information technology solution that integrates and automates recruitment, admissions, financial aid, student records, and most academic and administrative services" [3].

Due to the increase in global competitive and change of environment, many universities are spending millions of dollars for modernization of their IT systems and implemented new ERP systems. Although the process of implementing ERP system takes up to four years, it has amazing results and benefits [14, 15].

Advantages of UERP Systems

The key advantages of ERP systems in higher education are: increased access to information bases and improvement in institutional management costs, reducing business risks and improving the efficiency of all university functions and activities by increasing the income and decreasing the expenses. However, (B. Kalema et al) listed the following 11 benefits of ERP system in universities [11]:

Increase an error free of integration data flow and business process as long as increasing the sharing of information among institution departments.

ERP system helping the teaching and learning ways.

Internal workflow will increase efficiently, such as: student registration.

Developing and adopting effective actions of a new business process.

Enhancing an information sharing.

The ease of access to the information recourses.

Communication will be managed and effective alerts of programs.

Centralization of data storage.

Provide an easy web interface system.

The planning operation will be increased.

Reducing the overhead expenses, increase efficiency by optimizing the hardware institution.

The Integration of all functions in higher education institutes' environment represent financial, academic, human resource, and administration as a one piece that shares the business functions, and the ability to transfer the data between the users and individual process in real time; unlike the previous system which was a fragmented application systems. Keeping up with modern ICT (mobile, wireless, web based applications) is also important in universities communities [5].

Components of UERP Systems

Table 3 shows the basic components of a UERP system. Each component consists of many subcomponents that work in harmonic with each other and with the other sub components in the system. Of course other components/subcomponents can be added or deleted to the UERP system as each university needs and requires. Usually, these components are administered and used through an efficient fully integrated web-enabled multi-tier application with management functions that are necessary to successfully handle all the aspects of the target university.

Table 3: Components and sub Components of a Typical UERP

UERP Basic Components	UERP Subcomponents
Student aspects management systems:	Students admissions and academics Examination management and result processing alumni management Student fees and financial management Students self-service portal Attendance monitoring Placement service portal
Financial and human resource management system:	Financial accounting and budget management HR and payroll management Employees self-service portal Stores, purchase, bill tracking and assets management
Administrative issues management and reporting system:	Knowledge management Fleet management Medical service and insurance management E-procurement and tendering management Legal issues and complaints management
Other university activities management system	Library management File and document management Research project and master thesis management

	Letter management Admin offices management
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Planning for a Successful UERP

UERP requires high level of planning, organizing, securing and managing resources so as to increase the probability of successful ERP implementation and to achieve the required goals and objectives [17, 18]. This includes the definition of the UERP objectives and scope clearly, work development, resource plan and tracking [16]. Communication between departments and faculties is very important for a successful UERP implementation [19]. Therefore, it is important to involve all departments and admin staff working in each department and to design a comprehensive communication plan throughout the UERP project implementation [20].

It should be also noted that Quality Control and Assurance (QCA) for all phases of the UERP implementation is very important. QCA helps in detecting problem and suggest solutions for resolving all raised issues during the UERP implementation [21].

There are two approaches for the implementing a UERP system. One approach process reengineering of all existing processes and map it to the selected UERP system functionality. Another approach is to minimize the selected UERP customization in order to make use of the UERP system.

Phases for Successful UERP System Implementations

Table 4 below shows the basic phases and the required steps for each phase used in implementing a typical UERP system. The table also shows the critical success factors CSF that should be considered during the implementation of each phase [22].

Table 4: A Typical UERP Implementation Phases and Steps [22].

Phase	Involved Steps	CSF
Project Initiation	Analyze business environment Internal analysis External analysis Current ICT environment analysis UERP Selection process	Coordinating resources Communication Quality assurance (QA)
Project Preparation	Scope and Objective of Project Project schedule Project organizational chart Policy and procedure	Coordinating resources; Project management Communication Quality assurance (QA)
Project Implementation	Business requirement studies Test scenario / Customized prototype Integration strategy Conversion plan Developing skill and knowledge Full implementation Business acceptance test	Stimulating and facilitating organization among staffs and etc. Self-service environment; Developing skill and knowledge System customization Quality assurance (QA)
Operation and Maintenance	Establish post implementation plan Documentation	Training System customization Quality assurance (QA)

General UERP System Implementations Recommendations

In [23], an interesting study and recommendations on preparing for a new ERP implementation is presented. The study discusses a set of important recommendations that can be considered in UERP systems development and implementation. These recommendations are shown as in table 5 and one can refer to [23] for more details and discussions.

PPU Case Study

In this section a presentation on how the first and second phases of planning a sustainable UERP system at PPU were processed. The required steps in each phase were done through comprehensive meetings and discussions with professionals and staff from different administrative and technical departments and units. The analysis was done by all the PPU stakeholders: PPU management, IT center of excellence, PPU computer center, faculty members, academic department, student registration department, finance department, human resource department etc.

Table 5: New ERP Implementation Recommendations [23]

Rec #	Recommendation	Action Points
R1	Target and objectives for Operations should be defined and outcome of the employees actions should be visible for ensuring efficient usage of ERP	Define clear monthly and quarterly targets. Follow up in weekly meetings 3. Define clear business plan and vision.
R2	Recognize employees' requirements for ERP system itself to increase usefulness and learnability of ERP for achieving improved user satisfaction.	Identify ERP function related to employee roles.
R3	Name department's key user or users. Recognize users' requirements from learning style perspective and create a training plan accordingly. Focus training on two subjects, using ERP and changed processes.	Name department's key user or users. Create implementation team within the case company. Apply "Learning Style Questionnaire". Consider "Learning organization" test. Create training plan to accomplish two subjects; use of ERP and changed processes
R4	Focus and ensure positive and open organizational culture to-wards the ERP implementation project.	Define target status of change. Establish strong team. Analyze current status of resistance. Communicate target. Personalize target. Follow-up. Institutionalize working practices. Define business performance measurements for follow-up and for defining success
R5	By the support of top management, the employee involvement and the meaning of the ERP in the company can be increased.	Obtain top managements support. Ensure sufficient time and money budgets. Introduce strategic vision
R6	Create a communication plan that sells the project to employees and covers the scope, objectives and tasks of the project.	Communicate the benefits of the ERP. Communicate how new system will work. Communicate how employees outcome will improve
R7	Identify and trace the key business processes with the help of experts for ensuring that those will be implemented in new ERP.	Identify processes related to current ERP. Identify processes where current ERP is not used. Recognize processes that can't be implemented to new ERP. Re-design point 3 processes to fit new ERP

PPU Business Environment Analysis

PPU started to study the possibility of implementing a UERP so as to achieve an efficient information technology system as presented in section 1.2, the set objectives was as presented in table 1 above. Also PPU want to sustain the presented advantages of UERP systems presented in section 2.1. Hence, PPU UERP will fulfill the vision of "developing an entrepreneurial information technology system that leads to wisdom and knowledge based administrative decisions".

PPU also claimed the UERP system mission of "To reach a comprehensive information system that can be efficiently used in PPU resources planning and management in order to achieve PPU vision and mission to fulfill wise administrative activities in all aspects of university life cycle"

Accordingly the first step was to analyze the PPU environment (business analysis), this step included three activities:

Institution's internal analysis,

Institution's external analysis and

Institution's ICT current environment's analysis.

The results of these activities are summarized as shown in table 6 and in figure 1.

Table 6: Summary of PPU Internal, External and ICT Analysis.

Environmental Factors	Strengths	Weaknesses
Institutional Performance	So many ICT professionals with high level of experiences	Normal overall ICT systems performance satisfaction
ICT staff properties	High level of ICT specialists with different skills and experiences	Low number of professionals in SE development. Lack of high experienced SE analysts. Lack of leadership in the SE development lifecycle.
Administrative properties	High and medium administration levels willingness to support an integrated ICT solution.	Lack of real plans to fulfill the required willingness in developing the integrated ICT system. Lack of clear ICT manager reference to manage and lead the development process. High academic and work load of existing ICT staff Weak follow-up of previous recommendations to develop an integrated ICT system
Properties of current offered services	Basic services to accomplish day to day tasks like registration and HR services	Nonintegrated subsystems since it were built on local basis. Does not clearly support new PPU mission and vision. Does not support intelligence or knowledge based decision support activities Minimal documentation and reference manuals.
ICT organizational structure	Basic structure of existing units like	Lack of high level clear ICT organizational structure that supports the development of

	computer center and center of excellence	the claimed university ICT integrated system.
Financial aspects	Basic budget to support the existing ICT activities	Lack of high budget allocation for the required ICT integrated systems
ICT Reputation	PPU is an ICT based organization with high reputation.	High level of performance expectations from PPU ICT services and functions.
ICT decision making strategies	Very good intra unit decision making strategies	Lack of integrated mechanisms to handle a high level of ICT integrated systems
ICT quality control and assurance	None	Lack of quality control and assurance to control the existing ICT subsystems
Miscellaneous issues and aspects	Intention to handle the change management issues by the PPU administration. Possibility of conducting internal training and building awareness activities. Possibility of securing external fund to support the required ICT integrated system.	High work load of all PPU users. Change management issues by some units, users and students. Slow follow up of the latest ICT leading edge technologies. No clear decision regarding UERP BUY or MAKE strategies. Delay in implementing the PPU security recommendations suggested by the PPU security CERT.

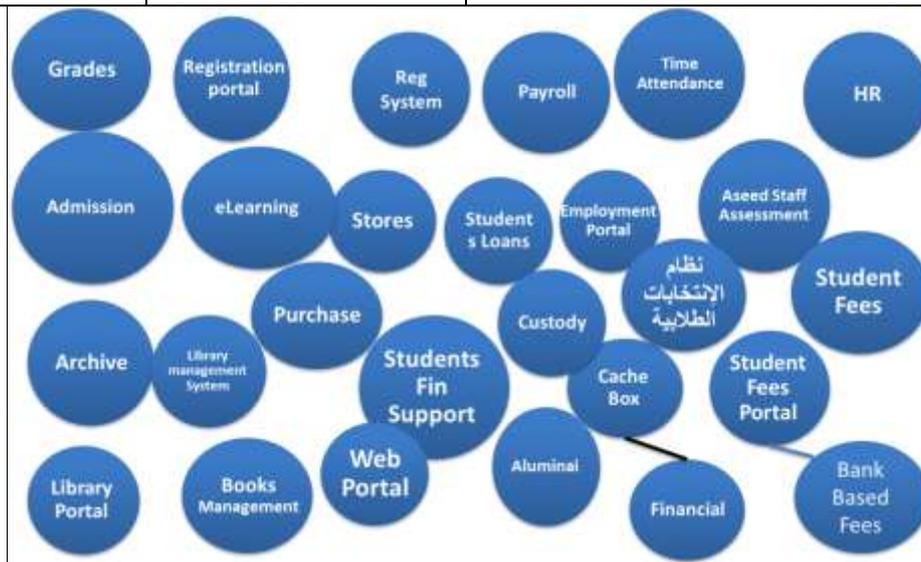


Figure 1: PPU Non-Integrated Subsystems

PPU UERP System Project Preparation Phase

It is clear from the previous business environmental analysis that a lot of work should be done in order to start the UERP project implementation. All non-integrated subsystems should be redesigned and integrated to be similar to that in figure 2.

The following points summarize the basic recommendations that can be followed in order to move forward towards a sustainable UERP implementation at PPU.

Continue using and maintaining the existing non-integrated subsystems and finish the development of already started subsystems including the webpage development.

Implement the computer center action plan regarding the required center infrastructure.

Assign or create a new administrative position with VP privileges to lead the required PPU UERP project.

Re-engineering and reorganizing the ICT organizational units according to the following suggested sample diagram, figure 2.

Assign the new ICT VP to supervise and implement the following activities towards the new UERP system:

Recruit / train new / existing highly qualified staff to be assigned to the new ICT organizational structure as suggested in figure 2.

Develop a comprehensive and integrated master plan to all required activities and subsystems to fulfill the required UERP components as mentioned in section 2.2. This includes the gap analysis and relationship between the required subsystems and existing ones.

Develop a detailed and comprehensive plan to implement the new UERP system and decide on whether to buy or make the strategies or a combination of them.

Create the recommended computer data center structure and equipment.

Allocate the required budgets so as to start the implementation of the previous steps and recommendations.

Implement the PPU security recommendations suggested by the PPU security CERT.



Figure 2: Sample Integrated Subsystems towards UERP

UERP System Buy or Make Decision

One of the most important questions that one can ask while moving toward the UERP systems is whether to buy or make the UERP. This question is very difficult question and in order to answer such a question many factors can be considered. This includes, but not limited to cost, quality and time of analyzing, designing, implementing and mainlining / testing of the UERP. Accordingly, PPU team did a very comprehensive study to be able to come up with a clear decision. In all cases, PPU should do a very detailed requirements and gap analysis which will lead to determine all required processes that should be included in the new UERP.

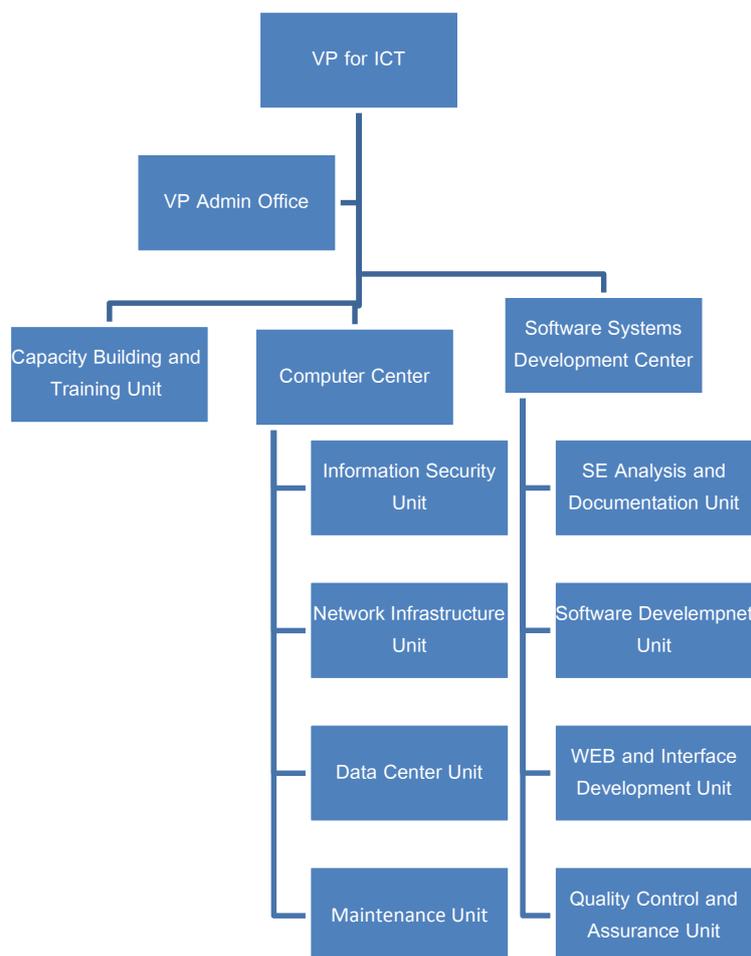


Figure 3: Suggested new University ICT Organizational Structure.

The study showed that in-house software development may be considered due to the experienced teams at PPU and at the same time the existing processes requires a lot of customization that may take a lot of time to be done when buying an existing UERP. However, by doing so, PPU has to wait for few years to be able to finish the required systems. According a hybrid approach may be selected so as to minimize the time/cost/customization factors in the intended UERP.

Table 7 shows a simple comparison of one of the scenarios that has been considered compare the buy or make and the hybrid approaches. It may be clear that the hybrid approach can be considered as trade-off for a university with good technical experiences and staff. However, a more comprehensive and detailed study should be conducted in order to make sure which approach to select for a given university. PPU will do this once the new organizational structure is approved and in action.

Table 7: Comparison of Different Development Approaches

Development Method	Expected Period (M)	Direct Dev Cost	PPU inkind Costs (Existing Staff)	Maintenance Costs (for 36 M)	Other Technical Staff Costs (by PPU)	Other Logistics Costs	TCO for PPU ERP System (4 years)	Efficiency Of Final Products
Purchase from external company (Analyze+ Purchase+ Maintenance for 36 M)	(18 Deployment) + (36 M Maintenance)	622576	285000	373546	162000	50000	1,493,121	90%
Development by PPU Existing and New Staff	54	852000	285000	0	162000	50000	1,349,000	70%
Developing using Existing Staff (based on 54 months for developing part of the system)	54 (96 M if all Modules will be developed)	162000	351000	0	162000	30000	705,000	20%

Conclusion

In this paper a presentation of how enterprise resource planning and management systems can be mapped and used in universities and educational organizations. ERP systems are usually used in business organizations to manage and plan for their resources, however if these systems are used in universities, a great values and benefit can be gained from such systems. UERP will increase the level of integration of the university functions and processes to a level that helps all university stake holders to go to the knowledge and wisdom and intelligence in their day to day and strategic decision making activities.

A case study on a sample university has been presented and results showed that UERP systems need a lot of work and commitments from all users and administrative layers. However, even if using UERP system in universities is a dream for all university stakeholders, so many factors should be considered and handled in order to reach a successful implementation of such systems.

Acknowledgement

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Investigating the structural relationships between service quality, price fairness, product quality, satisfaction and customer loyalty in automotive aftermarket industry

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Abstract:

Global automotive aftermarket industry is experiencing significant changes and challenges. Significant contribution of this segment to the revenues and profits of the automotive companies has rapidly increased competition. Automotive companies are constantly working for better insight about customers and subsequently designing effective marketing strategies. This study attempts to understand and model the structural relationships between the constructs of service quality, price fairness, product quality, customer satisfaction and customer loyalty in automotive aftermarket industry using Partial Least Square-Structural Equation Modelling (PLS-SEM). Primary data was collected from the customers of automobile service centres through multi-stage sampling in Oman. Results of model testing have demonstrated high predictive power of the model.

Keywords: Service quality, price fairness, product quality, customer satisfaction, customer loyalty, automotive aftermarket

1. Introduction

Global automotive industry is continuously experiencing significant changes and challenges. Automotive aftermarket has evolved as a very important segment in the revenues and profits of automotive companies. Automotive aftermarket encompasses all parts and services after the sale of automobiles like replacement parts, accessories, lubricants, appearance products and service repair. According to Capgemini Consulting (2010), around half of the profit of European Original Equipment Manufacturers (OEMs)/Original Equipment Suppliers (OESs) in year 2007 was accounted from aftermarket business and this industry is incrementally growing. Automotive aftermarket is highly competitive due to participation of Original Equipment Manufacturers (OEMs), Original Equipment Suppliers (OESs), automobile dealers, service and repair centres. Competition in automotive aftermarkets has challenged different automotive service providers to improve different areas of business for survival and growth. Capgemini Consulting (2010) has laid out four performance levers of operational excellence, organizational design, network excellence and information technology for participants in automotive aftermarket. These performance levers enable performance management of automotive aftermarket participants. Main focus of operational excellence is to deliver customer satisfaction and subsequently enhancing customer loyalty for survival and growth of aftermarket automotive businesses.

Customer satisfaction and loyalty in automotive aftermarket are mainly driven by different factors associated with offerings. Automotive aftermarket offerings include both tangible and intangible components. This study aims to investigate role of both tangible and

intangible components of automotive aftermarket offerings to influence customer satisfaction and loyalty. Customers' perception of service quality, product quality and price fairness are the antecedents constructs linked with offerings while customer satisfaction and loyalty constructs are the outcomes. Relationships between service quality, price fairness, product quality, satisfaction and customer loyalty have been investigated with Partial Least Square – Structural Equation Modelling (PLS-SEM). Tested conceptual model will facilitate in the prediction of customer satisfaction and their loyalty in automotive aftermarket industry.

Literature Review

2.1 Service Quality

Parasuraman, Zeithaml & Berry (1988) has given five dimensions of Reliability, Assurance, Responsiveness, Empathy and Tangibility to measure the service quality. Parasuraman & Zeithaml (2006) has stated service quality as “the degree and direction of discrepancy between customers' service perceptions and expectations”. Most of the researches in service quality have used the SERVQUAL model developed by Parasuraman, Zeithaml & Berry (1985& 1988) which provides a comparison of customer expectations and their perceptions about the services. Cronin & Taylor (1992) has proposed SERVPERF in place of SERVQUAL because of efficiency of performance based scale.

2.2 Price fairness

A product is mostly measured in terms of its price value when customer satisfaction is to be considered. There are many more factors that influence the price and its fairness from a customer point of view (Athanasopoulos 2000).

Anderson, Fornell and Lehmann (1994) also highlighted on the importance of price. They specified that major factor is concerned with customer satisfaction is the product price. When customers first make their decision on buying a product, the first few points which come to their mind include the price of the product as well. Zeithaml and Bitner (1996) has focused on understanding of price variable and it has to be in line with service quality as customers are more concerned about the price of a product.

Zeithaml and Bitner (1996) specify that the measure of customer satisfaction is related to various parameters like service quality, product quality, price, situation and personal factors.

Zeithaml (1988) through customer's cognitive conception stated that price was specified to have a minimum influence on a product or its service. Thus price was clearly specified to be sacrificed to acquire certain kind of product or service. Many such researches gave the same review about price and its relation with the service quality. She also explained that objective monetary price and target price are not equal in customers mind. The correct definition of price from customers point of view was the price that customer perceived in his mind, that is the perceived price. Hence, perceived price is much more meaningful than monetary price for any customer.

Oliver (1999), stated that the customers usually adjudicate service quality and price by the perception of “equity”. Based on this criterion, they then decide whether they are satisfied or dissatisfied.

Zeithaml (1988) also clearly mentioned the relation between perceived price and perceived sacrifice from a customer point of view. Lower the perceived price lower is the perceived sacrifice. Contrary to this it is also said that the price is a key factor for a customer and lower perceived price will not always assure a highly satisfied customer.

2.3 Product quality

Service industries comprise of both tangible and intangible aspects in offerings. Shostack (1977) classified between tangible products and intangible products. Rathmell (1966) came up with a concept of good-service scale, where he categorized pure goods on one extreme and pure

service at other extreme. But most of the industries fell in between these two extremes. Most of the researchers lay a hand on this topic of tangible and intangible products in the service industry. Athanassopoulos (2000) has described product quality as an organization's ability to produce low-cost products at a high volume and use of quantitative tools to measure product quality.

Cronin, Brady and Hult (2000) assessed 32 studies in the same field and came up with a conclusion that tangible quality of service product should be included in the satisfaction model in the prospective study. They also concluded that the product quality is related to customer decision making to a greater extent.

Lehtinen and Lehtinen (1991) gave a measure of service quality, and explained that the physical quality of service is an integration of physical environment, physical support, equipment and physical features. Here “physical environment and equipment” term is similar to the tangible measure proposed by Parasuraman, Zeithml and Berry (1988). Lehtinen and Lehtinen (1991) considered physical product but took it only as part of the overall physical quality of service.

Brucks, Zeithanl and Naylor’s (2000) study of perceived quality helps in building customers for durable products; perceived product quality plays a pivotal role in consumer decision making process. The satisfaction model which has been proposed by Parasuraman, Zeithml and Berry (1994), it is believed that product quality will have similar impact as that of consumer satisfaction as that service quality. This study helps in measuring the product quality as an independent factor which is likely to influence the customer satisfaction.

2.4 Customer Satisfaction

Customer satisfaction has a significant place in the marketing field since Cardoz (1965) introduced it. It explains the frame of mind of a customer for a particular product or service. It helps manufacturer to survive in the market and achieve profitability and long term relationship with its customers. For a service provider it is very important to take this into consideration the expectations of customer (Sureshchandar et al., 2002). A satisfied customer not only tends to become loyal but also is a good means for potential customers. Satisfied customers will have publicity through word of mouth about their goods, services and their experiences. For example in Middle Eastern countries because of cultures, social life has been shaped in a way that social communication is strong as the strong bonding between the members in their tribe which will enhance the chances of getting more number of customers (Jamal & Naser, 2002).

2.5 Customer Loyalty

Customers show signs of customer loyalty when a product or service is consistently used by the same group of people over a stretched time period. In services, loyalty has been considered as an “observed behaviors” (Bloemer et al.,1999). They are various reasons that influence loyalty; a few of them are psychological, economic, functional/technical and contractual. Caruana (2002) has opined that the customer loyalty is not a mere expression thought rather than a loyalty towards brand. The relationship between product quality and service quality is of our most importance when it comes to Customer satisfaction. Loyalty describes fidelity and enthusiastic devotion.

2.6 Relationship between service quality and customer satisfaction

Sureshchandar et al. (2002) has reported a significant relationship between different service quality dimensions and customer satisfaction. It has been reported that there is a strong linkage between quality dimensions with respect to the service quality and customer satisfaction. Hence, we hypothesize:

H₁. Service quality has a direct positive effect on customer satisfaction.

2.7 Relationship between service quality and customer loyalty

Service quality is directly proportional to the customer loyalty and it has direct and indirect impact on such as customer perceived value, customer trust and the customer satisfaction (Tang, 2014). Therefore, we hypothesize:

H₂. Service quality has a direct positive effect on customer loyalty.

2.8 Relationship between price fairness and customer satisfaction

Price has always a factor when it comes to customer for making a decision and it has also its own effect in establishing the customer loyalty in terms of affective loyalty and behavioral loyalty (Bassey, 2014). Therefore, we hypothesize:

H₃. Price fairness has a direct positive effect on customer satisfaction.

2.9 Relationship between price fairness and customer loyalty

Price fairness has significant impact on gaining the confidence of customers and converting it to their satisfaction which can be determined by confidence reward, which in turn will have a proportionate effect on obligation which results in customers' loyalty (Regina Virilaite, 2009). Therefore, we hypothesize:

H₄. Price fairness has a direct positive effect on customer loyalty.

2.10 Relationship between product quality and customer satisfaction

Product quality has a major role on the customer satisfaction, which in turn will substantially influence on the performance of the companies, and also intends to maintain long-term performance, to ensure that the companies take care of product quality on a continuous basis so as to make sure that customers are satisfied in the future as well (Petr Suchanek, 2014). Therefore, we hypothesize:

H₅. Product quality has a direct positive effect on customer satisfaction.

2.11 Relationship between product quality and customer loyalty

Service product quality has a direct on the customer loyalty, the service providers of retail banking services has emphasized on the relationship between the dimensions of service quality which leads to customer satisfaction and customer loyalty (Daniel Onwonga, 2013). Therefore, we hypothesize:

H₆. Product quality has a direct positive effect on customer loyalty.

2.12 Relationship between customer satisfaction and customer loyalty:

Customer satisfaction has been reported to influence customer loyalty (Leong, Hew, Lee, & Ooi, 2015; Minarti & Segoro, 2014). Hence, we hypothesize:

H₇. Customer satisfaction has a direct positive effect on customer loyalty.

3. Conceptual Model

Following conceptual model is proposed by review of literature review and it is aimed to be tested for structural relationships between different constructs:

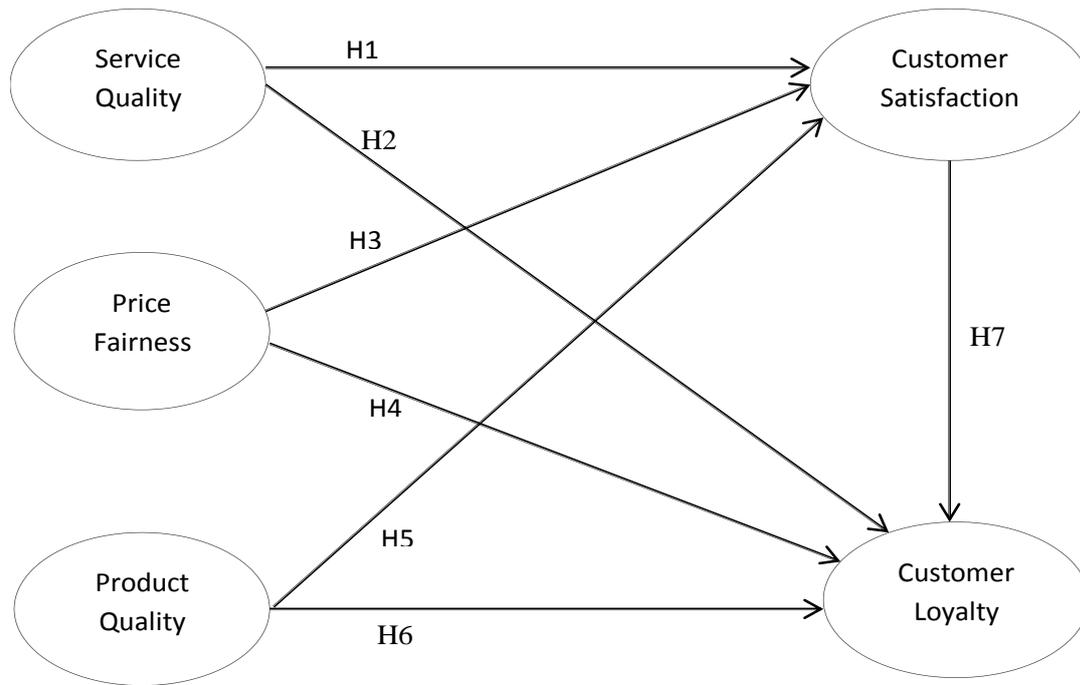


Figure1. Conceptual Model

4. Research Methodology

4.1 Sampling Procedure and Data Collection

Customers of car service centers in Muscat governorate of the Sultanate of Oman were surveyed for this study in the month of June 2015. Multistage sampling was employed for this study. During first stage of sampling, authorized car service centers of different car manufacturers and major multi-brand car service centers were selected. Systematic random sampling was adopted for data collection from the customers during the second stage of sampling. List of customers who have given cars for service was used for stratified random sampling. Data was collected in the month of June 2015. Questionnaires were distributed to 200 car service customers and 106 questionnaires were returned by the respondents and usable response rate of 53% was achieved.

4.2 Measures

The measure for the construct of service quality has been adapted from SERVPERF (Cronin & Taylor, 1992) which is a subset of SERVQUAL (Parasuraman, Zeithaml, & Berry, 1988). It was measured on a 7- point scale from strongly disagree to strongly agree. Items for the measurement of price fairness construct were adopted from Bei & Chiao (2001) and 7-point scale ranging from very unreasonable to very reasonable was used. Item for the measurement of product quality fairness construct was adopted from Bei & Chiao (2001) and 7-point scale ranging from strongly disagree to strongly agree was used. Customer satisfaction was measured by a single item as suggested by Finn & Kayande (1997) on 7-point scale ranging from highly dissatisfied to highly satisfied. Customer loyalty items were adapted from Cronin et al. (2000) on 7-point scale ranging from highly unlikely to highly likely.

5. Data Analysis, Results and Discussion

Descriptive statistical data analysis was conducted IBM SPSS Statistics 20.0 software while conceptual model has been tested with SmartPLS 2.0 M3 software.

5.1 Demographics: Table 1 exhibits the results linked with respondents and their demographics.

Table1. Respondents' Profile

		Frequency	Percentage
Gender	Male	98	92.5
	Female	8	7.5
Age	18-25	42	39.6
	26-35	42	39.6
	36-45	12	11.3
	46-55	10	9.4
Monthly Household Income	Below OMR 500	60	56.6
	OMR 500-1000	36	34.0
	OMR 1001-1500	3	2.8
	OMR 1501-2000	4	3.8
	Above OMR 2000	3	2.8
Education	Matric	5	4.7
	Senior Secondary	71	67.0
	Graduate	27	25.5
	Post Graduate	3	2.8
Country of Origin	Oman	79	74.5
	India	4	3.8
	Pakistan	3	2.8
	Bangladesh	5	4.7
	Philippine	4	3.8
	Egypt	5	4.7
	Iraq	4	3.8
	Others	2	1.9
Brand of Car	Toyota	17	16.0
	Mazda	8	7.5
	Nissan	17	16.0
	Hyundai	10	9.4
	Kia	10	9.4
	Ford	8	7.5
	Honda	7	6.6
	Chevrolet	8	7.5
	Mercedes-Benz	7	6.6
	Mitsubishi	8	7.5
	Others	6	5.7

5.2 Analysis of Model

Partial Least Squares–Structural Equation Modelling (PLS-SEM) technique has been employed to test the conceptual model. It is based on component based approach. PLS-SEM technique is considered appropriate for prediction and theory development. This approach does not rely on normal distribution of data. PLS-SEM has the capability to even handle relatively small sample sizes. Therefore, PLS-SEM was considered as an appropriate option to test the conceptual model. Figure 2 exhibits the results of PLS model with different indicators of model.

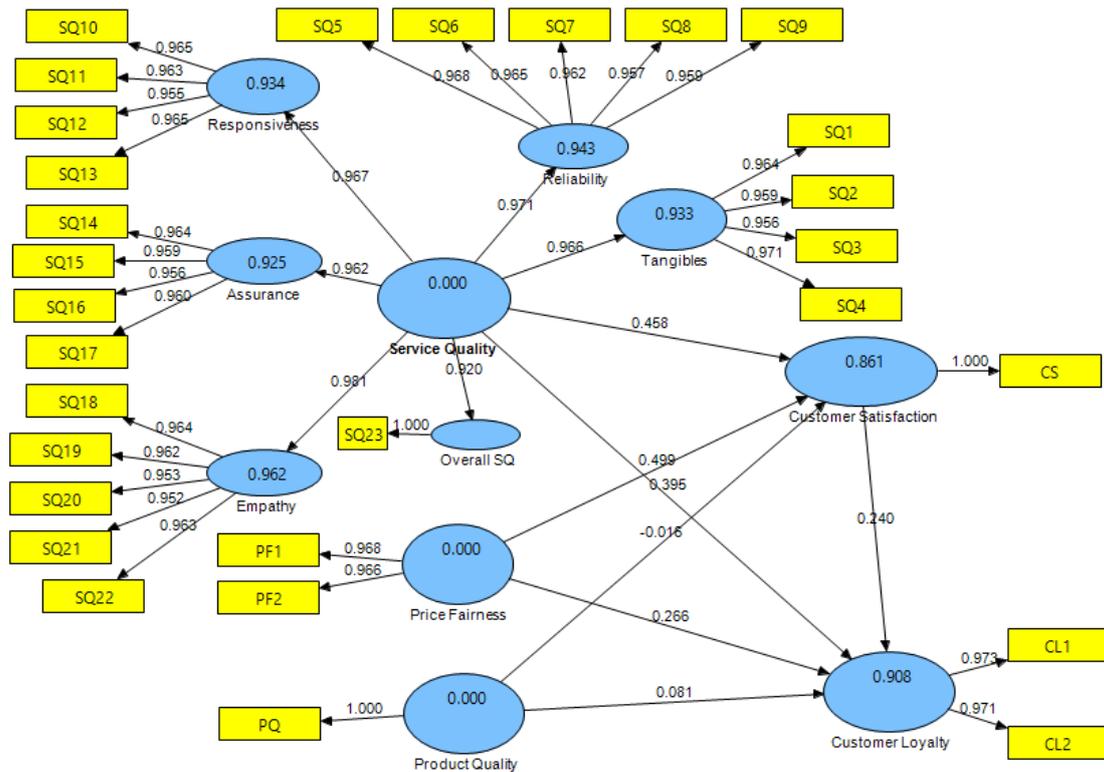


Figure2. Results of model testing

5.3 Evaluation of Measurement Model

Conceptual model testing has delivered indicator loadings ≥ 0.70 (Hair, Ringle, & Sarstedt, 2011) which proves indicators' reliability in this model. Following table exhibits the all items' loadings, composite reliability, average variance extracted and Cronbachs Alpha values of different constructs:

Table2. Psychometric properties of the measurement model

Construct	Item	Loading	Composite Reliability (CR)	Average Variance Extracted (AVE)	Cronbachs Alpha
Tangibles	Vehicle service centre has modern- looking equipment	0.96	0.98	0.93	0.97
	The physical facilities in Vehicle service centre are visually appealing	0.96			
	Personnel in the Vehicle service centre are neat in appearance	0.96			
	Materials associated with the service are visually appealing	0.97			
Reliability	When Vehicle service centre promises to do something by a certain time it does so	0.97	0.98	0.93	0.98

	When you have a problem, Vehicle service centre shows a sincere interest in solving it.	0.96			
	Vehicle service centre gets things right the first time.	0.96			
	Vehicle service centre provides its services at the time it promises to do so.	0.96			
	Vehicle service centre insists on error-free records.	0.96			
Responsiveness	The personnel in Vehicle service centre tell you exactly when services will be performed. (Delivery time how well explained & received by customer)	0.96	0.98	0.93	0.97
	Personnel in Vehicle service centre give you prompt service. (Delivery on time /before time)	0.96			
	Personnel in Vehicle service centre are always willing to help you. (Explaining the facilities available)	0.95			
	Personnel in Vehicle service centre are never too busy to respond to your requests.	0.96			
Assurance	The behavior of personnel in Vehicle service centre instils confidence in you. (Seeking commitment for next service)	0.96	0.98	0.92	0.97
	You feel safe in your dealings with Vehicle service centre. (explaining the quality as differentiation)	0.96			
	Personnel in Vehicle service centre are consistently courteous with you. (Meet and greet)	0.95			
	Personnel in Vehicle service centre have the knowledge to answer your questions. (How well explained what all jobs were done ,clarity in communication)	0.96			

Empathy	Vehicle service centre gives you individual attention.	0.96	0.98	0.91	0.98
	Vehicle service centre has operating hours convenient to all its customers.	0.96			
	Vehicle service centre has personnel who give you personal attention. (Interaction with customer on any approval or information)	0.95			
	Vehicle service centre has your best interests at heart.	0.95			
	The personnel of Vehicle service centre understand your specific needs. (Exploring option for cross selling)	0.96			
Overall Service Quality	Overall service quality of the vehicle service centre is good	1.00	1.00	1.00	1.00
Price Fairness	How are the labour charges of the service centre?	0.97	0.97	0.93	0.93
	How are the prices of the auto parts?	0.97			
Product Quality	The quality of spare parts provided in this vehicle service centre is good	1.00	1.00	1.00	1.00
Customer Satisfaction	How satisfied are you with the vehicle service centre?	1.00	1.00	1.00	1.00
Customer Loyalty	I will come to this service centre again when I need auto-repair next time.	0.97	0.97	0.94	0.94
	I will recommend this service centre to friends and relatives when they need one.	0.97			

5.3.1 Reliability Analysis

Composite reliability values have been examined to infer internal consistency reliability of constructs. Composite reliability values have been 0.97 and above in the results of this model testing. These values are acceptable for inference. Hair, Ringle, & Sarstedt (2011) has stated that composite reliability values should be above 0.70, however for exploratory research values between 0.60 - 0.70 are also treated as acceptable. These values are exhibited in table 2.

Values of indicator loadings are examined to infer about indicators' reliability. These values should be higher than 0.70 (Hair Jr., Hult, Ringle, & Sarstedt, 2014) to infer about indicators' reliability. In this model, all indicators are proved to be reliable because loading values of all indicators are equal to or greater than 0.70 . Table 2 exhibits these values.

Average variance extracted (AVE) is examined to decide about convergent validity. AVE values should be higher than 0.50 (Hair Jr. et al., 2014) to conclude convergent validity. All

AVE scores in this tested model are greater than 0.50, hence convergent validity is proved. AVE scores are exhibited in table 2.

Discriminant Validity: To examine discriminant validity, Fornell-Larcker Criterion has been employed. It requires that the square root of AVE should be more than inter construct correlation values (Hair et al., 2011). This criterion has been satisfied by the results and it is confirmed that discriminant validity exists for all constructs. Values for assessment of discriminant validity are exhibited in table 3.

Table3. Inter-construct correlations

	1	2	3	4	5	6	7	8	9	10
1. Tangibles	0.95									
2. Reliability	0.92	0.95								
3. Responsiveness	0.91	0.92	0.95							
4. Assurance	0.91	0.91	0.90	0.95						
5. Empathy	0.94	0.94	0.94	0.93	0.95					
6. Overall Service Quality	0.88	0.87	0.86	0.88	0.93	1.00				
7. Price Fairness	0.90	0.89	0.91	0.90	0.94	0.91	0.96			
8. Product Quality	0.88	0.87	0.88	0.87	0.91	0.86	0.90	1.00		
9. Customer Satisfaction	0.87	0.87	0.88	0.88	0.91	0.85	0.91	0.85	1.00	
10. Customer Loyalty	0.91	0.90	0.90	0.89	0.93	0.90	0.93	0.88	0.91	0.96

Note: Square root values of average variance extracted (AVE) is given on the diagonal of the matrix. Inter-construct correlation values are given off the diagonal.

5.4 Evaluation of Structural Model:

Hypotheses formulated for this study have been tested with the structural model. Structural model has been examined with path loadings and R² value. Path loadings explain the strength of relationships between exogenous and endogenous variables, however R² values explain the prediction power of the model. R² values of endogenous constructs are exhibited in Table-4. Path coefficients are exhibited in table-5.

Table 4. R² Values

	Customer Satisfaction	Customer Loyalty
R²	0.86	0.91

R² values of this model indicate high predictive power. This model explains 86% variance in customer satisfaction and 91% customer loyalty.

Significance of path coefficients has been assessed with the help of t-values by application of bootstrapping technique. Bootstrapping was applied on 5000 bootstrap samples and 106 cases. Effect of service quality on customer satisfaction and customer loyalty has been found to be significant at significance level of 1%. While effect of price fairness on customer satisfaction has been found to be significant at significance level of 1% and effect of price fairness on customer loyalty has been significant at significance level of 5%. Effect of product quality on customer satisfaction and customer loyalty has been found to be insignificant. Effect of customer satisfaction on customer loyalty has been found to be significant at 5% significance level. Thus hypotheses H₅ and H₆ are not supported because of insignificant relationships while

H₁, H₂, H₃, H₄, and H₇ indicate significant relationships and these hypotheses are supported. T-Statistics values obtained after bootstrapping are exhibited in table 5.

Table 5. Path Coefficients (Mean, STDEV, T-Values)

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	Standard Error (STERR)	T Statistics (|O/STERR|)
Service Quality → Customer Satisfaction	0.46	0.47	0.11	0.11	4.00***
Service Quality → Customer Loyalty	0.40	0.41	0.13	0.13	3.16***
Price fairness → Customer Satisfaction	0.50	0.49	0.12	0.12	4.15***
Price fairness → Customer Loyalty	0.27	0.26	0.11	0.11	2.39**
Product Quality → Customer Satisfaction	-0.02	-0.02	0.10	0.10	0.16
Product Quality → Customer Loyalty	0.08	0.08	0.09	0.09	0.92
Customer Satisfaction → Customer Loyalty	0.24	0.24	0.10	0.10	2.32**

*** Significant at 0.01 level, ** significant at 0.05 level, * significant at 0.1 level and values without any * are not significant.

Critical t-values for significance level of 10% , 5% and 1% for two-tailed test are 1.65, 1.96 and 2.58

6. Conclusion

This study confirms significant positive influence of service quality on customer satisfaction and customer loyalty in automotive aftermarket industry. However, influence of product quality on customer satisfaction and loyalty has been found to be insignificant in automotive aftermarket industry. Relationships between price fairness and customer satisfaction and loyalty have been found to be significant as hypothesized.

This model possesses good prediction power for endogenous constructs of customer satisfaction and loyalty. This model explains 86% variance in customer satisfaction and 91% variance in customer loyalty.

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Business Incubators as a sustainability tool Definition, Services provided, Mechanism of Work, Requirements and Effect on the Economy

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Abstract:

In all Arab countries the portion of small businesses is very high and is almost above 90% of the whole economy. Thus, these small businesses have a huge effect on the growth and development of the national economy and its sustainability of business. Therefore these very important small businesses must deserve the whole attention and support of the decision makers on all levels and in both public and private sector. Small Businesses are facing many burden and challenges especially in the early stages (Seed stage), which could cause fail of the whole businesses. Business Incubators are an effective tool in supporting small businesses in the risky early stage. These Business incubators give new (entrepreneurial) start ups all support could they need such as knowhow, material, equipments, consultancy, management, space (offices) and financial support. Business Incubators reduce the fail probability and increase the success probability of new small entrepreneurial establishment (startups, spin-off). Business incubators differ from research and technology parks in their engagement to new entrepreneurial startups and early-stage companies. Most research and technology parks do not offer business assistance services, which considered as the core service of business incubation. Business incubators concentrate on small businesses, which based on entrepreneurial idea. Therefore universities seem to be the best location for effective and successful Business Incubators. Universities on both public and private sector have to create Business Incubator to transfer new entrepreneurial ideas into the market, strengthen new entrepreneurs from the university, support the whole region and contribute to the economic development process and economy growth.

Introduction

The sector of small and medium enterprises ensures beside the sector of large enterprises the completion of the economic structure, which has a major role in achieving economic growth in general and economic development in particular (Thurik, Wennekess,1999: in Al-Wade 2010). In most Arab countries, including Jordan, the number of small enterprises makes up the largest proportion of the total number of business organizations and was in the year 2014 higher than 90% of all organizations (Rifai 2010 / Al-Wade 2010). Therefore, small companies have the greatest influence in the economy and deserve to get an extra support and backing from the decision makers specially the entrepreneurial companies because these small enterprises and small entrepreneurs lacking in many cases to the success requirements (European Comissim,2001) such as managerial skills, administrative knowledge, financial knowledge and technical skills and others (Allen and Rahman,1958, Peters et al 2004: in Al-Wade 2010 and Allen and Mccioskey, 1990). In addition small enterprises and specially the entrepreneurial

enterprises are facing many challenges and burdens by getting financial fund and support, what they hardly need to establish and manage the project successfully.

The very important role of Business Incubators becomes noticeable by people who are not satisfied in their jobs or are unemployed and have the necessity to establish their own business to change their unsatisfied life (Necessity Entrepreneurial Activity), without having the necessarily managerial and technical skills. Therefore they failed in most cases. In contrast, there are many new startups based on a new idea or opportunity (Opportunity Entrepreneurial Activity) where the chances of success are higher. But in both cases Business Incubators play a key role in increasing the success rate of these small and new startups (Rifai, 2010). Studies and researches show that ca. 33% of new established business failed after the third year and 40% failed after the seventh year (OECD 2002, in Al-Wadi , P. 3). This mentioned percentage decreased to 15%-20% for incubated new startups (Bruton 1998, Abetti 2004: in Al-Wade 2010, P. 4).

History of Business Incubator

Research to date has identified Business Incubator units as an effective mechanism for supporting the growth and development of small entrepreneurial firms (McAdam and Marlow, 2008, P. 219). As a logical consequence "business incubators" has been developed with the mission to give important (entrepreneurial) small businesses and new small startups all support they could need to have success. At the beginning, incubator units were located in close proximity to universities with the aim of pursuing three key objectives; technology transfer, promotion of entrepreneurship and the commercialisation of leading edge research (Mian, 1996; Shane, 2002; Albert and Gaynor, 2003). Furthermore, they provided a number of support services such as concept testing, technical information, intellectual property advice, access to seed capital and management guidance (Zucker et al., 2002; Carayannis et al., 2006).

Since its first definition in the 1950s in the USA, the concept of the business incubator has evolved continually, reflecting economic conditions, regional needs and specific technology. Initially, an incubator was a means to revitalize a region, providing support to entrepreneurs to develop new businesses (Mian, 1996). Since the 1970s, technological incubators have become an important tool to promote the development of technology clusters. This movement accelerated in the 1980s due to the linking of the concept of the incubator with public research institutions (PRIs). After that and more recently, technological incubators have been characterized by a sectoral focus for the development and dissemination of information technologies and biotechnology (Vedovello, 1997). Thus, incubators are structures present in many parts of the world that facilitate the regional development of innovation, cooperation between researchers and industry through the provision of information and the establishment of international networks for co-operation and the exchange of information between companies (Thursby and Kemp, 2002). In its generic sense, the term "incubator" is often used to describe a wide range of organizations that, in one way or another, help entrepreneurs develop their ideas from inception through to commercialization and the launching of a new enterprise. A broad definition of the term embraces science and technology parks, as well as organizations which have no single physical location and concentrate instead on managing a network of enterprise support services (Lindelof and Loftsen, 2004).

Business Incubators were established in many countries such as Jordan in both public and private sector including universities. These incubators support new small startups in early stages (seed, development and market introduction) and help them getting through these critical phases and increase the success possibility (Rifai 2010). Worldwide there are more than 3500 business incubators with a concentration (60% of the total) in North America and Europe (Al-Wade 2010, P. 4). This number is increasing permanently.

Literature Review

It is generally recognised that incubators offer a protected environment where new small firms can pool resources, share knowledge and create a network of alliances with other entrepreneurs (Smilor and Gill, 1986; Barrow, 2001). Initially, incubators emerged in proximity

to universities with the aim of promoting technology transfer and the commercialisation of innovative and novel research (Shane, 2002; Albert and Gaynor, 2003). University based incubators normally pursue three key objectives; technology transfer, promotion of entrepreneurship and commercialisation of leading edge research (Zucker et al. 2002; Lockett and Wright, 2005; Nourira et al., 2005). Other secondary objectives include development of entrepreneurial spirit, civic responsibility, image and new sources of finance (Albert and Gaynor, 2003). The University incubator aims to provide a number of initial services such as concept testing, technical advice, intellectual property advice, seed capital and management guidance. Such advice and support is offered through experts on site and moreover, such incubators attract the attention of business angels³, venture capitalists, whilst facilitating industrial networks, strategic advice and mentoring (Albert and Gaynor, 2003).

Proximity to the university coupled with the knowledge, facilities and labour force can be valuable in several ways (Dettwiler et al., 2006; Loefsten and Lindeloef, 2001; Loefsten and Lindeloef, 2003). Co-operation with university staff may provide access to the latest knowledge in the area of interest thus resulting in the development of more innovative products (Lockett and Wright, 2005; Nourira et al., 2005; Felsenstein, 1994). The university link may also result in reduced development costs (Markman et al., 2005) in addition to providing the customer with a guarantee that products or services are based on the latest knowledge available (Zucker et al., 2002). Another related university resource is the availability of specialist skills based labour where it may be an advantage to be located close to the university in order to make the firm known to students in specific disciplines (Quintas et al., 1992; Barrow, 2001).

Incubator facilities include business advice, service and incubator management. Business advice includes that acquired either from the persons employed by the incubator or by consultants recommended by the incubator administration (Lee and Osteryoung, 2004; Rothschild and Darr, 2005). Moreover, the service resource provided by the incubator refers to secretarial services, conference facilities, canteen and car parking which are usually much less costly than individual premises and services (Markman et al., 2005). Effective incubator management can ensure that the firms have access to resources of business advice including specialist programs and seminars (Safraz, 1997).

All in all Business Incubators are considered as a development program helps to diversify the economic activities, increases wealth, create new jobs, create & distribute of new technology and reduce risks of new investment in new start-ups. Business Incubators are accepted and well known mechanism to support (entrepreneurial) small projects (Start-ups) by offering a wide range of services and facilities in order to overcome all critical, important, complex and dangerous early phases successfully. Business Incubators offer the most requirements of business success such as administrative, personal and analytical supports, business office inclusive all equipments, helping owners of small business by getting financial fund. (Rifai, 2010).

Roles and Objectives of Business incubators

Business incubators are covering and working in many industrial sectors such as service, tourism, media, and other sectors of business. Business incubators play their role by providing appropriate services according to the nature and special needs of each specific project.

The major role and significance of business incubator are as followed:

Rehabilitation of a new generation of business owners by supporting them
establishing serious and profitable new start-ups, which have a large contribution to the development of production and creating new jobs and promote economic growth and development.

Supporting new start-ups in almost all industrial sectors in the early and critical phases.

Creating the right climate and offering all requirements for a successful new start-ups.

³ For more information about Business Angels please see Rifai 2012

Developing of human resources and make them able to meet the administrative, financial, accounting, technical and marketing difficulties, which usually pose the biggest challenges in the establishment phase.

Providing scientific and managerial consulting and support owners by creating feasibility studies and business plan and other relevant analytical requirement for new start-ups.

Providing financial services through direct connection with finance sector or business Angels or even through the incubators themselves as investors.

Supporting emerging start-ups with market analysis and marketing.

Providing support and assistance to new small enterprises to achieve high growth rates and quality in business.

Having benefits out of scientific research and new ideas by implementing successfully in the market.

Increase the investment in viable innovative ideas to empower the national economy.

The nature of the work of business incubators is widely spread in different fraught and thorny activities and in the most cases goes with risk, therefore it requires a lot of activities and special tools, which considered the essential of the work of these incubators. Below are some important requirements for a good business incubator:

Business incubator's Requirements

Adviser or manager of the incubator: He/she contributes to the creation of the appropriate environment and stimulates persons concerned. He/she must be have an appropriate managerial and analytical knowledge, which qualify him/her for this position.

Getting support from the community and format a social network: The community support for incubators and the formation of relations with companies, universities and the government is very important for the success of the business incubators. But the basis of this support and these relationships is the achievements of the incubators economically and socially for the community.

The project selection criteria: Business incubators must define the selection criteria for projects clearly such as projects must be innovative and supported by a detailed plan for the project.

Financing: funding of pilot projects considered the most important obstacles that is not easy to solve because of absence of important information and is not possible to compare the new project with others. Therefore incubators have to have their own budget or have good enjoying relations with investors (Business Angels) and finance sector to facilitate the financing of small pilot projects.

Permanent assessment and evaluation: Incubators must constantly evaluate their work to improve their performance and outputs according to the changing and dynamic business environment to increase the percentage of business success they support.

Not to exaggerate the capacity: Persons in charge should not exaggerated in the adoption of projects that require capabilities and skills outweigh the capacity of the incubator scientifically, practically and financially.

Business incubators and their impact on the success of emerging small pilot projects

In the magazine "Administration and Economy", No. 83 for the year 2010 results of a questionnaire has been published, which targeted to determine the impact of business incubators in the success of small businesses and thus of the sustainability of the whole economy. This questionnaire was done by Dr. Anwar Ahmed Nahar Al-Azzam and by Prof. Dr. Sabbah Mohammed Musa. Below are information about the above mentioned survey:

1. The study population: (a) business incubators in Jordan, (b) pilot projects, which graduated from the incubators, (c) incubated projects at that time, and (d) pilot projects did not enter the incubators.
2. The study sample: 69 pilot projects, which were incubated and graduated from the incubator
3. The sampling unit and analysis: contains 69 Managers. The researchers retrieved 58 questionnaires.

The results of this study are as follow

1. There is a statistically significant effect of the support factors such as service, administrative, and technical on the success of the pilot projects in terms of the ability to grow and the ability to generate income and create new jobs.
2. There is a statistically significant effect of vision factors such as strategic vision, strategic leadership and incubation strategy (acceptance and evaluation) on the success of small pilot projects in terms of the ability to grow and the ability to generate income and create new jobs.

Business incubators in Jordan

There are many business incubators in Jordan in public and private sector including public and private higher education sector (Universities). Below is a list of almost all Business Incubators in Jordan:

1. **Injaz** (public sector) aimed graduate students to teach them the skills they need to set up small enterprises (<http://www.injaz.org.jo/>)
2. **NAFES** (Public and private sector) support research and development in the industrial sector (<http://www.nafes.org.jo/english.html>)
3. **YEA** - Young Entrepreneurs Association (Private sector): helps in introducing and spreading the innovation culture in Jordan and the role of entrepreneurship in the development process. (<http://www.yea.com.jo/>)
4. **Jordan's technology Incubator** (Public sector): supports technology companies (<http://www.ipark.jo/>)
5. **Jordan innovation centre** (Public sector): focuses on registration of patents, intellectual property, and support new start-ups projects by consultancy regarding these activities. (<http://www.jic.jo/>)
6. **Queen Rania Center for Entrepreneurship** - QRCE (Non Governmental Organisation): supports students and trains them managerial skills, technical and entrepreneurial skills and focus on technology. (<http://www.qrce.org/?q=programs>)
7. **Jordan Upgrading & Modernisation Program JUMP** (public sector and government) supports small and medium enterprises through giving them technical support, consultancy and training. (<http://www.nerc.gov.jo/RUE/EWSEDirectory/JUMP.html>)
8. **Jordan Enterprises Development Corporation** - JEDCO (Public sector): supports export oriented companies to enhance the competitive strength of Jordan on the international market (<http://www.jedco.gov.jo/>)
9. **Technology Business Incubator** - Philadelphia University (Private sector): develops innovative and creative ideas by turning them into businesses successfully and enables ideas owners gaining income (<http://www.philadelphia.edu.jo/arabic/university-centers/2015-03-10-09-07-06>).
10. **Yarmouk University**: Academic entrepreneurship center of Excellence (Public sector): create the well equipped incubator and the appropriate climate in order to rehabilitate students and graduates to meet the evolving needs and changing requirements of the local and regional labor market through cooperation and integrated efforts of all of the Academic entrepreneurship center of Excellence, Yarmouk university and different economics sectors. (<http://www.yu.edu.jo/>)

11. **Jordan Enterprise Development Corporation (JEDCO)**: supporting the development process of the implementation of innovative and creative ideas and transfer them successfully in the market.

(http://www.jedco.gov.jo/joomla/index.php?option=com_content&id=269&Itemid=261&lang=ar)

12- **Department of incubator and scientific creativity** - The Higher Council for Science and Technology HCST - Network Innovation Jordanian centers: helping owners of new start-ups by implementing the innovative and creative ideas successfully in the market.

(<http://hcst.gov.jo/ar/?p=76>)

13- **Al Urdonia li Ebdaa** (Jordan corporation for entrepreneurship): supports new start-ups, especially outside Amman, to establish their own new business successfully.

(<http://www.bic.jo/>)

In addition financial sector for small and micro credits plays an important role in Jordan for the financing of small and emerging new start-ups. The most important micro-credit companies are (Middle East Micro Credit Company - MEMCC) which change its name to (Jordan Access to Credit Program -JACP).

Business incubators in Jordan universities

Mohammad Omran al-Fawaz, former MBA student at Al Yarmouk University in the year 2008 wrote on his theses about "The role of business incubators in Jordan universities in directing students toward entrepreneurship. This thesis aimed to identify the role of business incubators in university in directing students toward entrepreneurship and to identify the student's tendency towards entrepreneurship. The study contains 174 questionnaires and the result was as follow:

1. Business incubators provide a high level of services in the field of technical support and evaluate the performance of employees and in the area of administrative and office related services.
2. Business incubators provide a medium level of services in the field of finance, marketing, training and consultancy.
3. There is a high level of tendencies of students toward entrepreneurial activities in cooperation with University-incubator
4. There is a significant impact of the business incubators in university on students and their tendency toward entrepreneurship entrepreneurial activities.

The most important condition for a successful university in respect of the role and effectiveness of Business Incubators is that Universities have to be entrepreneurial: Beside teaching and research universities have to introduce the entrepreneurial aspect (Rifai 2015).

Conclusion and Recommendations

After showing the important role of business incubators by supporting new startups, creating new jobs, accelerating the development process we strongly recommend to increase the number of business incubators in the whole country especially in universities in both sectors. Business Incubator within universities have a special situation because universities can strongly contribute by creating new entrepreneurial ideas through research activities, reducing the gap between knowing and doing through transfer ideas into market and increase the success probability of new startups by offering all requirements new startups need. Universities have already all Business Incubator's requirements. Besides supporting new entrepreneurial ideas, Business Incubators within universities have to encourage university staff and student to act entrepreneurial guide them toward entrepreneurship.

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Competitive advantage based on human capital and its impact on organizational sustainability (Applied Study in Jordanian Telecommunications Sector)

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Abstract:

The current situation for business organizations is characterized on variation work environments for continuation changing and developing , so the organizations seek to keep pace with this development and operate to maintain the current business through the ability of organizations to respond for the possibility of competitive advantage creation based on the existence of a distinctive human capital that contributes to the creation the organizational sustainability in the business sector , which owns the special properties with the potential to create confidence and integration among the staff and top management which lead to the organization growth and continuation

(Kurucz, 2013).

The emergence of a set of challenges in the knowledge economy had a clear reflection on the business organizations that started to search for new mechanisms to compete and insure the existence in the business world. Hence the concept of the competitive advantage based on human capital as a necessary requirement to deal with these challenges either they were local, regional or international on organizations (Global Institute, 2011), where the competitive advantage based on human capital is the main generator of new ideas, to develop old ideas, and contribute to help organization to enable them to expand their market share and maximizing the value, and make them in a position to be able to seize opportunities, and achieve the existence and continuation in the future (Ramstad, 2005). Also, to achieve the organizational sustainability represented in the creation of the organization relationship sustainability, and sustainable capacity for innovation and the sustainability of group work in the organization.

This study aimed to find the impact of the competitive advantage based on human capital on organizational sustainability in Jordanian environment .

Keywords: Competitive Advantage , Human Capital , Organizational Sustainability

Introduction

The subject of sustainability and competitive advantage obtains a great interest by researchers due to the role of the competitive advantage as a variable in the success of managing work, , which the basis for progress, development, growth and continuation in various fields of life which characterized by change and closely linked to the style of work used, and the extent of understanding of the organization's psychology, also, the extent of influence in organization and to achieve the harmony between finding the competitive advantage based on human capital and creation of organizational sustainability which contribute to take responsibility and to achieve the objective by creating the capacity to meet the current needs of the Organization taking into account the future needs which is called sustainable growth (Ford, 2012). In the pursuit of organizations to keep pace with growth and development, and to continue their relations and the innovation ability and collective work therein, they should have to respond to

operate to find work mechanisms depending on the elements of competitive advantage in the creation of a distinct case that contribute to the creation of the state of organizational sustainability and encourage the development, strategic thinking and change (Chamjong, 2004). This will help organizations to deal with the challenges they face and overcome them and to achieve efficiency, effectiveness, and performance distinction, ensuring their survival and continuation in light of this changing and disturbed environment (Bani Issa 2006). On the other hand the emergence of the concept, which received considerable attention by researchers and business organizations, the human capital especially with competition intensification in the business field. The increase in the environmental uncertainty and emergence of the knowledge economy, which resulted in the communications revolution and the phenomenon of information explosion and spread . (Salman, 2009). Therefore, business organizations started looking for new mechanisms for global competition as prerequisites to ensure survival in the business world and in the light of these local, regional and international challenges, the human capital is considered as a necessary requirement to deal with these challenges (Kasasbeh, 2010). The human capital represents individuals who have the knowledge and organizational capabilities enabling them to produce new ideas and develop the existing ideas that enable the organization to expand its market share and maximize its strengths and address its weaknesses and put them in a position in which they will be able to seize opportunities, to achieve competitive advantage and achieve survival where organizations have only to continue the creation of sustainable development (Catrin. B., 2011). Jordan is considered among countries that suffer from scarcity in different resources, so the Jordanian government attached great interest in the development of human resource as an important resource in the economic activity and as a result Jordan allocated a part of its resources to education, and despite the limitations of these resources, the interest in education by the government and the private sector continued although the presence of the obstacles facing this attention. But Jordan has achieved his ambitions in the field of human investment (Jordanian Ministry of Higher Education and Scientific Research, 2004). As a result of the foregoing, this study has linked between the competitive advantage based on the human capital and its impact on the achievement of organizational sustainability with its dimensions (the sustainability of the organization relations, the sustainability of the innovation ability and the sustainability of collective work) in the Jordanian Telecommunications Companies Sector.

2. Study Methodology

2.1 Problem Statement

Today competitive advantage plays an important role in business organizations through helping them to survive, continue and maintain their current functions by creating the sustainability in the business sector (Kurucz, 2013), Perhaps, organizational objectives cannot achieve without that the organization possesses competitive advantages and in particular the existence of the intellectual capital as one of the key elements that makes competitive advantage of the organizations and not buildings, appliances or equipment (Decehzo & Robbins, 2005). But the human capital investment requires wise and leadership capacity sound which aware of the importance of the human element and its components and has the ability to influence it in a positive way, this leading to the human capital investment, in the best way for conversion into a competitive advantage helping to create organizational sustainability and achieve the organization's objectives (Al-Dahhan, 2005). Hence, the questions of the study can be developed through that human capital investment as an essential means to create a competitive advantage for the organization and to enable it to continue and create organizational sustainability in the best and enable the organization to achieve the vision of the future. In order to counter the above problem methodically, it was formulated in many questions as follows: What is the level of the human capital investment in the Jordanian Telecommunications Companies Sector?

Does the human capital investment contribute in the creation of competitive advantage in the Jordanian Telecommunications Companies Sector?

What is the effect of the presence of competitive advantage based on human capital in creating the organizational sustainability and its elements to continuity and success in the Jordanian Telecommunications Companies Sector?

2.2 Objectives of the Study:

The main objective of this study is to know the impact of the competitive advantage through intellectual capital investment as one of the elements in the creation of organizational sustainability in the Jordanian Telecommunications Companies Sector. From this main objective we can designing the following objectives:

Create theoretical framework to identify the competitive advantage and the organizational sustainability in terms of the concept, importance and dimensions.

Identify the intellectual capital in terms of the concept, importance and elements.

Clarify the relation between the variables above.

Identify the level of competitive advantage application in the Jordanian Telecommunications Companies Sector.

Identify the level of the human capital investment in the Jordanian Telecommunications Companies Sector.

Identify the impact of the competitive advantage presence based on human capital in creating organizational sustainability in the Jordanian Telecommunications Companies Sector.

Submission of proposals and recommendations for decision-makers in the Jordanian Telecommunications Companies Sector which may benefit them in their field.

2.3 Importance of the Study:

The importance of the study stems from the importance of the study sector, which is the Jordanian Telecommunications Companies Sector being leading companies in the Jordanian economy because of their prominent role was achieved in this economy as well as the economic, social, intellectual and technological achievements in Jordanian society (Al-Sakarneh 2005), where this study helps the development and progress of this sector, so the importance of the study comes as follows:

Importance of the Study for Researchers and Academicians:-

This study is considered as a reference for researchers and academicians in Jordan and the Arab world, where this study will provide theoretical and practical frameworks about the role of intellectual capital in the creation of competitive advantage to achieve organizational sustainability. This study constitutes the base for the researchers and academicians to launch a larger fields of research and investigation on the competitive advantage and organizational sustainability in this sector and other sectors.

Importance of the Study for the directors in the Jordanian Telecommunications Companies Sector:-

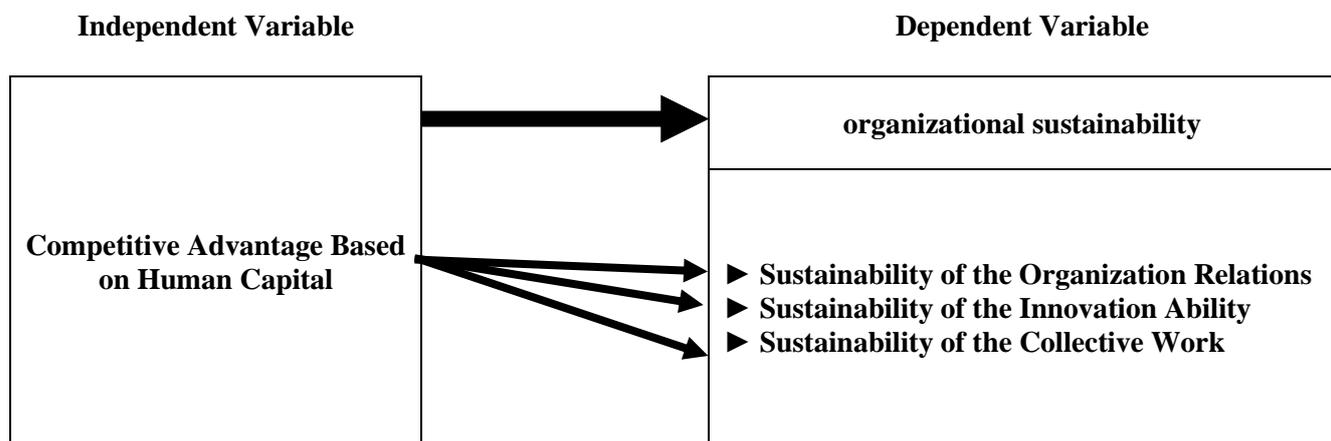
This study provides a contemporary references which showing the administrators and decision-makers in the Jordanian Telecommunications Companies Sector, and how to invest intellectual capital in the creation of competitive advantage to achieve organizational sustainability in their companies so as to generate new ideas to help them positively to achieve the objectives of their organizations.

Importance of the Study for Employees in the Jordanian Telecommunications Companies Sector:-

This study provides telecommunications service providers a vision about the role of the intellectual capital investment in the creation of a competitive advantage and achievement of organizational sustainability which helping them to accomplish their business and generate new ideas that can be discussed to reach the desired objective of the Jordanian Telecommunications Companies Sector.

Model of the Study

Figure no. (1)



Reference: - prepared by the researcher

2.4 Hypotheses of the Study

Hypotheses of this study have been formulated according to the question of the study, its objectives and its model. This hypotheses are the following :-

The main hypothesis is :-

H0: There is a statistically significant impact for competitive advantage based on human capital to achieve organizational sustainability in the Jordanian Telecommunications Companies Sector.

From this hypothesis we can formulated the following sub-hypotheses :-

H1: There is a statistically significant impact for competitive advantage based on human capital to achieve sustainability of the organizational relations in the Jordanian Telecommunications Companies Sector.

H2: There is a statistically significant impact for competitive advantage based on human capital to achieve sustainability of the innovation ability in the Jordanian Telecommunications Companies Sector.

H3: There is a statistically significant impact for competitive advantage based on human capital to achieve sustainability of the collective work in the organization within the Jordanian Telecommunications Companies Sector.

Methodology of the Study

2.5.1. Population of the Study

The population of the study consists of the employees who work in the Jordanian Telecommunications Companies Sector which amounted to (3) companies that are (Zain, Orange and Umniah), where the number of employees reached therein (19000) and through the determination of employees who meet the human capital characteristics have been identified (500) employees, as representing the population of the study.

Sample of the Study:-

Based on statistical equations used to determine the size of the sample (120) persons have been identified and distributed as follows:

Table No. (1)
Sample of the Study

Name of the Company	Number of Distributed Questionnaires
Zain Company	40
Orange Company	40
Umniah Company	40
Total	120

Method of data Collecting :-

The means of collecting information are divided into two parts:

First Part:

The researcher conducted an audit and survey to the various theoretical and field studies related to the competitive advantage, human capital and organizational sustainability where precise scientific books and journals, Arabic and foreign, also, master's and doctoral theses in addition to the reliable information on Internet were reviewed.

Second Part:

A questionnaire was developed to reflect the role of human capital in the creation of competitive advantage and its impact on achieving organizational sustainability where advantage was taken of the questionnaires and previous studies for this study, also, have been presented to a number of arbitrators to ascertain of the content, also the necessary amendments were made to the paragraphs of the questionnaire and then were distributed to the study sample who are the staff of Jordanian Telecommunications Companies Sector covered by the research. The Likert Scale was used to measure the questionnaire content as follows:

For the degree of Strongly Agree (2) For the degree of Agree

For the degree of Neutral (4) For the degree of Disagree

For the degree of Strongly Disagree

As for the statistical methods used, the Statistical Package for Social Sciences (SPSS) has been used and the study needs, and it will be explained in detail in the chapter concerning this aspect.

Definitions of the Study Variables

The study included many of the main variables as explained by the model of the study and it was necessary to explain these variables, so can the reader understand their variables and here is an explanation for these variables:

Competitive Advantage:

The ability and capabilities possessed by the organization in all its elements through which it can make something of high value that the competitors cannot imitate or offer better.

Intellectual Capital:

The intellectual ability capable to generate new and appropriate ideas a process , has a high level of quality and possess the ability to achieve equality and harmony between the various components to reach the desired objectives by employing and investing this intellectual ability properly for the benefit of the organization.

Human Capital:

A set of knowledge and experience, capabilities and skills for a group of employees in the organization capable to achieve distinctive creations and solving traditional and non-traditional problems based on tacit and apparent knowledge for employees .

Organizational Sustainability:

The process to keep and create a state of sustainability and continuity of the organization in various fields in the light of unstable environment and achieve objectives efficiently and effectively.

Sustainability of the Organization Relations :-

The ability of organization to communicate and to create reciprocal relations with various parties dealing with the organization.

Sustainability of the Innovation Ability :-

A set of resources, skills and abilities held by the employees who continuously contribute to the creation of new ideas and innovation ways that characterize the organization in its performance and achieve its competitive advantage.

Sustainability of the Collective Work :-

A set of management processes owned by the Organization which lead to complete the work continuously through the work teams and to emphasize the collectivism as a managerial trait in achieving the objectives.

3. The Theoretical Framework

3.1 Competitive Advantage

The subject of the competitive advantage is characterized by a high attraction to a large number of researchers because of its impact in all areas of the organization where the competitive advantage is of the most factors that have an impact on the success of organizations (Al-Dahhan, 2005). As a result of the growing complexities in the business environment and the increase in the intensity of competition between organizations, the need for indicators that the organization possesses to present the best has emerged, as well as occupying a privileged position in the market through its ability to provide a better product or service compared to competitors. There are many of the concepts of competitive advantage, including the (distinction of the organization for other organizations in the same field) Bakri, 2010, as well (the pursuit of the organization to own special attributes that distinguish them from other organizations working in the same field) Gould, 2008. From the foregoing it can be said that the competitive advantage is the ability and capabilities possessed by the organization in all its elements through which it can make something of high value that the competitors cannot imitate or offer better through referring to a cognitive processes with a clear managerial methodology). The possession of competitive advantage by the organization can help it to own means and methods to meet the challenges of the market, as well as possessing the ability to meet the needs of customers as a standard that determines the success of the organization without the other organizations through the possession of the types of strategies as the empowerment strategy emphasizing that the organization possesses the factors of successful production, fundamental capabilities and its knowledge of the external environment factors, in addition to build integration, which contributes to the expansion of the value chain, enabling it to achieve the survival and continuity of the organization (Barnett, 2005).

3.2 Human Capital

The contemporary trends in modern management is heading towards a new subject features that care about intellectual assets more than physical assets because maximizing the physical assets comes as a result of the availability of intellectual assets and this new subject is human capital, which has become in the era of technology the real stimulus in the success of organizations (Cning-Fu Chang, 2015). The human capital is ability intellectual capable of generating new ideas, appropriate process and a high level of quality as a main stimulus for the sustainable growth and achieve sustainable development which contribute to achieving the optimum investment for different resources to reach the objectives (Smith, 2007). And also the human capital is the driving force of the competitive advantage for business today, where human capital represents the innate capacity acquired in individuals which lead to increase the economic value added in all areas of business if properly invested. As a result of the importance of this subject, researchers in Administrative Sciences gave great importance to human capital, especially in developing countries (Patrick, 2015), where they provide a lot of concepts in order to determine its concept, some considered it as part of the organization work and others view it as including a set of components associated with the employees and a third group sees that it includes the education, experience and skill possessed by the individuals while some considered it as directly linked to the work (Greveet, 2006/ Fernandez, 2004).

3.3 Importance of Human Capital

The human element is the basis for organizations construction and development, and it supports the organization's success and continuity (Jawad, 2000) where the human capital plays a key role in dealing with the problems faced by the organization, and the development of appropriate solutions that leads to meet the challenges faced by the organization (Noe, 2009).

Human capital is the main factor that makes the organizations success is a fact, not buildings, equipment or trademarks (Decenzo & Robbins, 2005) and on this basis the human

capital has a great significance to the success, continuity and survival of the organizations. Below is a detailed explanation of this importance:

The strategies related to human capital are considered as one of the important leading strategies on which depend leading organizations that are looking for appropriate opportunities where they cannot seize these opportunities only through talented employees and their entrepreneurial abilities that lead to achieve the competitive advantage of business organizations. (Morris, 2000) and (Koenig, 2001) confirmed that human capital is the main arm of the organization in today's world because of intellectual assets representing the hidden force that ensures the survival of the organization and its success and profitability by working to concentrate on the main idea that should be worked out when drawing support innovation policies of human capital (Helen, 2015).

The human capital achieves the strategic objectives associated with improving the work performance and development of organizational culture to reach the creativity and innovation which leads to the success and survival of the organization (Dessler, 2003). The survival, growth and continuity of the companies depends on the ability of employees to provide the necessary and important knowledge for survival, ie, on the human capital that they own. In addition to this, the importance of human capital emanates from achieving three basic necessities that are (necessity for success, necessity to create new knowledge and the necessity to achieve competitive advantage) through the ability to use characteristics convertible to innovations of great significance to help decision-makers to take decisions related to sustainable growth in the organization (Helen, 2015).

3.4 Organizational Sustainability

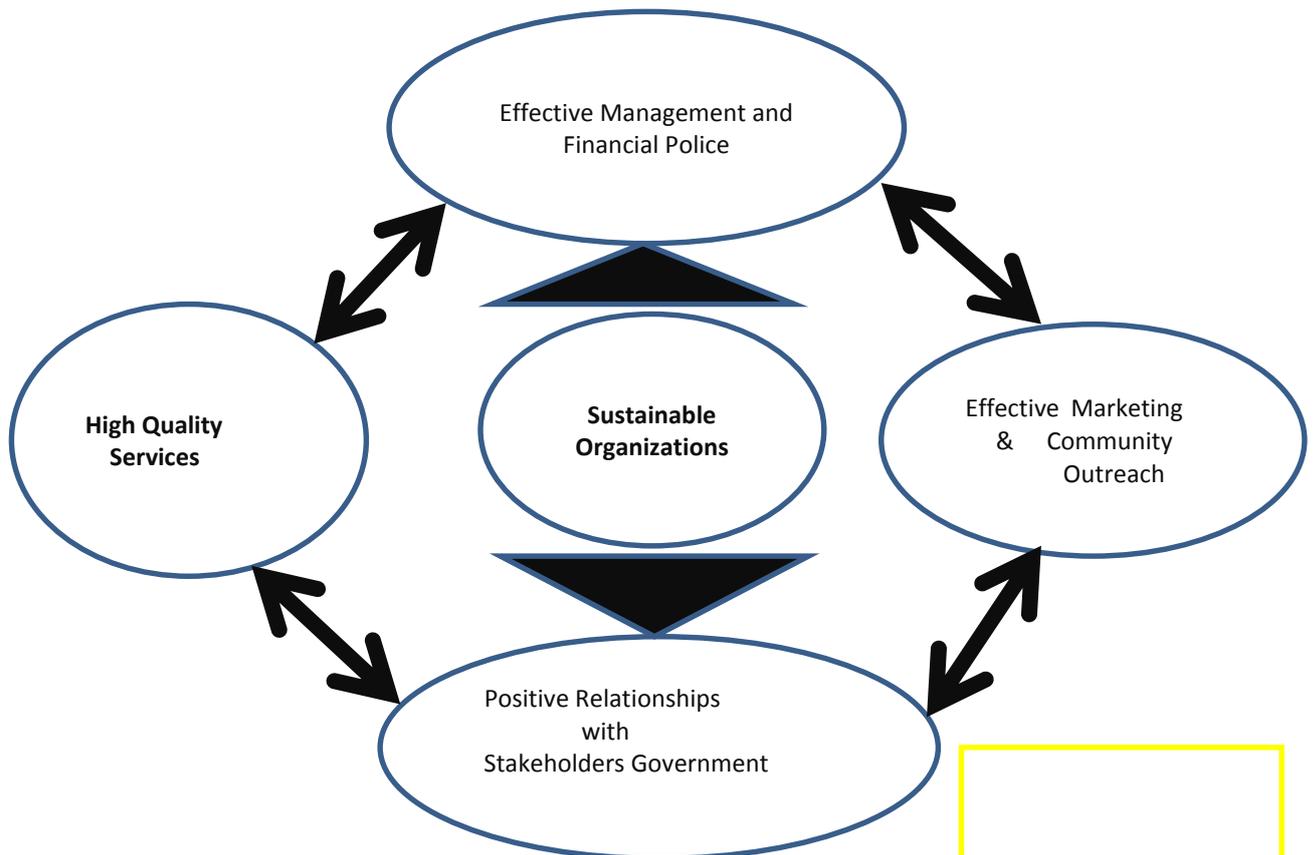
The subject of sustainability is considered of the modern subjects that received considerable attention from researchers where achieve profitability, increase market share and achieve entrepreneurship and distinction are no longer the main subject in an instable environment, but beyond that to how to create a state of sustainability and continuity and to maintain the current business through the ability to meet the current needs for sustainable growth (Ford, 2012) and how to it superior to their competitors. This requires organizations attention to the sustainability of the competitive advantages now and in the future (Ramstad, 2005) and in various aspects (sustainability of the organization's relations, sustainable ability for innovation and sustainability of collective work) and its association to the elements of the competitive advantage that contribute to this state achievement, in which the human capital constitutes the key element in its continuation .

On the other hand many researchers went to define the concept of sustainability where (White, 2009) defined it as the process of creating a continuous value for current and future generations. And (Landrum, 2009) enhanced this concept when he said (The organization's ability to maintain the organization's resources, assets and funds over the long term). And (Jones, 2007) went to say that it is (the organization's ability to remain in the exercise of their activities in the long term and to achieve high growth rates). But (AZue, 2013) said it is (the organization's ability to continue and survive as a strong organization in the environment in which it operates long-term time with the necessity to the presence of indicators reinforcing this continuation to confirm the increase of this force).

The creation of organizational sustainability of all kinds require the availability of a set of requirements as defined by (Barmwel & Alletanp, 2010) the most prominent are: the existence of the organization continuation indicators, high rates of growth, attract the best customers, achieve staff satisfaction and loyalty, optimum use of resources, support competitive ability, search for points of strengths, weaknesses, opportunities and threats, and a continuous commitment to the innovation processes and work to overcome the obstacles of organizational sustainability represented in (multiple measurements to measure the sustainability, government policies, lack of consistency between the sustainability and the business sector, the difficulty of distinguishing between the opportunities and threats in the future, and lack of knowledge of ways and means to motivate employees that help them to create a competitive advantage based on human capital through the use of the organizational sustainability (OSM) (Neal, M.A.,

2016). For the success of the organization, a set of points must be taken when formulating sustainability strategy, including determining the motives of work and identify the organization's vision clearly in addition to know the current organization's position and the development of the workers capacity and finally determine the plan of action needed to create sustainability and reinforce it and stands at the forefront to create a competitive advantage based on human capital as the basis or starting point in to create an organizational sustainability that reinforce institutional behavior among employees . (Serafeim, 2011). and the following figure illustrates this elements :-

Figure no. (2)
Elements of Sustainable organization



4- Relationship between the competitive advantage based on human capital and organizational sustainability:

This study model comprised two main variables that are the independent variable the competitive advantage based on human capital, and the dependent variable, the organizational

sustainability. In order to achieve the objective of this study, it is necessary to clarify the relationship that was the basis of the connection between these two variables:

From the viewpoint of the researchers that competitive advantage based on the role of human resource has a positive and significant impact on the elements of organizational sustainability, and their dimensions that achieve the requirements of organization's success and continuity, and possession of quality based on building sustainability policies that are related to the creation of creative behavior (Thomas, 2014) and that contribute to overcome the barriers to competitive sustainability embodied in:

The negative effects faced by the human element, which is reflected on its competitive advantage, constituting an obstacle to organizational sustainability.

The difficulty in obtaining a variety of workers to invest this diversity in the work and place it in a framework that ensures the success and the achievement of organizational sustainability.

The difficulty of perception of the employees feelings and understand their attitudes, their interests, their needs and their personal and practical requirements, to create the positive organizational climate which helps to create a competitive advantage leading to successful organizational sustainability with its types (the organization relations sustainability, innovation ability sustainability and collective work sustainability) that create an environment for growth and development based on creativity, innovation, motivation, incentives and the sound moral behavior (Slaus & Jacobs, 2001) (Stoner et al., 2004).

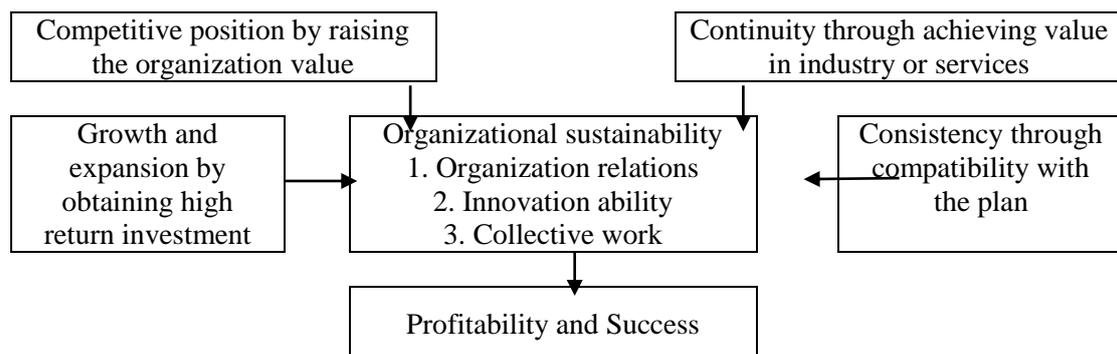
Work to face globalization that changed a lot of the roles of organizations (Kielstra, 2008) and to focus on addressing the economic reasons for the question of organizational sustainability and to achieve economic objectives (Serafeimn, 2011).

Reduce the risks of energy use, including contributing to the promotion of the trademark and increase the competitive advantage that reinforce the continuation of the organization in the creation of sustainable development and the preservation of its current and future business (Sustainable growth), leading to improve financial and investment opportunities (Catrin, B., 2011).

Deficiencies in the educational institutions policies related to sustainable development that contribute to the creation of a human resource required to achieve sustainable growth in the organization and society (Ramazan, 2009).

Overcoming these obstacles will enable the organization to build organizational sustainability strategy model built on the availability of competitive advantage based on the human capital which lead to achieve profitability, obtain a high return on investment and remove restrictions on various resources, which constitute challenges to organizations (Institute, 2011) and the following figures illustrates this relation:

Figure no. (3)
Relation between Sustainability and Profitability



Reference: prepared by the researcher

5- Applied Study:

This section includes the results of the statistical analysis and the study result.

5.1 Test of the First Main Hypothesis:

(There is a statistically significant impact for the competitive advantage based on human capital to achieve organizational sustainability with its elements in the Jordanian Telecommunications Companies Sector).

To test this hypothesis the multiple regression analysis was conducted and the following table shows the results linked to that:

Table no. (1)
Result of multiple regression analysis: regressing CA variables against OS

Correlation Coefficient R	Determination Coefficient R2	Beta Coefficient B	Value F	Signification Sig
0.56	0.31	0.80	43.31	0.00

It is appeared through Table no. (1) that the Correlation Coefficient value for the impact of the competitive advantage based on human capital on organizational sustainability with its three dimensions amounted to (0.56) and the value of F amounted to (43.31), which is an indicator at the level of (0.05) and thus the hypothesis stipulating that the existence of the impact of the competitive advantage based on human capital on organizational sustainability with its dimensions is accepted (sustainability of organization relations, sustainability of innovation ability, sustainability of collective work). Also the above table shows that the beta value of (0.80), which reflects the positive impact also it is evident through value of (R2) that competitive advantage explains the value of (31%) of the variance, and (69%) is due to other factors.

5.2. First sub-hypothesis:

(There is a statistically significant impact for competitive advantage based on human capital to achieve sustainability of the organizational relations in the Jordanian Telecommunications Companies Sector).

Table no. (2)

Regression test results of the competitive advantage impact on organization relations sustainability

Correlation Coefficient R	Determination Coefficient R2	Beta Coefficient B	Value T	Signification Sig
0.39	0.15	0.39	8.31	0.00

It is appeared through Table no. (2) that the Correlation Coefficient value for the impact of the competitive advantage based on human capital on organization relations sustainability amounted to (0.39) and the value of T amounted to (8.31), which is an indicator at the level of (0.05) and thus the hypothesis stipulating that There is a statistically significant impact for competitive advantage based on human capital to achieve sustainability of the organizational relations in the Jordanian Telecommunications Companies Sector) is accepted. Also, the above table shows that the beta value is (0.39), which reflects the positive impact also it is evident through value of R2 that competitive advantage explains the value of (15%) of the variance, and (85%) is due to other factors. This confirms the validity of the proposed model in the study.

5.3. Second sub-hypothesis:

(There is a statistically significant impact for competitive advantage based on human capital to achieve sustainability of the innovation ability in the Jordanian Telecommunications Companies Sector).

Table no. (3)

Regression test results of the competitive advantage impact on the innovation ability sustainability

Correlation Coefficient R	Determination Coefficient R2	Beta Coefficient B	Value T	Signification Sig
0.52	0.27	0.52	11.90	0.00

It is appeared through Figure no. (3) that the Correlation Coefficient value for the impact of the competitive advantage based on human capital on innovation ability sustainability amounted to (0.52) and the value of (T) amounted to (11.90), which is an indicator at the level of (0.05) and thus the hypothesis stipulating that (There is a statistically significant impact for competitive advantage based on human capital to achieve sustainability of the innovation ability in the Jordanian Telecommunications Companies Sector) is accepted. Also, the above table shows that the beta value of (0.52), which reflects the positive impact also it is evident through value of R2 that competitive advantage explains the value of (27%) of the variance, and (73%) is due to other factors. This confirms the validity of the proposed model in the study.

5.4. Third sub-hypothesis:

(There is a statistically significant impact for competitive advantage based on human capital to achieve sustainability of the collective work in the organization within the Jordanian Telecommunications Companies Sector).

Table no. (4)

Regression test results of the competitive advantage impact on the collective work sustainability

Correlation Coefficient R	Determination Coefficient R2	Beta Coefficient B	Value T	Signification Sig
0.36	0.17	0.36	7.52	0.00

It is appeared through Figure no. (4) that the Correlation Coefficient value for the impact of the competitive advantage based on human capital on collective work sustainability in the organization amounted to (0.36) and the value of (T) amounted to (7.52), which is an indicator at the level of (0.05) and thus the hypothesis stipulating that (There is a statistically significant impact for competitive advantage based on human capital to achieve sustainability of the collective work in the organization within the Jordanian Telecommunications Companies Sector) is accepted. Also, the above table shows that the beta value of (0.36), which reflects the positive impact. Also, it is evident through value of R2 that competitive advantage explains the value of (17%) of the variance, and (83%) is due to other factors. This confirms the validity of the proposed model in the study.

6 . Discuss the results

The results shown that the human capital has a great impact in the creation of the competitive advantage for the telecommunication companies in Jordan, where the human capital operates on the creation of the competitive advantage based thereon, that the human capital constitutes the base in its creation and that the use of this competitive advantage is working to achieve organizational sustainability for these companies and makes them possess

the sustainability in the relations of telecommunication companies with different bodies with which they work and customers, achieving success and development of these companies through the influence that appeared in the results of this study where amounted the value of (T) is (8.31), which shown in table (2). As well as the permanent sustainability in finding ability with these companies and their employees to generate new ideas (generation of new knowledge) that make them characterized in the introduction of new ideas and the creation of creativity in all areas of their work, making them distinct permanently and continuously on the rest of the companies operating in the same sector or other sectors through the power of impact that appeared in the results of the study, where amounted to (11.90) , table (3).

From another side the creation of collective work sustainability through the completion of business in the telecommunications companies in accordance with the action teams had characterized the companies from other companies and which has had a significant consequences for the success of the companies in achieving the objectives efficiently and effectively high where the impact value reached (7.52) as it shown in table (4) . Also by looking at the overall condition of the companies, results shown that creating a competitive advantage for companies based on the existence of a distinct human capital will contribute to create and find a state of sustainability and continue and succeed to achieve objectives.

7. Conclusions and Recommendations of the Study

7.1 : Conclusions of the Study:

In the light of the results of the study and discussions many the conclusions can be determined as following :-

There is a positive impact of human capital on creation the competitive advantage in the Jordanian Telecommunications Companies Sector and create excellence .

The existence of a competitive advantage for telecommunication companies based on human capital constitutes the ability of these companies to create organizational sustainability and the continuation of success.

There is a positive effect of the presence of the competitive advantage, based on the existence of efficient human capital, contribute to the creation of sustainability in companies relations with the various parties inside and outside these companies.

There is a positive effect of the presence of the competitive advantage, based on the existence of efficient human capital, contribute to the creation of sustainability in the ability of companies to generate knowledge, create new ideas, maintain the creativity and find creative ideas that contribute to the company's development, progress and superiority over its competitors.

There is a positive effect of the presence of the competitive advantage, based on the existence of efficient human capital, contribute to the creation of collective work sustainability .

Find human capital which contribute to create distinction and find work mechanisms contribute to the attraction of distinctive elements.

Contribute to the creation of new work environment characterized by the presence of the organizational sustainability in various areas of the telecommunication companies.

Find the competitive advantage based on a distinct capital is the optimum method that should be used in telecommunications companies being contributes to the investment of human capital optimally and achieve optimum organizational sustainability for companies in various fields also contribute to achieve its vision and mission of the future.

7-2: Recommendations of the Study:

According to the conclusions of the study, the study recommends the following:

Working on the attraction of the distinct human capital in Jordanian Telecommunications Companies Sector as well as find a sophisticated training programs contribute to the human capital creation and provide them with the skills, abilities and knowledge they need to create the competitive advantage for the companies in which they work will contribute to the organizational sustainability of the companies.

Working on the creation of the competitive advantage based on the existence of distinct human capital able to create this advantage that contributes to the success continuation of the Jordanian telecommunications companies and invests the human capital working therewith optimally to achieve organizational sustainability for the companies in various fields and contributes to achieve the vision of the future.

Support the continuity of the Organization's relationship through the creation of work mechanisms contributes to the creation of continuous and well-developed relations with various parties inside and outside the companies.

Participate for employees in setting-up the future plans of the organization and expand these participation of the organization employees in the process of making decisions related to their work and allow them to participate in setting-up the future plans that achieve the distinctive and creative aspirations and the achievement of sustainable development for the companies they work in.

Providing stimulating and favorable working environment for the development of the skills and abilities of employees in the organization through working to determine the affecting environmental elements and determine its impact and developing means to help taking advantage thereof.

Taking into account the moral aspect when making decisions in the organization through creating trust between the organization and employees and follow the methods that help to overcome the difficulties faced by the organization and create the sustainable development of the Jordanian Telecommunications companies.

Find work mechanisms generating new ideas and adopt and apply them to create new knowledge and great achievements that contribute to the continuity and superiority of the companies.

Adoption of the Action Teams as an important means to accomplish business and leave the old formulas in the administrative work to achieve the sustainability of collective work in the Jordanian telecommunications companies in order to achieve the overall organizational sustainability.

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The learning organization: A foundation to enhance the sustainable competitive advantage of the service sector in Egypt

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Abstract:

An organization's ability to learn and translate that learning into action rapidly, is the ultimate competitive advantage. The learning organization is the structure that facilitates the abovementioned competitive advantage, it empowers employees, it enriches and enhances the customer experience and collaboration with key business partners and ultimately boosts business performance. Organizational learning is considered as the suitable process to develop knowledge resources and capabilities/core competencies (human capital, social capital and organizational capital) that engender ongoing values; which in turn yield persistence superior performance; which lead to sustainable competitive advantage within the context of the strategic management.

Then, the learning organization provide the necessary organic structure implying the necessary disciplines, principles and policies; according to which the organizational learning process had to take place - in the light of the environmental surroundings- to equip the human resources with the updating knowledge, innovative capabilities, behaviors and culture representing the convenient intellectual capital to produce ongoing value stream. Such value stream deems as a sustainable competitive advantage for such organization.

This paper, therefore, explores, discusses and analyzes the integrated role of Learning organization (as a structural entity) and the organizational learning (as an intrinsic know-how process) that takes place within such context; in helping firms working in the service sector in Egypt- whether they are public or private enterprises- to achieve sustainable competitive advantage, as the service sector in Egypt is by the far the largest and fastest-growing economic sector and accounts for almost 51 % of GDP. Whereby it represents the locomotive of development for a developing country as Egypt.

Keywords: Learning organization, organizational learning, intellectual capital, strategic management, service sector.

1- Introduction

The service sector in Egypt is a dynamic sector, whereby the organizations working in Tourism, trade, banking, and shipping services on the Suez Canal constitute the main sources of service sector revenue. They strive to innovate their services to satisfy the changeable needs and wants of customers. Meanwhile, they are facing many challenges affecting their business such as the severe competition from global competitors, the escalated technology development and the fluctuated ecological determinants as one of the Arab spring countries

Therefore, the service sector companies in Egypt had to adapt with such environmental challenges; to keep their market positioning whether in the domestic market or the global one. In order to make such hope go through; the organizations working in such service realm had to transform their traditional organizations into learning organizations. Which are able to absorb and substitute their traditional thinking and actions into recent knowledge and advanced

practices via a group of talented employees /human resources who are continually enhancing their capabilities to create what it will take to respond to changes, complexity and uncertainty .

In fact, The rate at which the organizations learn may become the only sustainable source of competitive advantage (Senge, 1990). Then, the creation of the competitive advantage to sustain within any organization; requires the adoption of an effective organizational learning process to make the organization adaptive - adopting changing management approach - with its internal and external environment. Moreover, to learn the organization via its intellectual capital - using innovation techniques - how to engender an appropriate persistence value stream for their market segments (productive organization).

Hence, in this paper the researcher aims firstly to shed light on sustainable competitive advantage concept and learning significance. Secondly, to interpret the learning organization concept and its principles. Thirdly, to suggest a strategic framework for organizational learning process into the service sector. Fourthly, to identify the challenges facing the creation of learning organization in the Egyptian service sector. Finally, to prescribe the different reforming pillars necessary to transform the traditional service organizations in Egypt into effective learning organizations; applying the recent organizational learning techniques and knowledge management methods; to engender the convenient value stream that yields the intended sustainable competitive advantage.

2- Sustainable competitive advantage concept and learning significance

A competitive advantage is what distinguishes you from the competitors in the minds of your customers. Whether you are an employee, a business or a country, you need to have a clear competitive advantage and communicate it to your customers. Before you can determine your competitive advantage, you've got to know these three determinants (Aaker, D. 1989):

- **What you produce.** Whether it's a good or service, you've got to be very clear on what you are providing. New technology can redefine that for you, so you've got to constantly stay on top of how trends affect the benefits you provide. For example, the Internet meant that newspapers had to redefine how they delivered the news.

- **Target market.** Who are your customers? You've got to know exactly who buys from you, and how you can make them happier. This increases demand, the driver of all economic growth. Newspapers found out their target market started to become older people, who weren't as comfortable getting their news online.

- **Competition.** This is not just other similar companies or products, but anything else your customer does to meet their needs. Newspapers thought their competition was other newspapers, until they realized it was the Internet.

Once you are clear on these three determinants, then you can decide what benefit you provide better than the competition to your target market. Reinforce that message in every communication to your customers, including advertising, public relations, and even your storefront and employees. If you are the employee, treat yourself as if you were in business for yourself, because you are. Make sure your competitive advantage is reflected in your appearance, your resume, and in how you communicate.

A company must create clear goals, strategies, and operations to sustain its competitive advantage over time. The corporate culture and values of the employees must be in alignment with those goals, as well. It's difficult to do all those things well, which is why very few companies can create a sustainable competitive advantage.

In 1985, Harvard Business School professor Michael Porter wrote the definitive business school textbook on the topic, called Competitive Advantage. In it, he outlined the three major ways companies achieve sustainable advantage: cost leadership, differentiation and focus.

Although these main strategies were developed by researching companies, they can be useful for everyone, from employees to countries, who is seeking to stand out. They are as follows (Porter, 1985):

Cost leadership means you provide reasonable value at a lower price. Companies do this by continuously improving operational efficiency. They usually pay their workers less, either by providing intangible benefits such as stock options, benefits or promotional opportunities, or by taking advantage of unskilled labor surpluses. As they get larger, they can take advantage of economies of scale, and buy in bulk. However, sometimes they pay below the cost of living. Their advantage can be threatened if they must comply with higher minimum wage laws.

Differentiation means you have a strong brand that clearly communicates how you deliver benefits much better than anyone else. A company can achieve differentiation by providing a unique or high-quality product, by delivering it faster, or by marketing it in a way that truly reaches customers better. Instead of being a cost leader, the company with a differentiation strategy can charge a premium price. That means they usually have higher profit margins. Companies usually achieve differentiation with innovation, quality or customer service. Innovation means you meet the same needs in a new way. Quality means you provide the best product or service, and so might be higher priced. Customer service means going out of the way to delight the customer.

Focus means you understand and service your target market better than anyone else. You can use either a cost leadership or differentiation strategy, but you focus it on one specific target market. Often it's a tiny niche that isn't being served by larger companies. Community banks and tourism companies are an example of a segment that uses a focus strategy to gain sustainable competitive advantage. They target local, small businesses, or high net worth individuals. Their target audience enjoys the personal touch that such enterprises may not be able to give, and they are willing to pay a little more in fees for this service. These enterprises are using a differentiation form of the focus strategy.

Consequently, the sustainable competitive advantage (SCA) is when the firms strive for unique characteristics in order to distinguish themselves from competitors in the eyes of the consumer for a long period of time (Hoffman, 2000). Then, Competitive advantage exists when a particular company consistently outperforms other companies in the same industry. A company is considered to be outperforming others if profits are higher than the competition's profits. The competitive advantage is thought to be stronger when it lasts for a longer period of time. Those companies who are able to maintain a competitive advantage for many years are thought to have a sustainable competitive advantage. If sustainable competitive advantage is dependent on maintaining a higher profit margin than other companies in the same industry, how does a company set out to develop a strategy to both achieve and maintain competitive advantage? The two main components of profit are that customers both value the goods and services and will pay for them and that a company can keep production costs related to goods and services low, so that there is a higher profit margin (John I. Njuguna, 2009).

Thus, Competitive advantage involves communicating a greater perceived value to a target market than its competitors can provide. This can be achieved through many avenues including offering a better-quality product or service, lowering prices and increasing marketing efforts. On the other hand, Sustainable competitive advantage refers to maintaining a favorable position over the long term, which can help boost a company's image in the marketplace, its valuation and its future earning potential. It is the ability to offer superior customer value on an enduring or consistent basis, a situation in which competitors are unable to easily imitate the firm's capacity for value creation (Collis and Montgomery, 1995). According to Barney (1991), sustainable competitive advantage arises when the firm's resources are valuable (the resources help the firm create valuable products and services), rare (competitors do not have access to them), inimitable (competitors cannot easily replicate them) and appropriate (the firm owns them and can exploit them at will). Acquiring and preserving distinguish performance and superior value stream are a function of the resources and capabilities brought to the competition; representing the sustainable competitive advantage (Aaker, 1989; Barney, 1995).

Learning and knowledge management is emerging as a key factor to dealing with change and developing competitive advantage. These knowledge resources and capabilities, resulting from learning processes implies an improvement in response capacity through a broader understanding of the environment (Dodgson, 1993; Sinkula, 1994).

Rebelo and Gomes (2008) state that learning is present in any organization because of the intrinsic attributes of individuals and is an inevitable element of organizational life. However, whether or not it is recognized and utilized will determine the success of any organization. Learning organizations are able to go through change less painfully than non-learning organizations because the resistance is reduced from the company owning a shared vision. They further argue that it is not knowledge itself that brings about a competitive advantage but rather how the knowledge is created and injected back into the organization's existing competences via an effective organizational learning process (Marshall, J., & others, 2009).

Taking this argument further, the resources themselves do not bring about competitive advantages but rather what a company is able to do as a result of these resources; this is what is referred to as a firm's core competencies and Capabilities which involve the formation of complex internal patterns between people and other resources which lead to sustainable competitive advantages (Murray and Donegan, 2003). It is through learning that these competencies are created and realized. In similar, vein the existence of learning culture and the establishment of an environment that facilitates and encourages ongoing learning can be a significant factor in achieving valuable outcomes and organizational development necessary to create a sustainable competitive advantage, this is what the learning organization aim to realize (Smith, 2004).

3- The learning organization concept and perspectives

learning organizations (LO) can be defined as organizations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning to see the whole together. The basic rationale for such organizations is that in situations of rapid change only those that are flexible, adaptive and productive will excel. For this to happen, it is argued, organizations need to discover how to tap people's commitment and capacity to learn at all levels (Senge,1990).

While all people have the capacity to learn, the structures in which they have to function are often not contributing to reflection and engagement. Furthermore, people may lack the tools and guiding ideas to make sense of the situations they face. Learning organizations are continually expanding their capacity to create their future; which requires a fundamental shift of mind among their members. In agreement with this Trim and Lee (2004) state that a learning organization is particularly skilled at systematic problem solving and is better equipped with the power of communication and information technology to face emerging threats in the external environment. A learning organization can be defined as "an organization that focuses on developing and using its information and knowledge capabilities in order to create higher-valued information and knowledge, to change behaviors and improve bottom line results", that yields a competitive advantage (King, 2001). Moreover, the Learning Company is a vision of what might be possible. It is not brought about simply by training individuals; it can only happen as a result of learning at the whole organization level. So, a Learning Company is an organization that facilitates the learning of all its members and continuously transforms itself (Pedler et. al.,1991).

Learning organizations are characterized by total employee involvement in a process of collaboratively conducted, collectively accountable change directed towards shared values or principles (Watkins and Marsick, 1992). From theses definitions we see that for learning organizations to be successful there must be a change in behavior, learning in itself is a change process for improvement to adapt with various external environment forces. we can also conclude that a company must assess and make use of its internal resource to create and sustain competitive advantages.

3. 1 Learning Organizations perspectives

In accordance with the descriptions above, organizations that wish to lay claim to the title need not only to be able to generate new knowledge, but to use it in a practical way- to practice what they preach, as it were. This is not as easy as it sounds. Many organizations are in a position to generate new knowledge, such as from customers, from the collective wisdom of their members or from the world at large, yet in reality do not use this information as well as they might. Garvin (1998) for example would see the ability to transfer knowledge quickly around the organization as one of the key components of a learning organization, as well as the ability to experiment and learn from experience. A useful set of descriptors of what a learning organization might look like in practice is provided by Yang, Watkins and Marsick (2004). They suggest five perspectives:

3.1.1 A System perspective

In terms of systems thinking, based primarily around the work of Senge (1990) , learning organizations can not only adapt to changes in their business environment, but also have the ability to create their own future to an extent . Although Senge does not go into specifics about how this can be achieved, he places his five ‘disciplines’ at the Centre of these efforts. The so-called ‘fifth discipline’- systems thinking- is based upon interrelationships between organizational events and processes rather than linear cause – effect chains, and in being able to see the overall process of change rather than ‘ snapshots’. The other four disciplines are team learning, where the emphasis is on the learning activities of the group rather than on the development of team process, shared visions, which are manifested in an ability to build a shared picture for the future that helps generate real commitment rather than compliance, shared mental models, which are internal images of how the world works, and personal mastery, which involves continually clarifying and deepening personal vision, focusing energies, developing patience and seeing reality objectively.

3.1.2 A Learning perspective

Peddler, Burgoyne, and Boydell (1991) identified some overlapping areas in which a learning organization facilitates the learning of its members and as such transforms itself. The approach is based on incorporating the traditional elements of management to support learning at all organizational levels. For instance, they recommend adopting a learning approach to strategy as well as participative policy making. In essence this means involving as many people as is appropriate in these activities to both provide input and help disseminate output. Other priorities include the establishment of a learning climate and self-development for everyone. These principles are about creating opportunities for individuals to engage in learning within the workplace as well as removing barriers preventing them from doing so.

3.1.3 A Strategic perspective

This approach is based on a need to understand the main strategic drivers necessary to build learning capability Goh (1998), for example , contends that learning organizations have five core strategic building blocks . These include clarity and support for mission and vision; shared leadership and involvement; a culture that encourages experimentation; the ability to transfer knowledge across organizational boundaries; and teamwork and co-operation. Further, the strategic building blocks require two main supporting foundations. The first is an effective organization design that is aligned with and supports them. The second consists of the appropriate employee skills and competencies needed for the tasks and roles described therein. These strategic building blocks can serve as practical guidelines for operational and managerial practice, and along with the two supporting foundations they can also provide advice for management and organizational consultants.

3.1.4 An Integrative perspective

Watkins and Marsick (1993) provide an integrative model of a learning organization. They describe the process of learning within a learning organization as integrated with work of the organization. In practice, organization members are aligned around a common vision, yet are aware of and can adapt to their changing environment. As a by-product of their day-to-day work, they generate new knowledge which they use, in turn, to create innovative products and services to meet customer needs. The authors identified seven distinct but interrelated dimensions of a learning organization at individual, team and organization Levels. These include continuous learning; inquiry and dialogue; team learning; empowerment; embedded systems; system connection; and strategic leadership. The learning organization is viewed as one that has the capacity to integrate people and structures in order to move towards continuous learning and change.

2.1.5 Building blocks perspective

Another influential view of what constitutes a learning organization comes from the work of Garvin, Edmondson and Gino (2008). Recall that Garvin's description of a learning organization, outlined earlier, suggests it's about creating, acquiring and transferring knowledge and modifying behavior to reflect this. He and his colleagues offer three broad factors, also called 'building blocks', seen as essential for organizational learning and adaptability. They are a supportive learning environment, concrete learning processes and practices and leadership that reinforces learning. A supportive learning environment comprises a number of elements. Psychological safety is one. It must be acceptable for people to question authority but also for them to be able to own up to mistakes. To do this the same learning environment must demonstrate an appreciation of differing approaches and points of view. It must therefore be open to new ideas and tolerate a degree of risk taking. Finally, supportive learning environments allow time to reflect on what's being done and how it's being done. The second building block, concrete learning processes and practices, is concerned with the generation, interpretation and dissemination of internal and external knowledge around the organization. It is about having systematized ways of capturing and sharing data from customers and the business environment as well as from employees through their experience, the projects they undertake and the business problems they solve. These processes and practices serve the purpose of getting information to those who will use it. The third building block, leadership that reinforces learning, necessitates leaders throughout the organization who are willing to encourage dialogue, to listen to alternative points of view, and in general to foster a culture of learning.

2.2 Effective learning organization requirements

Despite the different starting points for the approaches and the perspectives outlined above, some common principles for the learning organization effectiveness can be seen within them, as follows (Cyril Kirwan, 2013):

- At the strategic level, a sense of vision (and in particular shared vision) is apparent in all the organizational levels. Clear goals, and support for those goals are critical if the organization is to make use of learning opportunities that arise from the challenges it faces.

- There is also the necessity for leaders (at all organizational levels) to share the vision (sharing leaders). This should result in better performance because activities can be directed more precisely towards the goals, but also because the more people that understand and share the vision, the greater will be the amount of learning.

- Another important principle that appears to be central to learning organizations has to do with the creation of a learning structure that is flexible and adaptable to changes in the external environment. This structure should facilitate the creation, retention and transfer of practical knowledge that can be used within and across organizational boundaries.

- The idea of a learning climate, where personal mastery, self-development for everyone, education and training and continuous learning (primarily experiential) are embedded in the way the organization goes about its business. This type of climate also encourages

experimentation, empowerment and dialogue and structures teams so that they work with and learn from each other. The strength of a learning climate will also be seen in psychological safety, in time given for reflection and in shared leadership and involvement.

- The importance to create continuous learning opportunities. In learning organizations, learning is designed into work so that people can learn on the job and opportunities are provided for ongoing education and growth.

- The necessity to promote inquiry and dialogue. In this situation, individuals develop productive reasoning skills to express their views and the capacity to listen and inquire into the views of others, The culture is such that it supports questioning, feedback and experimentation.

- The importance to encourage collaboration and team learning. What this means for the organization is that work is designed to use groups to access different modes of thinking. Groups are expected to work and learn together, and collaboration is valued and rewarded.

- It is imperative to create information technology systems to capture and share learning. Both high- and low-information technology systems to share learning are created and integrated with work. Of particular importance is that access is provided to these systems, and that they are maintained.

- There is a requirement to empower people toward a collective vision. People in the organization become involved in setting, owning and implementing this vision. Responsibility is distributed close to decision making so that people are motivated to learn toward what they are held accountable to do.

- It is essential to connect the organization to its environment. Individuals are helped to see the effect of their work on the entire enterprise. In doing this they scan the environment and use information to adjust work practices, and the organization is linked to its communities.

- The organization must provide strategic leadership for learning. Leaders have to model, champion and support learning, and must use learning strategically for business results.

It would seem clear from the discussion above that becoming a learning organization is an end to which many organizations aspire, given its links with performance and competitive advantage in the knowledge economy. How therefore can the various characteristics and principles outlined, which scholars and practitioners agree are of critical importance, be integrated to create such an entity? It can be only integrated by the organizational learning process; responsible to create and share knowledge all over the organization. Then, formulating the intellectual capital; which represents the core of the learning organization and its decisive competitive advantage.

Hence, a learning organization must have the persistence capacity to collect, store and transfer knowledge via an effective organizational learning process to modify the behavior of its team members to reflect new knowledge and insights; which can be used by such organization towards the achievement of improved performance and then sustainable competitive advantage.

4- Strategic framework for organizational learning process

Graham and Nafukho (2007) state the importance of making a clear distinction between a “learning organization” and “organizational learning”, they believe that these concepts should not be used in a way that suggests they are interchangeable. A learning organization is concerned with bringing about a change in behavior that will lead to a company achieving its desired state- transforming (Blackman and Henderson, 2005). Garavan (1997), suggests that the Learning Organization (LO) represents the direction of the organization in a specific structural context; while Organization Learning (OL) is seen as a heuristic operative device used to sum up the learning activities within the organization. Sun and Scott (2003) imply that the two streams are different but strongly related; organizational learning must reach a stage where the transfer of learning and sharing of knowledge is made easier. Although learning organization is a study of how organizations learn, the starting point will always be an analysis of how individuals learn. In similar, Hoyle (1995) argues that organizational learning is considered a way of articulating that organizational members are individual learners who

possess the ability to learn collaboratively. Then, organizational learning is considered as a knowledge sharing process; furthermore, the competitive strategy of the firm that can create its sustainable competitive advantage.

4.1 Organizational learning as a knowledge sharing process

Organizational learning refers to the sum total of individual and collective learning through training programs, experience, experimentation and work interactions within the organization. It is the acquisition, sustenance or changing of meanings shared by people through cultural devices and through the collective actions (Cook & Yanow, 1996). However, the concept of organizational learning is subject to competing formulations and is an ongoing debate (Stewart, 1996). Most definitions deal with the learning processes and are rooted in social and cognitive psychology (Lipshirtz, 2000). However, Miller (1996) defined organizational learning as a process of coordinated systems change, with mechanisms built in for individuals and groups to access, build and use organizational memory, structure and culture to develop long-term organizational capacity. It is a dynamic process of creation, acquisition and integration of knowledge aimed at the development of resources and capabilities that contribute to better organizational performance (Lopez, Peon and Ordas, 2005). Whereas a single instance of organizational learning may be relatively easy for other organizations to imitate, continuous organizational learning has cumulative effects that are much more difficult to imitate (Denisi *et al.*, 2003). Previous studies (Huber, 1991; Dale, 1994; Nevis DeBila and Gould, 1995; Winter, 2000) have proposed four dimensions or phases of organizational learning process to be knowledge acquisition, distribution, application and translation into organizational memory. However, according to Dale (1994) organizational learning can be characterized as an intricate three-stage process consisting of knowledge acquisition, dissemination and shared implementation (interpretation).

Basically, the process phases of organizational learning can be described in terms of six sequent steps (see fig.1), which continuously repeat themselves in the strategic management context as follows (Pawlowsky, 2003) (Katie Smith & others, 2011) (Omran, 2015):

1. The definition of internal and external actors who create and consume knowledge (the learning community vision and mission)
2. The identification of the learning needs and the information that seems relevant to learning, to the creation (generation) of new knowledge, or both in the context of the internal and external environment factors relative to the organization (learning strategic goals).
3. The exchange and diffusion of knowledge, either from the individual to the collective level or at the collective level itself by identifying the high value sources of knowledge (learning priorities and plans) .
4. The integration of knowledge into existing knowledge systems at a collective level, an individual level, or both, or into procedural rules of the organization, by defining processes for each steps whereby either integration or modification of the adopting system can take place (learning policies and programs).
5. The transformation of the new knowledge into action and the reapplication of the knowledge into organizational routines, so that it has effect on organizational behavior (e.g. the development of new leadership styles or new products and services) (learning action plan).
6. Align resources such as staffing, incentives and support to new knowledge capabilities creation to ensure its effectiveness; by monitoring and evaluating periodically the organizational learning progress in realizing the intended learning goals to a successful knowledge sharing process (learning evaluation and feedback).

CREATING A KNOWLEDGE-SHARING PROCESS

To design a more robust internal learning and knowledge-sharing process, start with a few questions about the key actors who create and consume knowledge, then identify their learning needs, and finally identify where knowledge is created, how to capture it, and the resources required to do so.

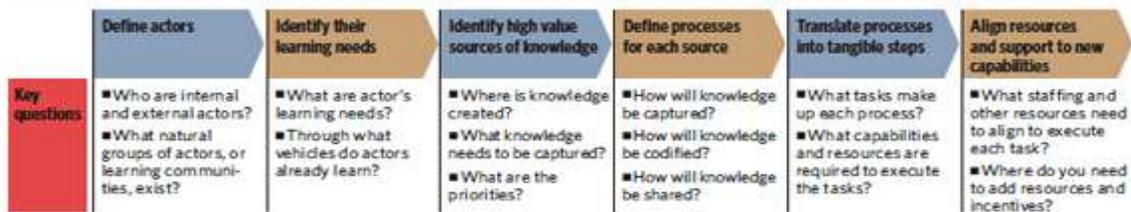


Figure 1

Source: Katie Smith Milway, Amy Saxton, *The Challenge of Organizational Learning*, Stanford social innovation review, summer 2011.

4.2 Organizational Learning as a Competitive Strategy

Organizational learning process -as we aforementioned- involves knowledge acquisition, distribution, application and translation of this knowledge into organization resources (organizational memory) such as databases, procedures and systems that can be used for leveraging the firm. This implies that, when a firm acquires individual level knowledge resources (human capital) through selection, training or experience and other learning activities, it must find a way to leverage those resources to the team level and eventually to the organizational level (Denisi, 2000). Otherwise, the effects of these knowledge-based resources on competitiveness will be limited. The firm should develop systems, procedures and processes (organizational capital) - at the organizational level- by which individuals that have the critical knowledge can transmit this information to others who can use it. This implies that for an organization to benefit from the learning process, it should put some effort in the management of knowledge.

Furthermore, the learning process is intrinsic, social and collective and occurs not only through the imitation and emulation of individuals, but also on collaboration and interaction in understanding complex problems. The knowledge generated this way is translated into new models of activities, routines and logic in the organization (Teece Pisano and Shuen, 1997). Thus, through organizational learning, a firm can develop unique human and organizational capital that are hard to imitate and that evolve continuously with the firm (Armstrong, 2001). Armstrong argues that employees' skills, knowledge and abilities (human capital) at the individual level are intertwined with organizational culture to form unique resources that other firms cannot acquire and apply.

Moreover, It is through social capital, knowledge conversations among all levels can take place, that is, from individual to collective to organizational to inter-organizational and vice-versa (Autio Yli-Renko and Sapienza, 2000). This social capital is broadly described by researchers as an asset embedded in the relationship of individuals, committees, networks or societies (Coleman, 1998).

Hence, human capital may be the most important and critical for competitive advantage because it is the most difficult to imitate (Denisi, *et al.*, 2003). However, human capital is more mobile than other intangible resources (Teece *et al.*, 1997) and therefore may seem an unlikely source of sustained competitive advantage. Yet the mobility of human capital is less a threat to competitive advantage than it would first seem to be because once an organization integrates human capital with other complementary resources and uses this integration to create organizational capabilities, losing one or a few individuals may not lead to a loss of competitive advantage. This means that it is not enough to acquire individuals who have skills, knowledge and abilities; it is also necessary to develop these abilities further and use them to develop structures, systems, procedures and reputation (organizational capital) that allows the organization to exploit the resources and gain competitive advantage (Denisi *et al.*, 2003).

This strategic tripartite concept of intellectual capital indicates that while it is individuals who generate, retain and use knowledge (human capital); this knowledge is enhanced by the social interactions and networks (social capital) to generate the institutionalized knowledge possessed by an organization (Armstrong, 2001). Acquiring and preserving sustainable competitive advantage and superior performance are a function of the resources and capabilities brought to the competition (Aaker, 1989; Barney, 1995). These knowledge resources and capabilities, resulting from learning processes implies an improvement in response capacity through a broader understanding of the environment (Dodgson, 1993; Sinkula, 1994).

Then, the knowledge-based view depicts firms as repositories of knowledge and competencies. According to this view, the organizational advantage of firms over markets arises from their superior capability in creating and transferring knowledge (Ghoshal and Morgan 1996). In this way, firms are able to improve their real and perceived market value. Therefore, accumulation of knowledge through learning constitutes a driving force in development and growth of firms, because acquisition of knowledge enhances the firms' ability to sustain a competitive position vis-à-vis its competitors (Spender and Grant, 1996). This added to the fact that the ability to learn faster than competitors may be the only sustainable competitive advantage (De Geus, 1988; Stata, 1989) makes organizational learning a competence that all organizations should develop in fast-changing and competitive environment (Senge, 1990; Nonaka, 1991; Garvin, 1998) that is being witnessed today in businesses. It argues that a firm can achieve above average performance over a long period of time if it pursues organizational learning strategies that lead competitive advantage and are too hard to imitate. Human, social and organizational capital (Intellectual capital) but of course with effective knowledge management systems to enhance the transfer of knowledge across the boundaries of individuals, departments, units and organizations lead to sustainable competitive advantage (John I. Njuguna, 2009). The model is represented in Figure 2:

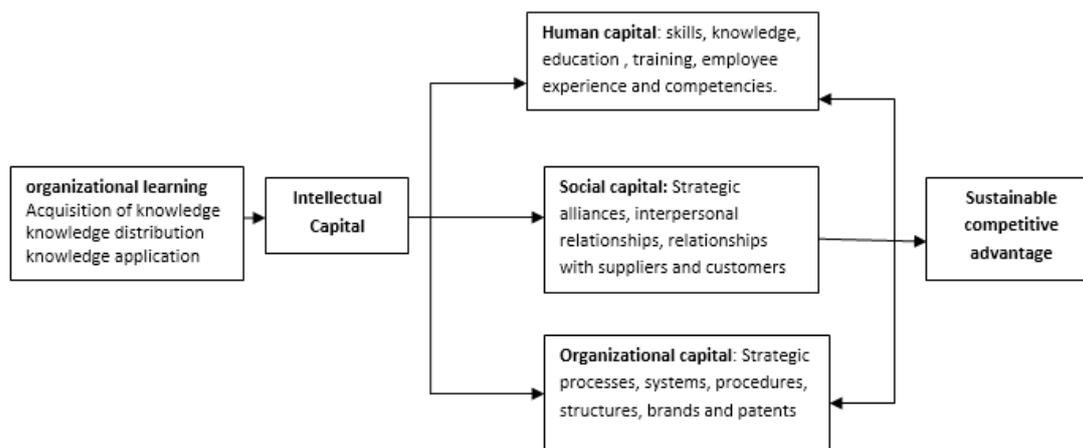


Figure 2

It is important to note hereby that the organizational learning is a strategic dynamic double loop process that does not happens only through time, but also through different levels or dimensions of the organization (O. Oyeniya, 2011). The dynamics is created through the tension between the organizational assimilation of new knowledge developed at individual level (feed-forward), and the use and individual exploration of organizational pre-existing knowledge (feedback). According to the authors (Crossan and Hulland, 2002) there are two organizational learning flows: feed-forward and feedback, corresponding to the two knowledge management strategies presented by March (1991), Exploration and Exploitation:

- **Feed-forward learning** flows correspond to the Exploration knowledge management strategy and it comprehends the individual learning effort to develop new applications, products or processes. This kind of learning involves individual acts of creation, experimentation and

innovation, having in perspective the use of future knowledge. This learning flow moves to the organizational level wide-spreads the individual contributions. Feed-forward - the transfer of knowledge from the individual to the organization - corresponds to the Exploration.

- **Feedback learning** flows correspond to the Exploitation knowledge management strategy and it comprehends all the organizational learning potential to refine pre-existing knowledge and reuse it, applying current collective knowledge. This learning flow moves from the organizational level to the individual level, wide-spreading the most efficient practices. Feedback consists in getting institutionalized learning back to the individuals that means it corresponds to the Exploitation.

Hence, there are important implications in balancing the tension between Exploration and Exploitation (Crossan, 2004). As the firm that manages well organizational learning is able to develop new and innovative ideas, as well as institutionalize and bring learning to the individuals and apply it in the organization.

4- Challenges facing the creation of learning organization at the Egyptian service sector.

The service sector is one of the three economic sectors; others include manufacturing sector and agriculture sector. According to Oyejide and Bankole (2001) the service sector has emerged as the dynamic sector whose importance has steadily reason in most economies since the 1990's and 2000's. The service sector has continued to represent 60% of Gross National Product (GNP) in most developed and developing countries -as Egypt- while having influence on other sectors. Whereby the demand for services is relatively income elastic, as the economy grows the consumption of services increases. The service sector is also important because it provides support services to other sectors; for instance, it provides the manufacturing sector with designs, transportation, financing and communication. The service sector is also known to provide the economy with the highest rate of employment which in turn results in growth and development of the economy. With the steady growth in this sector the level and intensity of competition also increases as companies strive to gain a larger share of the market. Appelbaum and Gallagher (2000) note that the recent shift away from manufacturing and towards service has created a sense of urgency for organizations to tap into their intangible resources- knowledge, skills and resources.

Egypt's economy is the second largest in the Arab world (after Saudi Arabia) and its economic sectors reflect its size. The service sector is by the far the largest and fastest-growing economic sector and accounts for almost 51 percent of GDP. Tourism, trade, banking, and shipping services on the Suez Canal constitute the main sources of service sector revenue. since 2011 and till now Both tourism and the Suez Canal were hit hard by political uprisings and terrorism challenges; which affect the economic climate in Egypt and make the foreign visitors as well as investors staying away from the country. The government has moved to aggressive promotion of domestic tourism to compensate for the loss of foreign tourism, and managed to restore more than 60 percent of the pre -2010 tourist traffic by late 2015 (Egypt government service portal). Meanwhile, the prospects of recovery in the Suez Canal sector, however, have been less promising, with growth in that area rather slow, despite government plans to revive it by digging the new branch of Suez canal and launching the newly economical development zone there. Therefore recently, the rank of Egypt is retreated at the competitiveness index to 119 among 144 countries (global Competitiveness Report 2014-2015).

Hence, the government must strive to convert their traditional non-learning organizations into learning organizations; able to create the effective knowledge sharing system. Such organizational learning process is necessary to engender the appropriate intellectual capital; leading to sustainable competitive advantage. Thus, firms working in the Egyptian service sector can be able to improve their real and perceived market value.

Unfortunately, there are many challenges that may impede the Egyptian attempt to create effective learning organizations to its service sector organizations; such challenges can be classified into internal and external challenges.

4.1 Internal challenges

Such type of challenges shed light on the discrepancies that may exist within the internal environment of the Egyptian organizations working at the service sector and can impede its transformation to learning organizations; such challenges can be controllable by the organizations management, they are as follows (Handousa, 2010; Omran,2013; Yassin, 1994) :

- Leadership does not set the example learning: The idea of organizational learning is not championed and lessons experience are not incorporated.
- Management is insular: Management is isolated from the rest of organization and the external environment.
- Management is arrogant, ignorant and complacent: Strong egos and previous success cause managers not to be willing to recognize or admit their mistakes.
- Poor top – down: Information is provided on a need-to-know basis, with little explanation.
- Not soliciting ideas: Management is unwilling to seek good ideas from employees.
- Lack of upward communication: Upward communication is ignored or channels are blocked, and management considers constructive criticism to be an insult to existing processes.
- lack of organizational culture supportive for learning and knowledge management adoption.
- Lack of empowerment to learn and change: Lower-level employees are not encouraged to experiment with new approaches or initiate change.
- Ineffective mental models: Management is not up to date with current realities and is unwilling new possibilities and try different approaches.
- Preoccupation with the short term bottom line: Management focuses on cutting costs to enhance current profitability rather taking the time to learn and invest in the future.
- Lack of holistic approach to change: Changes are either too few, too many, too late or not implemented well.
- Lack of communication about change: Management does not provide sufficient communication before, during, or after change.
- Fear and anxiety about change: Management’s fear of looking bad causes it not to ask for advice from others.
- Change in leadership: Turnover, rotation, restructuring and the general lack of continuity causes employees to resist change.
- Inadequate training: Top management does not provide sufficient time and funding for job-specific and advancement-related training.
- Inadequate system for knowledge acquisition and sharing: There is no common database to contribute, store, access and disseminate information.
- Unwillingness to use appropriate technology: Managers and employees do not embrace new technology, including capitalizing on the full value of the internet.
- Lack of multidirectional communication: Departments are not communicating with each other.
- Lack of performance measurement and accountability for poor performance: People who do exceptional work are not rewarded and those who do poor work continue doing poor work.

4.2 External challenges

Such type of challenges represent the external barriers that may affect negatively the transformation of the organizations working at the service sector in Egypt, such barriers exit in

the external environment surrounding the organizations, they are uncontrollable by the organization. In other words, such barriers had to be handled via outer actors as the government and other societal agencies. These barriers are as follows:

4.2.1 Lack of Political Foresight and Commitment

The foresight and commitment of political leadership work as driving forces to implement the learning organization model in the service sector. In Egypt, few political governments tried to reform the service organizations in order to establish the principles and elements of learning organization (Omran, 2013). The reasons include: a lack of knowledge about the learning organization and the organizational learning methodologies, the mentality of lengthening the power, the lack of commitment and the fact that political leadership has never been cordial in their attempt to revamp the running system of the non-learning organizations into learning organizations; able to adapt with the external environment and produce the appropriate intellectual capital, that yields the intended sustainable competitive advantage at the service sector market (Fawzy Henien, 2007; Khan, 1998).

4.2.2 Incapability of the Governments

The government needs capacity and concerted efforts to apply the learning organization model in the service sector through reforms. For decades, almost all governments in Egypt have miserably failed to demonstrate an extraordinary capacity to realize the recommendations of the reform committees regarding the necessity of the learning organization creation (Omran, 2015).

4.2.3 Corruption

Corruption is deeply rooted in all aspects of life in Egypt. The whole economical sector as well as the service sector has been plagued by both political and administrative corruption in a form of bribery, abuse of authority, nepotism, favoritism, patronage, theft, and deceit (Fadel, M., 2011). These phenomena have already emerged as a factor impeding the learning organization-style reforms in Egypt.

4.2.4 The retreat of society culture and awareness about knowledge importance

The values of learning and knowledge creation in the Egyptian society are almost faded. Thus, the societal organizations didn't advocate learning organization model to be adopted at the service sector realm; in spite of its importance in the sustainable competitive advantage creation (Egyptian Cabinet IDSC, 2011).

4.2.5 Deplorable information technology infrastructure

The information technology infrastructure in Egypt is still uncompleted. As Egypt began from several years an ambitious project to apply the e-government; but unfortunately such project is crippled by the red tapes, corruption, the shortage of technical and financial resources (Ola M. Khawaga, 2007).

5- The reforming pillars necessary to create effective learning organizations at the Egyptian service sector

Making the transformation to the learning organization, in the context of the aforementioned effectiveness requirements, is challenging as technology and management information systems may need to be upgraded, and employees must greatly improve their knowledge of learning organization (Egyptian Ministry of Planning, 2012). The process of becoming a learning organization requires the adoption of good governance indices -as participation, accountability, transparency, etc...- as well as the new service management principles (market oriented) by the organization. In short, the learning organization creation in

the Egyptian service sector requires the adoption of some important reforming pillars -as a prerequisite- to overcome the aforementioned challenges and barriers. In this context, it is important to differentiate between these reforming pillars, whereby some of them are internal related to the organization management approach and techniques, and others are external related to the progress of the external societal forces that surround the organization affecting its works.

5.1 The internal reforming pillars:

Such pillars are essential to transform non-learning organizations into learning organizations; able to share knowledge and to create the appropriate intellectual capital. Then, to engender the value stream which yields the sustainable competitive advantage in the service sector in Egypt. These reforming pillars had to be fulfilled in the first place by the management of the organization itself to overcome the aforementioned internal challenges. Such pillars tend to revamp the structures (restructuring), the activities and the procedures (reengineering) and the people (human resource approach) within the organization. On other words, they focus on the governance of the organization. The occurrence of such reforming pillars is essential to create the intended learning organization. Such pillars represent the motivator factors that yield learning organizations; they are as follows:

5.1.1 Managerial reform

The intended managerial reform key elements in Egypt must include various forms of decentralizing management, the creation of autonomous agencies and devolution of budgets and financial control, increasing use of markets and competition in the provision of services (e.g., contracting out and other market-type mechanisms), and increasing emphasis on performance, outputs, outcomes and customer orientation (Larbi, 1999). Thus, The traditional model of organization and delivery of services, based on the principles of bureaucratic hierarchy, planning, centralization, direct control and self-sufficiency, as in the case of Egypt, is being replaced by a market-based service management, or enterprise culture (Caiden, 2001). Conclusively, the key elements of Management reform to be applied in Egypt realizing the learning organization model had to be as follows (Pollitt, 1994) (Lynn, Laurence E., Jr., 1996) (Cyril Kirwan, 2013):

1. The necessity for leaders (at all organizational levels) to apply the strategic management methodology and to share their strategic visions (sharing leaders). This should result in better performance because activities can be directed more precisely towards the goals, but also because the more people that understand and share the vision, the greater will be the amount of learning.

2. A shift in the focus of management from inputs and processes towards outputs and outcomes, therefore, adopting the result based management is a must. Whereby an emphasis on measurement and quantification is essential, especially in the form of systems of 'performance indicators' and/or explicit 'standards'.

3. The creation of a learning structure that is flexible and adaptable to changes in the external environment . This structure should facilitate the creation, retention and transfer of practical knowledge that can be used within and across organizational boundaries. Then, the preference of lean/flat and autonomous organizational forms: decentralization (i.e. let the managers manage / the right of managing).

4. More frequent deployment of market-type mechanisms (MTMs) for the delivery of services (quasi-market solutions, compulsory competitive tendering).

5. Favoring contract-like relationships instead of hierarchical relationships.

6. Client and quality orientation; by generalize the E. government usage to all the kind of services to ensure a quick responsiveness to people needs and desires.

7. Applying lean thinking methodology to services management; by maintaining an effective value stream of value-added activities to satisfy citizens/clients needs in high quality, lower cost and minimum time.

8. Adopting an organizational culture espousing values as inquiry and dialogue necessary to create a learning climate in the organization, where personal mastery, self-development for everyone, education and training and continuous learning (primarily experiential) are embedded in the way the organization goes about its business. This type of climate also encourages experimentation, empowerment and dialogue and structures teams so that they work with and learn from each other. The strength of a learning climate will also be seen in psychological safety, in time given for reflection and in shared leadership and involvement.

9. The organization must provide strategic leadership for learning. Leaders have to model, champion and support learning, and must use learning strategically for business results.

10. Adjustment of staffing systems, training and human development sessions to enhance job effectiveness, efficiency and employees' satisfaction. So, the right person who is capable, and convinced to apply the learning organization principles and the organizational learning process; will fill into the right post.

11. Create an effective code of ethics that advocates the learning organization values and principles, in order to make the organizational culture supportive for learning organization adoption within the service sector organizations.

12. Managerial leaders' commitment to apply learning organization principles and the organizational learning strategic framework in the service sector will ease the implementation of organizational learning policies and procedures; and also will diminish the employees' resistance.

5.1.2 Partnership

In development co-operation, as service firms in Egypt, learning organization has to be built on mutually beneficial partnership relationships based on trust among the stakeholders involved in the learning intervention (Garvin & others, 2008). On other words, it is important to encourage collaboration and team learning. What this means for the organization is that work is designed to use groups to access different modes of thinking. Groups are expected to work and learn together, and collaboration is valued and rewarded.

5.1.3 Accountability

Determining accountability should take into consideration the nature of the partnerships in the learning intervention. Where strong partnerships are present, an organizational learning process starts with shared performance expectations, continues with shared management decision making and leads eventually to share accountability. There is a requirement to empower employees in the learning organization toward a collective vision. Individuals in this organization become involved in setting, owning and implementing this vision. Responsibility is distributed close to decision making so that people are motivated to learn toward what they are held accountable to do (Watkins & Marsick, 1993). Thus, It is essential to connect the organization to its environment. Individuals are helped to see the effect of their work on the entire enterprise. In doing this they scan the environment and use information to adjust work practices, and the organization is linked to its communities.

5.1.4 Transparency

Transparency is necessary to ensure the creation of information technology systems within the service organizations to capture and share learning. Both high- and low-information technology systems to share learning are created and integrated with work. Of particular importance is that access is provided to these systems, and that they are maintained. Then, the benefits of the learning organization principles are fully realized. Clarity is needed in defining the respective roles and responsibilities of partners for the learning intervention, and specifically the implementation of the organizational learning process (Peddler & others, 1991). Appropriate disclosure of the methodologies used to create and share knowledge is critical to create continuous learning opportunities. In learning organizations, learning is designed into

work so that people can learn on the job and opportunities are provided for ongoing education and growth.

5.2 External reforming pillars

Such pillars are important to ensure the propagation of the learning organization thinking in the society and to enhance its adoption as a managerial philosophy at the public and private organizations working in the service sector in Egypt. These reforming pillars had to be fulfilled in the first place via the government and other societal stakeholders -as the legislative authority and the various civil society organizations- to overcome the aforementioned external challenges. The occurrence of such reforming pillars help to create the intended learning organization; but it is not enough to be solely, it must incorporate with the other aforementioned internal reforming pillars. such pillars represent the hygiene system that enhance the creation of learning organizations; they are as follows:

5.2.1 Legislative and legal reforming:

Legislations must be issued to modify the law of service corporation in Egypt to encourage -via various economic incentives- the transformation of non-learning organization into learning organization; able to produce, disseminate and share the necessary knowledge to realize the sustainable competitive advantage. Moreover, it is essential to modify some laws to ease the adoption of the learning organization in the service sector as the Egyptian laws for budgeting, governmental accounting, financial and managerial auditing to become outcomes/results oriented instead of being processes/regulations oriented. Also, we had to modify the anticorruption and civil service laws, and also the employment laws in Egypt; to reconsider the current rewards, incentives, promotions and penalties systems to be based on results performance instead of rules/ regulations compliance. Finally, the current laws in Egypt had to be reviewed by legal experts committees; to avoid any legal contradictions that may impede the adoption of the suggested modifications on the aforementioned laws to the Egyptian socio economical, political and cultural environment.

5.2.2 The completion of the information technology infrastructure

The information technology infrastructure in Egypt had to be completed. Especially, the e.government matrix; whereby the government had to provide -for the achievement of such important project- the necessary technical and financial resources.

5.2.3 Societal cultural awareness and training:

Various training programs and media campaigns in Egypt had to be designed and executed to inform publics and employees about learning organization important role in the realization of development objectives and its constructive effects on the community. In order to avoid their potential resistance for learning organization model adoption at the service sector, and to make individuals and institutions aware about relevant organizational learning procedures (Moore, Mark, 1995). Hence, Different stakeholders in the Egyptian society such as families, media institutions, various governmental apparatus, religious and educational institutions, and civil society organizations must cooperate together and integrate their efforts. Then, they may be able to create the effective partnership necessary for the application of organizational learning strategic framework necessary to produce the suitable intellectual capital, yielding the intended sustainable competitive advantage (Goh, 1998).

5.2.4 Political commitment

The foresight and commitment of political leadership had to work as driving forces to build effective networks of partners in a good governance context; to implement effectively the learning organization model in the service sector realizing its sustainable competitive advantage; which is essential for the economical development of the society.

6- Conclusion

We note after the previous analysis that the service sector in Egypt need to be deregulated, transforming the traditional non-learning organization into a new learning organization is a must; to hold managers accountable for the creation and sharing of knowledge all over the organization, via an effective organizational process, to engender the appropriate intellectual capital; which can be a decisive tool to produce the necessary value stream; that may represent the organizational sustainable competitive advantage. This is a fundamental change: from non-learning organization in terms of traditional procedural compliance, to learning organization in terms of efficiency and results (effectiveness and cost effectiveness), whereby an effective organizational process takes place to make such organization adaptive with the surrounding organization and productive of a value stream knowledge; that yields the intended sustainable competitive advantage.

Accordingly, by analyzing the identified learning organization concepts and core perspectives, the effective learning organization requirements were as follows: a sense of shared vision had to be apparent in all the organizational levels to make use of learning opportunities that arise from the challenges it faces, The organizational structure had to be flexible and adaptable to changes in the external environment to facilitate the creation, retention and transfer of practical knowledge that can be used within and across organizational boundaries, the adoption of a learning climate where personal mastery, self-development for everyone, education and training and continuous learning (primarily experiential) are embedded to encourages experimentation, empowerment and dialogue and structures teams so that they work with and learn from each other, The importance to encourage collaboration and team learning where groups are expected to work and learn together, and collaboration is valued and rewarded, the creation of information technology systems to capture and share learning, It is essential to connect the organization to its environment. Individuals are helped to see the effect of their work on the entire enterprise.

Moreover, Six cycled steps constitute the organizational learning process strategic framework are suggested to be used in the Egyptian service sector. Such strategic framework will begin firstly with the definition of internal and external actors who create and consume knowledge (the learning community vision and mission). Secondly, the identification of the learning needs and the information that seems relevant to learning to the creation (generation) of new knowledge, or both in the context of the internal and external environment factors relative to the organization (learning strategic goals). Then, the third step is to maintain the exchange and diffusion of knowledge, either from the individual to the collective level or at the collective level itself by identifying the high value sources of knowledge (learning priorities and plans). The fourth step is The integration of knowledge into existing knowledge systems at a collective level, an individual level, or both, or into procedural rules of the organization (learning policies and programs). The fifth step, The transformation of the new knowledge into action and the reapplication of the knowledge into organizational routines (learning action plan). Finally, Align resources such as staffing, incentives and support to new knowledge capabilities creation to ensure its effectiveness; by monitoring and evaluating periodically the organizational learning process (learning evaluation and feedback).

Unfortunately, there are diverse challenges -as we aforementioned- to the creation of an effective learning organization at the Egyptian service sector. Such challenges can be classified into internal and external challenges. Consequently, in order to overcome such challenges it necessitates the adoption of various reforming pillars relying on good governance indices and market-oriented service management; such pillars can be classified into internal reforming pillars as: Managerial reform, partnership, accountability and transparency; and external reforming pillars as: legislative and legal reforming, societal cultural awareness and training and political commitment.

Finally, we conclude hereby that an organization's ability to learn and translate that learning into innovative action rapidly, is the ultimate competitive advantage. The learning organization is the structure that facilitates the abovementioned competitive advantage, it

empowers employees, it enriches and enhances the customer experience and collaboration with key business partners and ultimately boosts business performance. Organizational learning is considered as the suitable strategic process to develop knowledge resources and intellectual capital (human capital, social capital and organizational capital) that engender ongoing values; which in turn yield persistence superior performance; which lead to sustainable competitive advantage.

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A Framework for Implementing Knowledge Management in E-Government

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Abstract:

The adoption of e-government initiatives is faced by many challenges ranging from technical, legal and behavioral. This paper will explore the literature to see how the research community perceive the influence of knowledge management practices on the adoption and success of e-government. Such influence will revolve around the power gained/lost by public employees. The paper proposes two frameworks that depicts the overall perspective of the interaction of e-government environment and knowledge management practices and processes. The frameworks will provide a guide for researchers to help in utilizing knowledge management into public sector practices. A conceptual analysis of such environment will be explored and discussed.

Keywords: K-Government, E-government, knowledge, knowledge management, power, public employees, Framework

Introduction

The new applications in e-government contributed to the improvement of the level and cost of services provided to citizens and businesses. Such evolvement encouraged countries to deploy such applications and projects and try to advance the level of adoption by citizens and public employees. The adoption of e-government projects faces many challenges like the technology needed and infrastructure in the country, the adequacy of legal framework, and the behavioral issues facing such projects from citizens and employees perspective. It is vital for governments to utilize such systems and improve it take-up regardless of its influence on a specific category of stakeholders.

The requirements of e-government success necessitate the reengineering of some services and the standardization of its implementation. Based on that, the knowledge acquired by public employees is vital in the process of understanding its implementation success. Such knowledge resides within public employees administering it since decades, where they will resist surrendering such knowledge based on the resulting loss of their power. Research indicated that risk of sharing knowledge is a challenge for spreading new innovations (Saleh & Abu-Shanab, 2010). Such dilemma requires a conscious effort to encourage public servants to buy into such initiative (i.e. e-government) and share their knowledge related to their work and experience. Losing the power of knowledge is the major concern of public employees, where governments are facing some resistance in this regard.

This paper will try to explore the literature related to e-government and its requirements, and how its implementation risks the public employees' power. The second section in the literature will review the work related to knowledge management and how we can acquire such embedded knowledge and standardize it. Finally, the last section will explore the link between such knowledge issue and the adoption of e-government projects. Section 3 will describe the research methodology adopted. Section four will illustrate the data and the analysis process and discuss the results. Finally, section five will include our conclusions and future work proposed.

Literature Review

The adoption of e-government is faced by many obstacles that range from technical, legal to behavioral types. This limits its adoption and portrays the project to be a partial or total failure. Governments need to bridge all obstacles facing the project and among them the human adoption of such projects. Research in the area of e-government, where public employees are the sample, is rare. This study will try to explore such area and see if the resistance to e-government projects stems from public employees being overly protective with knowledge sharing. The following sections will introduce e-government concept, knowledge management concept, and the literature related to the obstacles among public employees towards sharing their knowledge to promote the e-government process.

E-government concepts

E-government is defined as the application of information and communication technology (ICT) and the Internet to offer digital services to citizens (World Bank, 2007; Bhatnagar, 2004), improve the existing traditional ones (Heeks, 2008), and empower citizens to a better participation in the democratic process (Yanqing, 2010). E-government is known for its contribution to the public sector's performance and the substantial improvement in service provision (Jahanshahi et al., 2011; Abu-Shanab, 2013).

The most commonly known models related to the parties involved in the transactions conducted through e-government portals are the following: 1) transactions between the government and citizens (called G2C), 2) transactions between the government and businesses (called G2B), and 3) transactions between the different constituents of government (called G2G) and even its employees (G2E). Such classification is similar to the one adopted by the e-commerce literature (Riad et al., 2010; Al-Naimat et al., 2012). A similar classification is adopted but for the mobile government environment (Mengistu et al., 2009; Bataineh et al., 2009; Deep & Sahoo, 2011).

The e-government concept was produced in the early 1990s and continued to evolve and expand to include services, democracy, and social development. The United Nations issues an e-government related report each two years, where their latest report indicated that most countries of the world had some type of existence on the web, and published information regarding their services (UNDESA, 2014). Still many countries lag in their progress in the last two stages (transaction and transformation). Such issue requests more research to understand the reasons behind such issue.

E-government success requests significant efforts in reengineering the process of completing a service. Digital services offered by government are characterized by being standard, short, authorized, and decentralized. The SPRINT methodology was utilized in e-government projects to understand the process changes needed in this context (SPRINT is Salford Process Reengineering Involving New Technology). Kawalek and Wastall (2005) used the SPRINT method in three cases of e-government, and concluded that public organizations prefer a less radical change process in their operations. The results of the previous research indicate that public employees would not easily accept the radical changes required by the reengineering process associated with e-government initiatives.

Another aspect of the reported literature is related to the corruption of public employees. Abu-Shanab (2013) reported in his book that reducing corruption is a major contribution of e-government projects. In another article, Abu-Shanab and his colleagues conducted a CFA utilizing 390 responses from Jordanian citizens regarding a list of 21 items related to the factors associated with corruption. Their results yielded three major dimensions: public performance efficiency, transparency, and citizens' satisfaction with public service (Abu-Shanab, Harb & Al-Zoubi, 2013). More research emphasize that the Internet would open doors for eliminating corruption (Lio et al., 2011), and e-government adoption will reduce corruption (Anderson, 2009). Other researchers proposed designing anti-corruption e-government systems (Kim et al., 2009) to reduce corruption and increase transparency.

The previously mentioned UN e-government evolutionary stages can be aligned with their key success focus areas. Figure 1 depicts our proposition in this regard. It is obvious that transparency is a major focus when dealing with public information. Public data and information can be shared with external parties (like citizens and businesses) free of charge and on public portals. Such perspective is not always respected by public employees, which causes some resistance to e-government projects. The resistance to change needs a strong leadership and support for such projects or they will be doomed by failure.

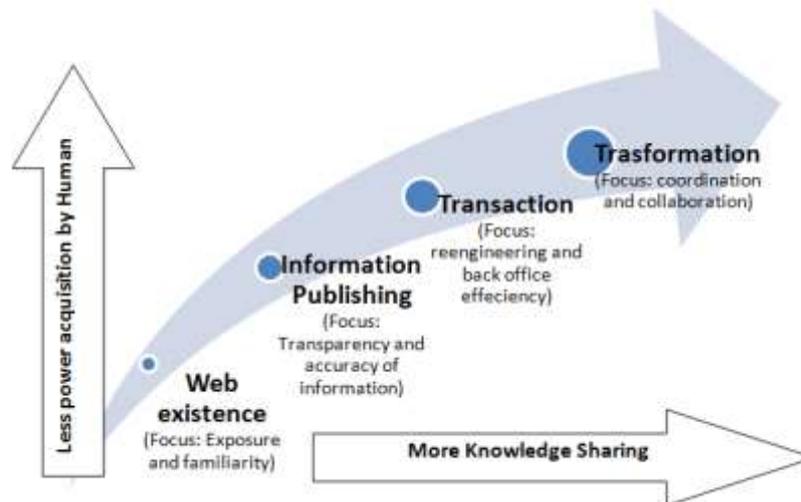


Figure 1: E-government focus evolutionary model

In conclusion, e-government projects are vital national projects that support the development of an open channel for service provision and social development. E-government can be considered as the corner stone of reaching citizens and satisfying their service requirements. Such projects require significant changes in the way governments and their employees work, thus facing some resistance from public employees. One of the shapes of resistance can be in the form of resisting knowledge sharing among e-government champions and experts or public employees. The following section will introduce knowledge management and its processes and dimensions.

Knowledge and its resources

Different types of contemporary organizations are facing a surge of transitions and accelerating changes sweeping today's world, on top of informatics and technical evolution. This evolution relies on advanced scientific knowledge and the best use of information flow resulting from the big developments in the information and communications technology (ICT) in the world and Internet applications. As a result of these transitions, knowledge has become one of the most significant strategic sources; moreover, it has become the strongest, most influential, and dominating factor in an organization's success or failure (Schwandt & Marquardt, 2000).

The other concept of knowledge is its holistic view. Through the components underlying the phenomenon, this context is defined by Sowa as "the possession and inventory determinants implicit and tacit (phenomenon) on the subject or specific operations, and the relationships to their own procedures for positions that are dealt with" (Turban & Aronson, 1998, p. 202). With any knowledge that reflects the experience and underlying expertise (implicit) of ideas, selves, values, and estimates associated with people, the dynamics can be achieved by the completion of interdependence and communication systems and relationships with the phenomenon.

According to Probst et al.'s view (2001, p. 7), the concept of knowledge "includes, in addition to the reports and memoranda, the experiences of workers, their skills and the result outcomes from assembled in groups and teams integrated". Knowledge, according to this concept, is a mix of tangible objects, such as reports and memos, and other intangibles that lie

in the individual's skills and experiences. Perhaps the most important characteristic of this concept is referring to the added value that represents knowledge, which produces a compilation of individuals in groups and integrated teams. More comprehensively, knowledge is defined as "every piece of information, tacit or explicit, that can be recalled by individuals to accomplish their tasks perfectly or make right decisions" (Kubaisi, 2002, p. 48). However, there are many other objectives that seek achievement through knowledge, such as providing advisory services to others, and improve the decision making quality (Khasawneh & Abu-Shanab, 2013).

In the view of certain management theories, the most important aspects of knowledge related to physical and financial assets is when the knowledge becomes central and strategically located. Such situation makes organizational success depends on its ability to collect, produce, and sustain the continuation of the information that represents the anchor of knowledge. Accordingly, the main advantage of knowledge is its ability to assist management to overcome all the difficulties they face and to overcome constraints. In addition, an advantage is its substantial role in the proper functioning of the organization.

Knowledge resources are known to be the objects from where knowledge emerges or where knowledge is contained or gathered. Intelligence, learning, and experience define the knowledge limits of individuals (Saffady, 2000). It can be obtained from books, movies, databases, images, maps, flow charts, novels, or even observation of behavior. These resources could be divided into two types: documented and undocumented. Undocumented knowledge is thoughts in the minds of individuals. There are several methods in which knowledge is acquired, including extensive team work, phone and other communication means, e-mails, publishing legal documents, or communication through the Internet (Hislop et al., 2000, p. 6).

Knowledge is classified according to its humanitarian perspective into two main types: tacit knowledge and explicit knowledge. It is generally accepted that literature supports both types (Nanoka & Takeuchi, 1995; Duffy, 2000; Daft, 2006; Heisig, 2001). Explicit knowledge is the knowledge individuals can share. It includes all the data and information that could be obtained and stored. Examples include stored data and information related to policies, procedures, programs, budgets, and documents related to the system, in addition to the basis of correction, operation, and communication and its standards and various functional operations (Hijazi, 2005, p. 66). The second type of knowledge, tacit knowledge, is often stored in the minds of individuals. It is obtained from accumulated past experiences; in most cases it will have a personal impression, which makes it difficult to acquire, as it is stored inside the mind of the knowledge owner.

Knowledge management

The field of knowledge management (KM) is relatively new, particularly at the application level. It has been recognized only in the past few years, and afterwards some standards as well as a growing awareness of the benefits have been realized from its application. At the end of the twentieth century, attention was drawn to this subject because at the time the components involved in the management of knowledge needed to re-adjust the value that would be utilized in the market to meet the needs of the customer in the face of rapid changes taking place. The need to manage knowledge emerged because of the increasing growth and necessity to diagnose the flexibility of organizational structures, which could not cope with rapid change in the market (Soo et al., 2002, p. 1). Perhaps the increasing use of ICT led to the evolution of available information, which is one of the reasons that stimulated the emergence of KM. It was not a challenge limited to finding information on an order or a specific project, but how to search through the information available to find the most useful information for a particular purpose. Another method is the ability of the growing information and communications technology that have assisted additional processing and retrieval methods to obtain the information on storage, which is necessary to the user.

The concept of KM is considered a modern concept in management science. It has gained increased interest in the last two decades that has led to the emergence of many definitions for the concept, which vary depending on the specialties of the researchers and various

perspectives. To understand and define KM, there are three basic portals; the following is a description of each (Malhotra, 2001, p. 232-249):

The **Informational Portal** includes data processing and the management of information flow activities, database development, and documenting business activities in an organization.

The **Technical Portal** is concerned with building and developing KM systems based on information technology systems, such as data mining, data warehousing, expert systems, analytical processing systems, instant information systems based on the Web, and others.

The **Cultural Portal** is concerned with behavioral or intellectual dimensions of KM through handling the fields of collective learning, lifelong learning, and building learning-oriented organizations.

In all these portals, KM seeks to provide administrative solutions through investing in knowledge resources, building memory for knowledge, and focusing on knowledge exchange and participation through a systematic methodological portal.

Shehabat et al (2009) write that treating organizational knowledge as a valuable strategic asset is popular and emphasize the importance of effectively create, locate, capture and share organizational knowledge to remain competitive.

Knowledge management and e-government

Like any other organization, public sector organizations have their political process, where employees try to acquire power through diverse practices. This paper focus is on the KM dimension and its influence on power distribution in public sector. The knowledge residing within employees or public sector experts is an asset that gives them the needed power to retain their jobs, get promoted and practice and gain self-interest. In this section, we will try to see the literature related to knowledge management and e-government in an attempt to map this relationship and see the type of challenges facing knowledge sharing and the factors interacting in this domain.

Regardless of our perspective adopted in this research, service provision in e-government domain is characterized by being volatile and requires governments to readjust frequently (Heck & Rogger, 2003). The authors assert that such situation cannot be accommodated except if knowledge management systems are adopted. Zhou and Gao (2007) tried to focus on KM and its relationship to e-government environment. They based their work on a three subsystems model: knowledge collection, knowledge organization, and knowledge application. Their conceptual propositions regarding the Chinese environment concluded that the success of e-government projects will depend on the ability of their knowledge management practices. Another research analyzed the e-government environment and proposed an ontology that would avoid the ambiguity of terms and definitions. The authors emphasized the role of knowledge unit in e-government (or smart government environment (Fraser et al., 2003)).

The major dimensions, proposed by Salleh et al. (2009) to explore how KM can contribute to e-government domain in Malaysia, were classified into two major categories: human and technical infrastructure. The first included face to face meetings and paper documentation. The second dimension included intranet, Internet access, and groupware facilities. The authors also concluded that a KM strategy will help Malaysia realize the benefits of k-economy. Their results asserted the role of communication methods and people's knowledge.

In an attempt to explore the factors influencing the knowledge sharing process within e-government, an empirical study utilized a questionnaire sent to employees in five South Korean agencies (Kim & Lee, 2004). The study considered the following major dimensions (with their sub-dimensions): Culture (visions and goals, trust, and social networks), structure (centralization, formalization, and performance-based reward system), and information technology (infrastructure and application, and end-user focus). The results indicated the significance of social networks, performance-based reward system, infrastructure and application, and years of work. Our proposition in this study can distill its premise from the relationship of trust and social network in the cultural context. The second issue the reward

system, which emphasizes the role of motivation and power emphasis. The results of the empirical system emphasized the influence of reward system, social network, years of work, and infrastructure of KM.

Extending the previously mentioned issues influencing the knowledge sharing capabilities in e-government context, employees need more support and a well-structured plan for learning and awareness. In a study that utilized responses from 1100 public employees in the USA, the researchers concluded that leadership efforts are needed to support employee's learning and innovation, and ensure that the organizational functional capabilities are well evaluated continuously (Ryan et al., 2012). The authors also concluded that ICT is important for leadership to facilitate KM processes in an e-government context e-government context.

The previous studies emphasized the role of human factors in adopting knowledge practices in e-government context. Still, the previously reviewed papers were focused on two major directions: first, the importance of knowledge management practices for the success of e-government. The second issue is the importance of human factors in the success of knowledge management practices and specifically knowledge sharing (human factors like training, leadership, reward system, awareness, culture..etc). Based on this the relationship between knowledge sharing and human factors is not empirically tested and need to be understood better in an e-government context.

Managing the knowledge in the public sector is considered a challenging task, as governmental departments actually create, capture, organize, and manage huge knowledge resources. The pressures related to the effective implementation of knowledge on government and governance are related to the following factors: The way it manages and uses the knowledge resources, and how the effective use of knowledge assets may affect decentralization, policy development, service delivery and other good governance practices.

While little literature is reported in relation to public sector and even less to e-government, most literature on KM has been addressing issues, challenges, and opportunities for the private sector. As an emerging practice, e-government aims at realizing the processes and structures for utilizing the capabilities of information and communication technologies at different levels of government and public sector for the purpose of enhancing governance. The key issues in this transformation are based on adopting and going toward interoperable standards, developing appropriate business models, creating legal and policy frameworks that will encourage integration and governance arrangements that support both departmental responsibilities and cross-enterprise approaches and responsibilities.

On the other hand, the private sector organizations and enterprises adopted new management philosophies for their survival and for gaining competitive advantage. Governments often follow the lead of the private sector institutions. Historically, research indicated that most of management philosophies were first implemented in large companies of the private sector; once proven to be successful in the field, they were adopted in other sectors. Total quality management (TQM), business process reengineering (BPR), and enterprise resource planning (ERP) are good examples. Now it is the right time for knowledge management (KM). Governments now are realizing the importance of KM to their service delivery to the public and policy making, and some of their departments are giving high priority to put KM on their agenda (Metaxiotis, 2009).

Governments and public administrations are knowledge-intensive organizations. They employ a very high percentage of specialized staff and professionals who manage important knowledge domains. This is the case in different ministerial departments and in the judiciary and regulatory agencies. A lot of public organizations are considered "intelligence organizations" where human actors are involved in the process of information gathering, storing and analyzing to produce information output for further use. It is important to ask the question: "How does public administration know what it knows?" it becomes clear that even though there is indeed a lot of knowledge in organizations, it is not necessarily available anywhere, anytime and for anybody.

Designing and implementing a KM framework for the application in e-government is an important and challenging task. It requires a huge coordination effort from many agencies, departments, and policy makers. In addition to preparing the needed technology, governments

must pay attention to the supporting soft infrastructure (i.e. the laws, rules, and regulations that must be changed) in order to facilitate the development of both the new infrastructure and information and knowledge services. While most of the previous research studies have investigated the possible application of KM in the public sector, few have focused on the application of KM in e-government.

Conclusions and Future Work

This study aimed at proposing a model that depicts the interactions in the area of e-government when utilizing knowledge management processes and practices. The focal point of this framework model is to show the important role of information technologies in managing public knowledge resources. The major objective of this process is to facilitate both the knowledge developers and the stakeholders to improve the quality of e-government services and create a public value that leads to the success of e-government. The following framework shown in Figure 2 is our proposition.

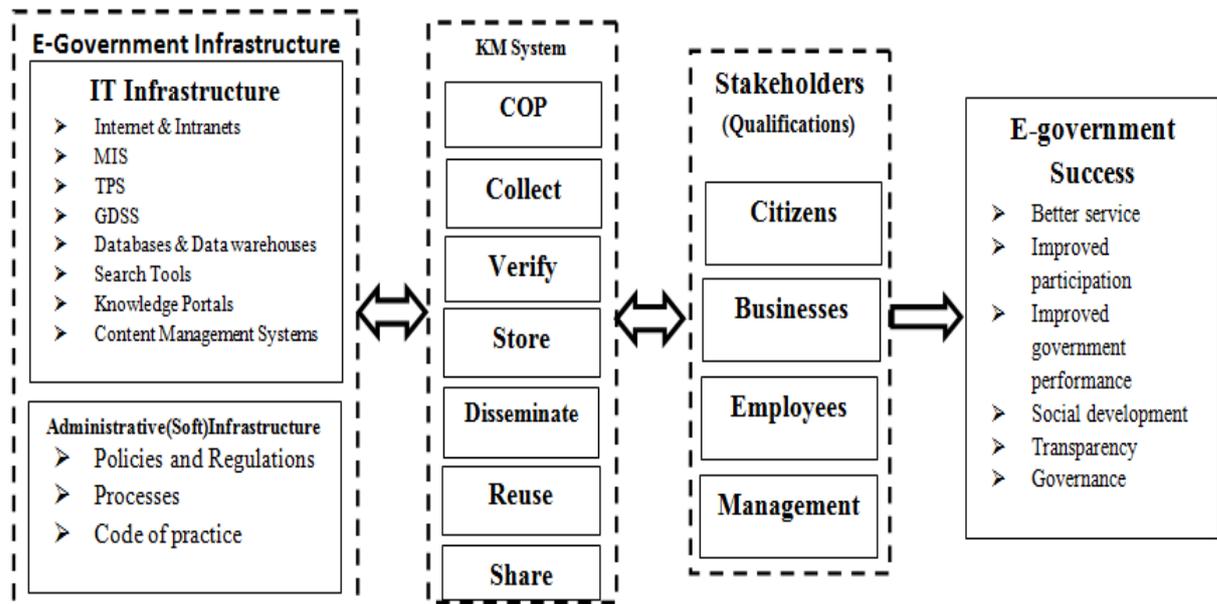


Figure 2. Knowledge management – E-Government framework

Both e-government and knowledge management systems depend on hard and soft infrastructure. Hard infrastructure is the know architecture of hardware and software need to run such systems. The types of systems needed for the success of information systems are transaction processing systems (TPS), management information systems (MIS), group decision support systems (GDSS), databases and data warehouses, search tools, knowledge portals, and content management systems. The other side of the coin, is the soft infrastructure, where policies and regulations, processes and code of practice are the major components need for the success of both KM and e-government initiatives.

It is vital for governments to utilize the practices of knowledge management to succeed in offering their services effectively. We need to realize (as mentioned previously) that e-government success depends on many dimensions other than service. One of these dimensions is improving government performance. Knowledge management practices enrich such success and improve public performance based on the following set of practices: establishing and encouraging communities of practice (COP), collecting, verifying, storing, disseminating, reusing, and sharing knowledge. Such set of practices will transform governments into knowledge governments (K-government). The best utilization of ICT and the Internet to entrench KM practices will not discard the concept of “e” government, but strengthen it with “k” government image.

The previous process (KM practices vs. infrastructure) will not be enabled without the adoption of the four major stakeholders in this environment: citizens, businesses, employees, and management. The four categories are equally important in the success of e-government. Such success is crowned by more than one direction. The following are the major ones: better service, improved participation, improved government performance, social development, transparency, and good governance.

The previous framework is a comprehensive depiction of the reality of utilizing KM practices in e-government domain. The notion of k-government is becoming a reality as public institutions are transforming into knowledge entities. The future will carry more than e-government, it will portray a k-government revolution, where all stakeholders are partners in the best offerings of public sector.

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INFORMATIZATION OF THE CONTROLLED FROM DISTANCE DIAGNOSTICATING OF THE STATE OF THE COMPLEX TECHNICAL SYSTEMS

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Abstract:

To the article the results of development and informatization of method of remote monitoring, diagnosticians of the complex technical systems set on courts, are driven. The analysis of the used methods of monitoring, diagnostics of the technical systems is conducted. The method of remote monitoring diagnostics, being base on expert analysis of the state of the complex technical systems, is described. Results over of development of unclear model are brought for diagnosticating of the complex technical system, and also results of her research. Application of the worked out method and his informatization allow to estimate the capacity of the complex technical system under various conditions and modes of her exploitation, and also to forecast the state of the system.

Keywords: Complex technical system, monitoring, diagnostics, forecasting, expert analysis, fuzzy mode.

I. Introduction

Maritime security is related to the provision of health, and hence reliability of marine complex technical systems (CTS). As a result, variable modes and operating conditions CTS their performance is reduced, increasing the likelihood of system failure (Logan K.P.,2007; ABB Marine, 2006.). The transition to ensure the operational reliability of process equipment for its "actual state" makes it necessary to take measures to prevent and detect the causes of failures CTS mandatory establishment of systems of technical monitoring and diagnosis of their condition.

Evaluation of the equipment directly to the vessel is carried out based on measurements and analysis of diagnostic parameters CTS, the number of which, as well as their interconnections is large. The solution lies in the use of information systems for remote monitoring and diagnostics (RMD) status CTS. Thus it is possible to take into account the diagnostic features of different nature, getting solutions under conditions of incomplete, fuzzy information.

Currently, designed and operated RMD information systems, based on different methods of monitoring, diagnosing the state of the CTS (Andersen A.B., 2011; Asgeir J. Sørensen, 2013; Andersen T.M, Rasmussen M., 2011; Lauvdal T., Sørensen A J., 2000; Calabrese F., Corallo A., 2012). The complexity of technical systems, a variety of operating conditions require revision of existing concepts of building systems and finding new RMD. Information used for diagnosis in most cases is vague. For the development of diagnostic methods in recent years, CTS established the feasibility of the mathematical apparatus of fuzzy logic to determine the criteria for assessing the condition of the equipment and diagnostic decisions. This method is based on a combination of traditional means of operational control with expert systems built

with the use of fuzzy logic methods (Abraham A. 2005; Zadeh L.A., 1965; Schneider M., Langholz G., 1996). Although automation technical inspection of CTS there for a long time, now is not yet created such a system RMD, which would comprehensively assess the current state of the ship CTS, provides early detection of defects and to predict the development process. Current diagnostic methods are based on mathematical models that can display only part of the properties and modes of ship CTS. Lack of scientific methods to solve problems of creation of systems of RMD based on information technology, explains the reason for the fact that the maritime complex in the percentage of successful implementations of such systems is very low. Despite the diversity of existing methods of RMD, they need to be further developed for ship CTS. Thus, the solution to ensure the operational reliability of ship CTS on their "actual state" creation and implementation of an expert system using fuzzy logic is overdue. From the solution of the problem depends on the performance of the diagnostic centers distant from the CTS in extreme operating conditions.

2. Problem formulation and backstepping transformation

The aim of the article is to provide a fuzzy expert system monitoring and diagnostics of the ship CTS for the qualitative assessment of their condition.

An algorithm for constructing the information system allows you to organize RMD CTS method of diagnostics division of the development process to logically the completed stages. Dynamics of changes in the expert system CTS displayed when specifying sets of linguistic variables, thermo-sets, fuzzy variables, basic sets, membership functions, the database in the task of fuzzy criteria and fuzzy relationship.

Input data:

1. The non-linguistic (accurate) variables: $x_1; x_2; x_3$. $\{x_1, x_2, x_3\} \in X$ - the set of non-linguistic variables. Non-linguistic variables are defined as the performance of CTS, which, using the output of Sugeno is determined by performance of the system.
2. The linguistic variables: $y_1; y_2; y_3$ - integrated criterion of quality, built on the basis of desirability functions Harrington. $D = y_3$ - linguistic variables. $\{y_1, y_2, y_3\} \in Y$ - set of linguistic variables. The value of each of the linguistic parameters of diagnostic y_u , which tasks can be any number, translated into the corresponding desirability d_u

$$d_u = \exp[-\exp(-y_u)] \quad (1)$$

The values of linguistic variables determined by the conclusion Mamdani. Desirability function D - the geometric mean desirabilities individual valuation parameters: $D = \sqrt[q]{y_1 \cdot y_2 \cdot y_3}$ where q - the number of parameters diagnosis. All parameters, both linguistic and non-linguistic, obtained by dynamic monitoring of CTS.

Output data:

Q - system availability. $Q \in [0,100]$

Health model CTS is a functional map of the form

$$X = (x_1, x_2, x_3) \cap Y = (y_1, y_2, y_3) \rightarrow Q \in [0,100] \quad (2)$$

Fuzzy sets

$$\mu(X) \cap \mu(Y) = \mu_{\tilde{A} \rightarrow B}(Q), \quad (3)$$

where \tilde{A} - fuzzy set, B - a clear set of

In developing the knowledge base of an expert system used results indexing converted into three ranges of parameter values, respectively, for the three linguistic variables: low (L), medium (M) and high (H) shown in Table 1.

Table 1. The values in the range of linguistic variables

Linguistic variable	The value of the parameters		
	low	medium	high
y_1	$[a_1 \dots b_1]$	$[b_1 \dots c_1]$	$[c_1 \dots d_1]$
y_2	$[a_2 \dots b_2]$	$[b_2 \dots c_2]$	$[c_2 \dots d_2]$
y_3	$[a_3 \dots b_3]$	$[b_3 \dots c_3]$	$[c_3 \dots d_3]$

In Table 1, a_1-a_4 , b_1-b_4 , c_1-c_4 , d_1-d_4 , - boundary values of linguistic variables. The values of the factors are expressed as deviations from averages for similar CTS. In the simulation, the integrated influencing factors using fuzzy expert knowledge Mamdani type (Mamdani E.H., Assilian S., 1975). Elements of the antecedents of fuzzy rules based on the experience of experts linked the logical operation "AND", are presented in Table 2.

The efficiency of the ship CTS studied considering three types of indicators of linguistic variables. The boundaries of subdomains with constant elasticity of health - fuzzy, due to the smooth transition of one type figures in the other. Proposed fuzzy Sugeno knowledge base for modeling the competitiveness of the CTS (Takagi T., Sugeno M., 1985). Each rule knowledge base models the one type. The coefficients in the conclusions of the rules set by the sensitivity of the competitiveness of the relevant factors. Each element of the set has its own degree of membership the higher the degree of membership, the greater the probability that the value is normal. Membership functions or information for their construction are given by experts on the basis of subjective preferences and do not have a random character.

Table 2. Fuzzy knowledge base for the linguistic variables

y_1	y_2	y_3	Y
H	H	H	H
H	H	M	H
H	M	H	H
H	M	M	H
M	H	H	H
L	L	L	L
L	L	M	L
L	M	L	L
L	M	M	L
M	L	L	L
H	L	M	M
H	M	L	M
L	H	M	M
L	M	H	M
M	H	L	M
M	L	B	M
M	M	M	M

By linguistic and linguistic variables, it carried out a general analysis on the findings of experts. Odds experts selected by the method of paired comparisons Saaty, the results of which (in general) for the first non-linguistic variable x_1 in Table. 3.

Table 3. Results of pairwise comparisons of experts for the first non-linguistic variable x_1

	H	M	L
H	1/1	f/1	g/1
M	1/f	1/1	f/1
L	1/g	1/f	1/1

In Table 3, f - ratio H and to M , g - the ratio H to L to the first non-linguistic variable. Operations on fractions for the first non-linguistic variables are given in Table 4.

Table 4. Actions over the fractions of the first linguistic variable x_1

	H	M	L	Σ_{x1}	Ratio
H	1	f	g	$\Sigma_{x11}=1+f+g$	Σ_{x11}/Σ_{x1}
M	1/f	1	f	$\Sigma_{x12}=1/f+1+f$	Σ_{x12}/Σ_{x1}

L	1/g	1/f	1	$\Sigma_{x13}=1/g+1/f+1$	Σ_{x13}/Σ_{x1}
				$\Sigma_{x1}=\Sigma_{x11}+\Sigma_{x12}+\Sigma_{x13}$	Σ_{x1}/Σ_{x1}

Table 4 Σ_{x11} - row sums for the value of H, Σ_{x12} - row sums for the values of M, Σ_{x13} - row sums for the values of L, Σ_{x1} - the total amount of row sums of the first non-linguistic variable. Similar calculations are made for non-linguistic variables x_2, x_3 , respectively. Weight generalized linguistic variable for different values are given in Table 5.

Table 5. Weights generalized linguistic variable for different values

	x_1	x_2	x_3	Σ	Average
H	Σ_{x11}/Σ_{x1}	Σ_{x21}/Σ_{x2}	Σ_{x31}/Σ_{x3}	$\Sigma_B = \Sigma_{x11}/\Sigma_{x1} + \Sigma_{x21}/\Sigma_{x2} + \Sigma_{x31}/\Sigma_{x3}$	Σ_B/Σ
M	Σ_{x12}/Σ_{x1}	Σ_{x22}/Σ_{x2}	Σ_{x32}/Σ_{x3}	$\Sigma_C = \Sigma_{x12}/\Sigma_{x1} + \Sigma_{x22}/\Sigma_{x2} + \Sigma_{x32}/\Sigma_{x3}$	Σ_C/Σ
L	Σ_{x13}/Σ_{x1}	Σ_{x23}/Σ_{x2}	Σ_{x33}/Σ_{x3}	$\Sigma_H = \Sigma_{x13}/\Sigma_{x1} + \Sigma_{x23}/\Sigma_{x2} + \Sigma_{x33}/\Sigma_{x3}$	Σ_H/Σ
				$\Sigma = \Sigma_B + \Sigma_C + \Sigma_H$	Σ/Σ

Table 5 Σ_{x21} - row sums for the value of H, Σ_{x22} - row sums for the values of M, Σ_{x23} - row sums for the values of L, Σ_{x2} - the total amount of the second row sums non-linguistic variable; Σ_{x31} - row sums for the value in H, Σ_{x32} - row sums for the values of M, Σ_{x33} - row sums for the values of L, Σ_{x3} - the total amount of the third row sums non-linguistic variable; Σ_H - row sums for the value of H, Σ_M - row sums for the value of M, Σ_L - row sums for the value of L, Σ - total lowercase all values for all variables. The coefficients obtained by the method of peer review Saaty pairwise comparisons (Saaty Thomas L., 2008), which is built on the basis of fuzzy knowledge base (Table 6).

Table 6. Fuzzy knowledge base to assess performance

x_1	x_2	x_3	Y	Q
x_1	x_2	x_3	H	$\Sigma_{x11}/\Sigma_{x1} * x_1 + \Sigma_{x21}/\Sigma_{x2} * x_2 + \Sigma_{x31}/\Sigma_{x3} * x_3 + \Sigma_B/\Sigma * Y$
x_1	x_2	x_3	M	$\Sigma_{x12}/\Sigma_{x1} * x_1 + \Sigma_{x22}/\Sigma_{x2} * x_2 + \Sigma_{x32}/\Sigma_{x3} * x_3 + \Sigma_C/\Sigma * Y$
x_1	x_2	x_3	L	$\Sigma_{x13}/\Sigma_{x1} * x_1 + \Sigma_{x23}/\Sigma_{x2} * x_2 + \Sigma_{x33}/\Sigma_{x3} * x_3 + \Sigma_H/\Sigma * Y$

3. Simulation results

Fuzzy expert system model is implemented in Matlab two systems fuzzy output: fuzzy system modeling overall evaluation of linguistic- $q_y.fis$ variables (Y); fuzzy prediction system performance (Q).- $q_q.fis$.

Diagnosis is done function *diagn.m*. result prediction system health;-The function can return two output arguments: the first argument second argument overall evaluation of linguistic variables.- The function is called with 6 input arguments that define the values of the factors $x_1, x_2, x_3, y_1, y_2, y_3$. The values of the factors y_1, y_2, y_3 can be defined as the number and terms, "L" - low; "BA" - below average; "A" - average; "AA" - above average; "H" - high. For the inference in the fuzzy input function is used *qgaussmf*, modified from a Gaussian membership function *gaussmf*. Calculation of membership of fuzzy set of fuzzy sets to another function

performed *qual_inp_gauss*. The logical conclusion is through the function *evalfis_wv*, which functions similar *evalfis*, but did not issue a warning when using fuzzy input. In developing the expert system module for identifying faults on an example of marine boilers. The input parameters are the pressure of the steam, the water level in the boiler, the fuel pressure and the temperature of the discharged steam. Output parameters - efficiency boiler (low performance, average performance, high availability). For each parameter in numeric terms (for Sugeno): low (1 to 6), medium (7 to 19) and high (20 to 100). Rules generated fuzzy system output values for overall assessment of linguistic variable *Y* is shown in Figure 1, and for the value of the *Q* system performance are shown in Figure 2. Visualization of the corresponding surface of the fuzzy output values for the system performance *Q* on Figure 3. The surface of the fuzzy inference allows you to set the values of efficiency dependence on the values of the input variables of fuzzy control system object model by fixing the remaining variables on the main level. This dependence can be the basis for programming the controller or the hardware implementation of the corresponding fuzzy control algorithm in the form of the corresponding decision table.

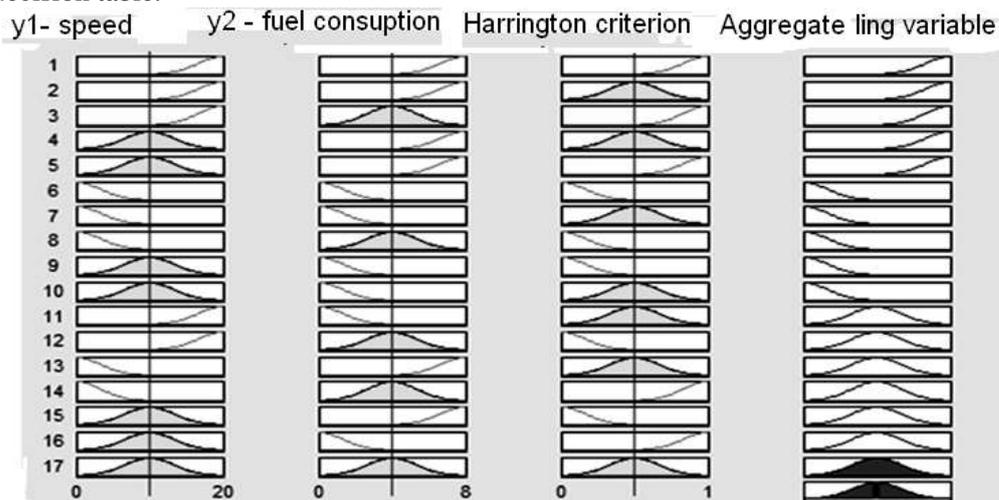


Figure 1 – Rules generated fuzzy system output values for overall evaluation of linguistic variables *Y*

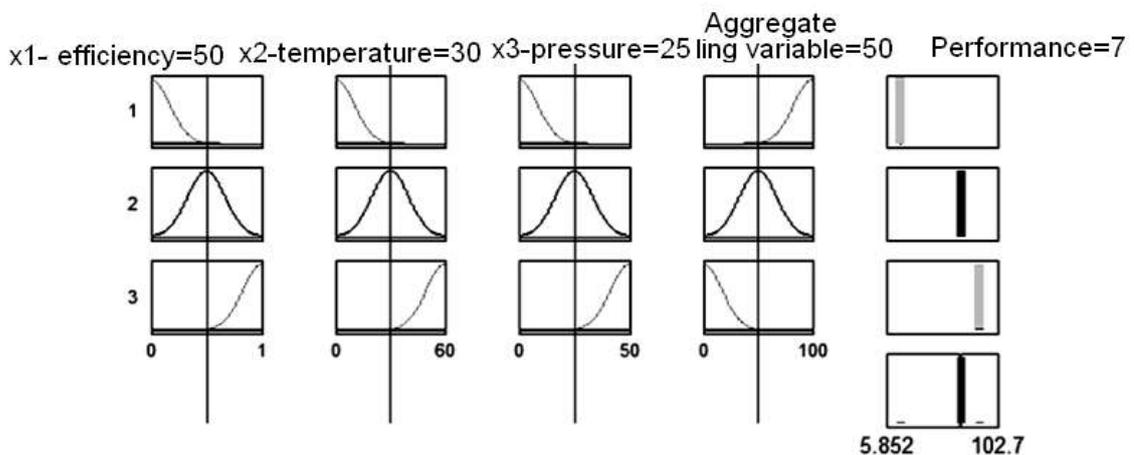


Figure 2 – Rules generated fuzzy system output values for the *Q* system performance. At the final stage, the construction of the circuit block model among interactive simulation of Simulink. As components of the system controllers are used. The inputs, which are the parameters of the working process and characteristics (age, time of operation) of the respective component. The solution may be a residual life of the component or the amount of impact on resource

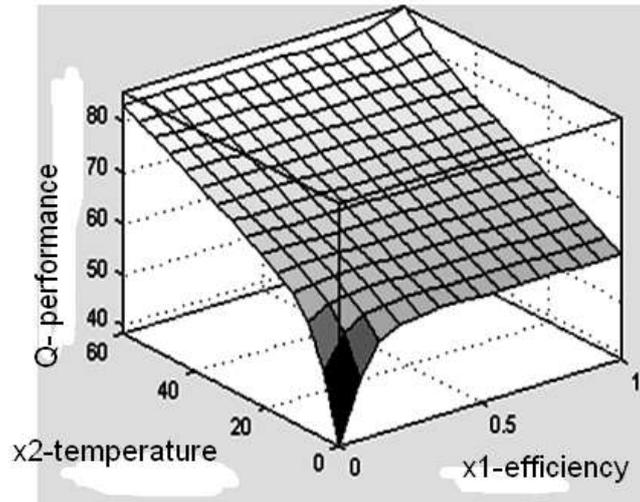


Figure 3 – Visualization of the corresponding surface of the fuzzy output values to the Q system performance

Figure 4 shows a possible embodiment of the layout of such a scheme with four input variables t (temperature), efficiency, T and P , three levels of fuzzy inference, the differential assessment of the variable P and integrated assessment of the output of the second level Q_{sl} . Based on the values of the variables t , efficiency is determined by the current value of the variable Q , which is specified based on the value T . Variable P - the value of the life of the equipment under test, differential assessments that complement the missing values are average values of the variable and reset Q_{sl} integrated assessment to 0 in case of replacement equipment. The last level determines the final conclusion on the state of the equipment, depending on the storage (integrated assessment) Q_{sl} values and service life of the equipment.

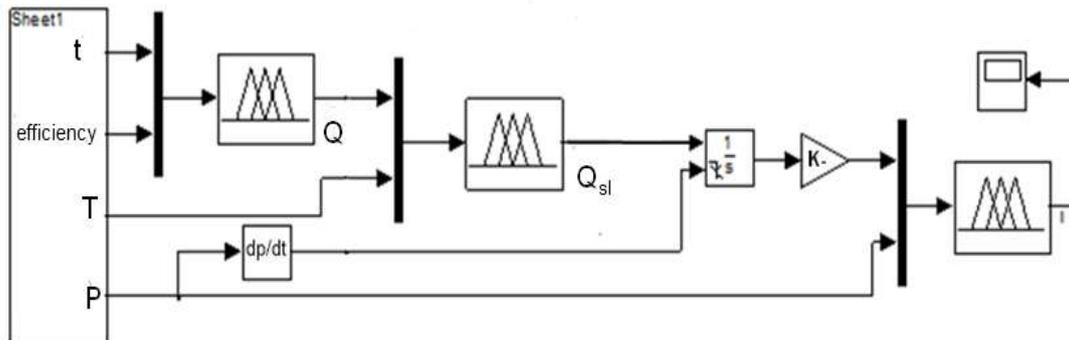


Figure 4 – An example of an expert system built environment Matlab Simulink

Based on the data obtained at various criteria, availability depends on the CTS not linguistic values of variables and values of linguistic variables and may vary dramatically as the upward and downward dramatically depending on the combination of these variables.

The practical value of the results is that the proposed method of establishing a system of RMD CTS for its actual condition can improve the efficiency of marine equipment CTS by reducing downtime to repair, reduce the cost of repairs and disaster recovery equipment.

4. Conclusions

For the first time the methodological framework and principles for a new ship CTS scientific direction - realization of intelligent control systems and the analysis of the functioning of the CTS using expert fuzzy information.

Application of the proposed method allows to estimate the efficiency of any ship technical systems with a minimum of information about it. The results of the current fuzzy model developed through the use of expert analysis of data with high accuracy to estimate the performance of ship technical systems and to decide on the further use of the system.

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E-business Entrepreneurship and Long-term Sustainability

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Abstract:

The purpose of this research is to develop an institutional framework to investigate the relationships between the drivers, the degree of e-business entrepreneurship, and the long-term sustainability of business organizations. The framework proposes that institutional pressures can explain the level of e-business entrepreneurship. The framework also proposes that the degree of e-business entrepreneurship plays a pivotal role in the long-term sustainability. The present study suggests that any effective strategy for long-term sustainability should include the implementation and use of e-business capabilities. The present study contributes to a better understanding of the existing theories and practices of e-business entrepreneurship and e-innovations in today's business organizations. The results also could help provide insight into drivers and the role of entrepreneurship in gaining long-term sustainability for manufacturing firms with the strategies of e-business adoption and use.

Keywords: e-business entrepreneurship; the degree of entrepreneurship; long-term sustainability; institutional pressures

Introduction

Today's organizations operate in a highly competitive environment where sustainable competitive advantage is imperative in the ever-changing business environment (Zhao, 2006; White, 2009; Kanji and Chopra, 2010). Corporate entrepreneurship has been emphasized by academics and literature as essential survival strategy for businesses in the new economy, and is likely to take businesses above the threshold of sustainability (Hull et al., 2007; Scheepers et al., 2007; White, 2009). Although the need to entrepreneurship has always existed, this has been accentuated in recent years due to the acceleration of economic changes and growing worldwide competition. Actually, the literature has stressed the critical importance of entrepreneurship to organizations as it allows them to capitalize on their abilities to innovate and quickly respond to opportunities and threats, thus providing an advantage over the competitors.

Considering the prominent role of ICT in today's business environment, the literature (e.g., Hull et al., 2007; Kanji and Chopra, 2010; Beckman et al., 2012) indicated that any effective strategy for long-term sustainability should include the implementation and use of ICT resources and capabilities. The previous studies (e.g., Zhang and Dhaliwal, 2009; Beckman et al., 2012; Zupic, 2014) explained that in order to gain and maintain sustainable competitive advantage, e-entrepreneurship can no longer operate or be considered in isolation. E-business has become a major trend in today's dynamic business environment, reaching into almost every aspect of organizations' activities. Under the pressures of competition, the advent of cost-effective Web services have leaved organizations no choice for but to incorporate these technologies into their strategies and business processes.

The environment in which the organizations operate represents a primary source of entrepreneurship (Miller, 1983; Covin and Slevin, 1991; Huse et al., 2005). Explaining why organizations are exhibiting diversity with respect to the entrepreneurship degree in ICT adoption and use, a broad base of literature (DiMaggio and Powell, 1983; Rogers, 1995; Oliver,

1997; Hsu et al., 2006; Zhang and Dhaliwal, 2009) has emphasized that organizations are not an isolated entity, but is embedded in an economic, social, cultural and competitive environment. The organizational entrepreneurs consistently use their institutional environment networks to get ideas and gather information to supports the process of recognition and develop entrepreneurial opportunities. In fact, a number of previous studies (Oliver, 1997; Zhang and Dhaliwal, 2009) have suggested that resource dependency and institutional drivers are indispensable to study the role ICT adoption and use in gaining a competitive advantage and long-term sustainability.

Although there is a considerable body of literature in the larger area of business entrepreneurship and entrepreneurial organizations, e-entrepreneurship is still largely unexplored (Beckman et al., 2012; Zupic, 2014). There has been a considerable body of literature in the field of e-business adoption from different perspectives. It is worth noting that far less attention has been paid to study the adoption of e-business applications from entrepreneurship perspective. In the context of e-business adoption, few validated measures of firm-level entrepreneurship exist today. In addition, the related previous studies did not pay attention to evaluate the degree of entrepreneurship in responses to the environmental driving forces in terms of e-business applications and usage patterns. Instead, the focus of attention was directed to evaluate the performance and benefits of e-business adoption and use. Furthermore, the impact of entrepreneurship in e-business adoption and use on the long-term sustainability of business organizations has received insufficient attention.

Given the aforementioned gap, the present study aims to develop an institutional model, drawing on the institutional theory, to investigate the relationships between adoption drivers of e-business entrepreneurship, the degree of entrepreneurship, and the long-term sustainability in the business setting from entrepreneurship perspective.

2. Literature Review

In the context of firm-level entrepreneurship, Zhao (2006) defined entrepreneurship as the introduction of a new idea, new products, a new organizational structure, a new production process, or the establishment of a new organization by or within an existing organization. Mitchel and Coles (2004) defined innovation as any successful change in any element that enhances an on-going performance in delivering benefits. According to Lindgardt et al. (2009), innovation turns into business model innovation when two or more elements of a business model are reinvented to deliver value in a new way. Rogers (1995) described innovation adoption as a process through which decision makers pass from first knowledge of an innovation, to forming an attitude towards the innovation, to a decision to adopt or reject it, to the implementation of the new idea. Many of the previous studies (e.g., Lumpkin and Dess, 1996; Shane and Venkataraman, 2000) confirmed the link between the entrepreneurship, opportunities, and innovation.

Although there has been a considerable body of literature in the field of e-business adoption from different perspectives, it is worth noting that far less attention has been paid to study the adoption of e-business from the firm-level entrepreneurship perspective. Actually, e-business entrepreneurship is still largely unexplored (Beckman et al., 2012; Zupic, 2014). However, most of the previous studies have been devoted to understanding and explaining the factors that influence the adoption decision of e-business applications from technology acceptance perspective. A review of e-entrepreneurship literature also reveals that the previous studies have paid a considerable intention to the influencing factors on e-business entrepreneurship. For example, Foster and Lin (2003) investigated the impact of prior knowledge and cultural background and individual differences in learning entrepreneurship and their implications for Web-based instruction in e-business and e-commerce. Zhao (2006) also investigated the factors that foster an interaction between the entrepreneurship and innovation in e-business. Furthermore, Petti and Zhang (2011) offered an overview of the factors influencing e- entrepreneurship capabilities. A considerable stream of research (e.g., Zahra and Garvis, 2000; Hull et al., 2007) was oriented to investigate the value creation and outcomes of exploiting entrepreneurial e-business opportunities. Another stream of research has been

devoted to examine the process of e-entrepreneurship and transforming into e-business innovations (Strang and Chan, 2010; Petti and Zhang, 2011).

The long-term competitiveness and sustainability require organization to be more sensitive to their external environment, respond rapidly and dynamically, and reproduce itself regarding current and future conditions of the environment. A number of corporate entrepreneurship models (e.g., Covin and Slevin, 1991) have advocated an integrative models that explain the relationship between a company’s entrepreneurial state and its environment. As organizations continue to explore strategies for sustainability in their mulita dimensional environments, the previous studies (e.g., Crals and Vereek, 2005; Zhang and Dhaliwal, 2009) confirmed that the environmental awareness is a necessity for long-term survival and sustainability. According to Crals and Vereek (2005), entrepreneurship represents the way to find the right balance within these environments. However, Institutional Theory (DiMaggio and Powell, 1983) has emerged as a powerful approach for explaining why and how organizations adapt to their intuitional environments. Over the past several decades, Institutional Theory has become an integral reference framework for studying and understanding of organizational adoption of innovations (Son and Benbasat, 2007; Zhang and Dhaliwal, 2009). It emphasizes that institutional environments are crucial in shaping organizational structure and actions. However, the literature (e.g., Teo et al. 2006; Kshetri, 2007; Son and Benbasat, 2007; Bhakoo and Sohal, 2008; Andreu et al., 2010) has emphasized the impact of institutional pressures on adopting e-business innovations.

It is worth mentioning that the long-term sustainability significance in business context and organizations growth continues to increase. According to Lumpkin and Dess (1996), the level of entrepreneurial behavior by the organization allows it constantly to evaluate the potential business opportunities that will bring growth and sustainability. It is worth noting that the previous studies have ignored to a large degree the pivotal impact of institutional pressures on e-business entrepreneurship. The previous studies have completely ignored the impact of institutional pressures on the diversity of e-business entrepreneurship in their research models. Furthermore, literature is lacking insights into the impact of e-business entrepreneurship on the long-term sustainability for business organizations.

3. Research Model

The research model (Figure 1) proposes that the institutional coercive, mimetic, and normative pressures have a direct impact on the degree of e-business entrepreneurship. Furthermore, the study proposes that the degree of e-business entrepreneurship has a significant impact on the long-term sustainability of business organizations.

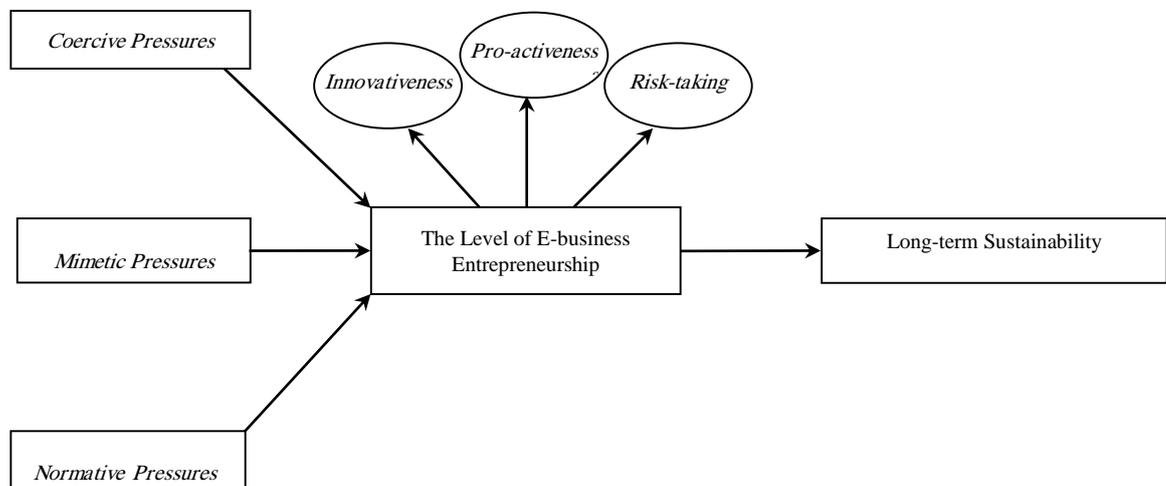


Figure 1. Research Model

Below the elements of research model are discussed in more details.

3.1 Institutional Pressures

DiMaggio and Powell (1983) identified three kinds of institutional forces that define how organizations behave with regard to the innovation and institutionalization. These are coercive, mimetic, and normative pressures. Each of these pressures is discussed below:

3.1.1. Coercive Pressures

Coercive pressures were derived from the Resource-Dependence Theory (DiMaggio and Powell, 1983). The resource-based view is the outlook of an organization and its ability to interpret its resource base and the resource requirements of the market in building a sustainable business strategy (White, 2009). However, coercive pressures have been defined as formal and informal pressures exerted on organizations by other organizations upon which

they are reliant and by the expectations of the society members within which organizations operate (DiMaggio and Powell, 1983). According to this theory, a dominant organization that controls scarce and important resources may demand that organizations dependent on it exhibit similar structures, policies, programs, or technologies that serve its interests, where these resource-dependent partners may comply with the demands to secure their own survival (Teo et al., 2003).

Mimetic Pressures

The mimetic isomorphism process of institutional legitimacy occurs when organizations tend to model themselves on other organizations in the same field that are considered to acquire status-conferring legitimacy or social fitness in a wider social structure (DiMaggio and Powell, 1983). According to this kind of pressures, firms may consciously or unconsciously mimic the practices of their business partners, peers, or competitors. In addition, mimetic pressures may come from professional associations, where many organizations join it to benefit from the latest best practices in their domain (Teo et al., 2003; Lai et al., 2006). DiMaggio and Powell (1983) stated that this kind of pressures results from uncertainty in the surrounding environment.

3.1.3 Normative Pressures

Normative pressures are the third source of institutional isomorphism exerted by members of social networks to meet the requirements of professionalization and the cognitive authority of the organizational field. Normative forces result from the expectations of professionals regarding how work should be conducted. These pressures manifest themselves through a variety of sources, including trade associations, professional associations, accreditation agencies, and supply chain members (Teo et al., 2006; Son and Benbasat, 2007). A focal business with direct or indirect ties to other businesses that have adopted an innovation is able to learn about that innovation, and is likely to be persuaded to behave similarly (Teo et al., 2006). Normative forces faced by an organization stand to be increased by a higher prevalence of e-business adoption among its business partners; and by its participation in professional, trade, or business associations that support the adoption of such technology (Teo et al., 2006; Lai et al., 2006; Son and Benbasat, 2007).

3.2 The degree of Entrepreneurship

The majority of entrepreneurship literature acknowledged the variation in the degree of entrepreneurship of businesses. The literature confirms that different norms of corporate entrepreneurship should exist between businesses and industries. However, a number of previous studies (e.g., Shane and Venkataraman, 2000; Brown et al., 2001) described the degree of entrepreneurship in terms of the extent of opportunity recognition and exploitation. Lumpkin and Dess (1996) recommended five dimensions to be used in measuring the level of entrepreneurship, including autonomy, competitive aggressiveness, pro-activeness, innovativeness and risk-taking. Ligthelm (2010) examined the level of entrepreneurial in the small business in the context of value creation. Brown et al. (2001) adopted different six

dimensions for assessing a firm's degree of entrepreneurship, including strategic orientation, resource orientation, management structure, reward philosophy, growth orientation, and entrepreneurial culture. Zahra and George (2002) defined corporate entrepreneurship as the sum of a corporate's efforts aimed at innovation, pro-activeness and risk taking. Wiklund (1999) confirmed that in the majority of literature, the orientation of entrepreneurship has been determined in terms of innovativeness, pro-activeness and risk-taking. A wide stream of research (e.g., Miller, 1983; Dess et al., 1999; Zahra and George, 2002; Scheepers et al., 2007; Tang et al., 2008) has agreed that firms' degree of entrepreneurship could be seen as the extent to which they innovate, act pro-actively, and take risks.

Based on the previous studies, the present research adopted three dimensions to be used in measuring the level of entrepreneurship, including innovativeness, risk-taking, and pro-activeness. The first dimension of the degree of entrepreneurship, namely innovativeness, refers to the creation of new products, services and technologies (Scheepers et al., 2007). Actually, this behavior has various outcomes. It may involve the restructuring and strategic renewal within an existing enterprise to capitalize on emerging opportunities. In this regard, Rogers (1995) defined the innovation as an idea, practice, or object that is perceived as new by the unit of adoption. Mitchel and Coles (2004) also described innovation as any successful change in any element that enhances an on-going performance in delivering benefits. At the same direction, Lindgardt et al. (2009) stated that innovation turns into business model innovation when two or more elements of a business model are reinvented to deliver value in a new way. According to Huse et al (2005), one dimension of innovation involves the adoption of new technologies.

The second dimension, pro-activeness, is an opportunity-seeking attitude, describing how firms relates to an aggressive pursuit of market opportunities and a strong emphasis on wanting to be among the first to adopt and use innovation in their industries ahead of the competitors (Zahra and George, 2002). According to Lumpkin and Dess (1996), pro-active firms have a greater tendency to lead than to follow in the development and adopting new technologies or the introduction of new products and services. Miller (1983) considered pro-activeness as an indication of a company's determination to capture promising opportunities, rather than merely responding to competitors' actions.

The third dimension, risk-taking, involves the willingness to commit significant resources to opportunities with a reasonable calculated chance of costly failure (Scheepers et al., 2007). Miller (1983) described risk-taking in the context of firms which take untraditional initiatives by venturing into the unknown and committing significant resources to ventures in uncertain environments with insecure outcomes. Zahra and George (2002) also defined risk-taking as a company's disposition to support innovative projects, even when the perceived results from these projects are uncertain. According to Miller (1983), the organizational culture that encourages individual initiatives, risk-taking, and new ways of thinking; and rewarding individuals with new ideas that contribute to innovation and business progress is a key element of sustainable business performance.

In the context of entrepreneurship, it is reasonable to argue that there could be a variation of businesses in their tendency for the discovery and exploitation the same opportunities embedded within the same environment. However, many of studies (e.g., Hsu et al., 2006; Teo et al., 2006) concluded that coercive pressures and the partners' power are among the most important factors that explain the adoption of e-business. Furthermore, an empirical evidence on the impact of mimetic pressures has been found in many studies (e.g., Thomas and Ranganathan, 2005; Teo et al., 2006; Bhakoo and Sohal, 2008) examining the adoption of different IT applications. The empirical research (e.g., Teo et al. 2006; Son and Benbasat, 2007; Andreu et al., 2010) has also emphasized the impact of normative pressures on adopting e-business applications.

3.3. Long-term Sustainability

For business organizations, entrepreneurship is not a goal in itself, but a mean to achieve their strategic goals. Zahra and Garvis (2000) suggested that the outcomes have to be integral

part of studying entrepreneurial behavior. A considerable stream of research (e.g., Zahra and Garvis, 2000; Hull et al., 2007; Ligthelm, 2010) has characterized the exploiting entrepreneurial opportunities based on the value that they can create for the business. It is worth noting that many of previous studies were oriented to investigate the outcomes of exploiting entrepreneurial opportunities for creating value in terms of long-term sustainability. It is worth mentioning that the sustainability significance in business context and organizations growth continues to increase. In this context, Bateh et al. (2014) asserted that organizations worldwide have adopted entrepreneurship strategies to develop a competitive advantage and leverage their sustainability.

There still appears to be no consensus defining sustainability. For example, in the business setting, Bateh et al. (2014) described it as longevity of the organization, maintenance of core principles or purposes, and responsibility to external needs. According to Nieto (2009), sustainability is about enhancing people, profit, and the planet in order to impact innovation and sustainable business growth. Cohen and Winn (2007) described it as the examination of how opportunities to bring into existence future goods and services are discovered, created, and exploited, by whom, and with what economic, psychological, social, and environmental consequences. More flexible definition of sustainability is a need to live in the present in ways that do not jeopardize the future (Senge et al., 2008, p. 9).

Lumpkin and Dess (1996) confirmed that the level of entrepreneurial behavior by the organization allows it constantly to evaluate the potential business opportunities that will bring growth and sustainability. Actually, the literature (e.g., Oliver, 1997; Hull et al., 2007; Zhang and Dhaliwal, 2009; Kanji and Chopra, 2010) confirmed that the adoption and use of ICT innovations is indispensable to gain a sustainable competitive advantage, and, thus, to take business organizations above the threshold of sustainability. Explaining the prominent role of ICT in today's business environment, the literature (e.g., Zhao, 2006; Scheepers et al., 2007; Zhang and Dhaliwal, 2009; Kanji and Chopra, 2010) asserted that any effective strategy for gaining and maintaining a sustainable competitive advantage and, thus, long-term sustainability should include the adoption and use of ICT resources and capabilities. Therefore, the aforementioned discussion confirmed that the degree of e-business entrepreneurship has a significant impact on the long-term sustainability of business organizations.

A review of the literature reveals an inconsistency in measures of long-term sustainability. The variation in measures is attributable mainly to the lack of consensus on the definition of sustainability, where the etiology of this concept has grown out of both the environmental and social responsibility (Bateh et al., 2014). However, many of the previous studies (Ligthelm, 2010; Bateh et al., 2014) have measured the sustainability an integral element of companies' performance using various criteria. Actually, in today's dynamic and changing environment, business organizations have to innovate in new areas, make complex decisions, originate creative solutions, adapt and behave as human system to serve its survival, prosperity and superiority. From this perspective, the measures of sustainability can be captured in terms of survival, growth, and superiority. Therefore, the present study suggests the following dimensions to measure the long-term sustainability to investigate the impact of e-business entrepreneurship on the long-term fate of business organizations:

Enhance the social acceptance of firm existence.

Improve public image.

Increase customer's satisfaction and loyalty.

Enable long-term working relationship with supply chain members.

Gain a competitive advantage over competitors.

Increase the firm's stock market value.

Increase market share.

Improve productivity.

Create new business models, product, and services.

Increase profits.

4. Discussion, conclusions, and implications

The constantly changing in the highly competitive environment of today's organizations are come at an ever-increasing pace and more rapidly than ever before with a range of highly complex, dynamic, and multi-faced challenges. These controversial changes and challenges have a critical impact on the organizations' ability to survive and to take their businesses above the threshold of sustainability. Corporate entrepreneurship has been emphasized by academics and literature as imperative strategy for businesses sustainability in today's ever-changing business environment. At the same time, the advances in e-business applications have given impetus to emerge new entrepreneurial opportunities to business organizations and entrepreneurs to rethink and reshape innovatively their business strategies gaining a long-term competitiveness and sustainability.

It is worth noting that the previous studies have ignored to a large degree the pivotal impact of institutional pressures on e-business entrepreneurship. Furthermore, literature is lacking insights into the impact of entrepreneurship on the long-term sustainability for business organizations. Therefore, the present study aimed to develop an institutional framework, drawing on the institutional theory, to investigate the relationships between adoption drivers of e-business innovations, degree of entrepreneurship, and the long-term sustainability, in the business setting, from entrepreneurship perspective. The present study confirms the impact of environmental pressures on the degree of e-business entrepreneurship. The findings also suggest that the degree of e-business entrepreneurship plays a pivotal role in the long-term sustainability

The results affirm that the environmental awareness is a necessity for long-term survival and sustainability. At the time that environmental dynamism imposes heightened competitive situations threatening the organizations' ability to survive; it represents a major source of entrepreneurship to gain competitive advantages and long-term sustainability. The results suggested that any effective strategy for long-term competitiveness and sustainability should include the adoption and use of e-business capabilities. The organizations consistently have to employ their institutional environment networks to get ideas and gather information to support the process of recognition and develop new entrepreneurial opportunities based on the continuing advances in e-business applications. The results also suggest that organizations continuously need to evaluate the degree of their e-business entrepreneurship. The diversity of adoption and actual use of e-business applications can be used as a major indicator to the degree of corporate entrepreneurship and the extent of exploiting new entrepreneurial opportunities.

Despite its contributions, there are some limitations, which can serve as directions for future research. The research framework needs to be tested empirically. Although the business entrepreneurship has been measured in previous research, the present study does not provide a methodology to follow for studying investigate the relationships between adoption drivers of e-business innovations, degree of entrepreneurship, and the long-term sustainability from entrepreneurship perspective.

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The Interest Rate Ratchet in an Accelerator-Cash Flow Model of Gross Nonresidential Fixed Investment for the USA between 1950 and 1988

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I – Introduction:

Nonresidential business investment in new plant and equipment remains a crucial factor in the functioning of the economy. It has been perceived as an instigator of actual and potential output growth as the rise in capital formation due to increased investment leads to expanding the capital component K in a production function for the whole economy. Given other things, an increase in output brings a lower rate of inflation (Klingaman and Koshal, 1982, p.100). Furthermore, an increase in the rate of investment for whatever reason, e.g., external aid, in an economy characterized by constant technology and aggregate demand may reduce unemployment, and augment the supply of capital goods thereby lowering their prices and indirectly the prices of consumer goods.

Bearing in mind that investment in plant and equipment is the origin of productive physical capital, Denison (1980) estimated that “capital had been the source of 19% of the 1948-73 growth rate” (p.223). Eleven percent of the decline in the average growth rate of national income, from 3.65% in period 48-73 to 2.38% in the period 73-78, has been accounted for by the drop in the rate of capital accumulation, of which the drop in investment expenditure for new plant and equipment represents about three-fifths (Denison, 1980, p.222). According to the same author, “capital was the source of 18-percent of the growth rate in potential national income”, and the “use of an alternative classification that reallocates gains from economies of scale among other growth sources instead of considering them a separate growth source would raise the percentages for the contribution of capital, those for nonresidential business by as much as one-eighth. They would then range from 16 to 23 percent in 1948 – 73”, depending on how the series is defined (Denison, 1980, p.221). Hence, the statistics cited above emphasize the importance of nonresidential fixed investment to growth in national income through the impact of investment on the capital stock and the rate of accumulation.

International economic competition, such as between the U.S. and China, has bestowed upon the issue of nonresidential fixed investment added importance to the extent that competition has to do with productivity. Since productivity is related to increases in the capital-labor ratio, i.e., capital deepening, and hence to the capital-output ratio which is in its own turn dependent on the ratio of net investment to GNP, the whole question of nonresidential fixed investment assumes added relevance. Of particular importance was the fact that “the ratio of gross investment to GNP has been relatively stable while net investment has declined significantly between 1948 and 1979, and that “the fall in net nonresidential investment has been particularly sharp” (Feldstein, 1983, p.144). Furthermore, in estimating quantitatively the potential productivity path of the U.S. economy between 1955 and 1978, Coen and Hickman (1980) found that capital “deepening was second only to technical progress as a source of ... growth during the postwar years and is projected to remain so along the natural path” (p.218). Table 1 below provides the historical estimates of Coen and Hickman of potential annual rates of change of man-hour productivity.

Table 1: Contributing Sources and Annual Rates of Change of Potential Man-Hour Productivity

Period	Productivity	Technical Progress	Capital Deepening	Capital Utilization	Labor Quality	Labor Utilization
55-68	2.82	1.62	1.09	0.10	0.01	0.00
68-73	1.46	1.03	0.69	- 0.11	- 0.19	0.04
73-78	1.04	1.03	0.40	- 0.41	0.00	0.01

The main conclusion to be drawn from Table 1 is that productivity has been increasing at a decreasing rate between 1955 and 1978, and that has been accompanied by an increase at a decreasing rate in capital accumulation and a decrease in the rate of capacity utilization as well. In either case, the implication is that variations in capital, especially nonresidential fixed capital, and therefore variations in investment in this form of capital affect productivity as much as they do GNP growth, employment, and inflation. Consequently, the purpose of this paper is to understand these variations by *constructing a theory of nonresidential fixed investment and testing it empirically*.

In section II of this paper, the most important trends in the investment literature are reviewed. Since most models of nonresidential fixed investment start from the relationship between investment and the capital stock, this relationship between the two is analyzed in the beginning of section II and then applied throughout the rest of the Review of Literature.

Section III provides an evaluation of the literature reviewed extracting those elements used to build the model described in section IV.

The thesis of section IV is that nonresidential fixed investment is a function of aggregate demand, the ratchet interest rate, the rate of profit per capacity utilized, and the level of nonresidential fixed investment in the previous period. The assumption of the relationship is that all these variables correlate positively with gross nonresidential fixed investment, except for the ratchet interest rate which should correlate negatively with investment. Eventually, the results of the statistical test of the model are discussed in section V.

II – Review of the Literature:

A – The Accelerator Model

In 1917, J.M. Clark formulated the first accelerator model relating changes in investment to changes in aggregate output. The relationship was postulated to be linear with the capital stock as a constant multiple of the level of output, such that:

$$K_t^d = \alpha Y_{t-s},$$

Where K_t^d is the desired capital stock in period t, and Y_{t-s} is the level of aggregate demand in the period t – s where s is the number of lags. A base of productive capacity, K, would be necessary to support the level of output demand, Y, in the capital goods sector or the whole economy (J.M. Clark, 1917, pp.217-35). The capital stock is adjusted, however, through “net investment, which, in turn equals (the flow of) gross investment – that is, the production of investment goods – minus (the flow of) depreciation” (G. Ackley, 1978, p.612). Thus,

$$(2) K_t = K_{t-1} + I_{t-1} - \delta K_{t-1}$$

where K_t is the capital stock in period t, K_{t-1} is the capital stock of the previous period, I_{t-1} is the level of gross investment in the previous period, and δ is the rate of depreciation of the capital stock.

Since the original accelerator model is implicitly assuming that $K_t^d = K_t$, meaning that the actual capital stock adjusts completely to the desired capital stock, substitute (2) into (1):

$$(1a) K_t = K_{t-1} + I_{t-1} - \delta K_{t-1} = K_t^d = \alpha Y_{t-s}$$

$$\rightarrow I_{t-1} = \alpha Y_{t-s} - (1 - \delta) K_{t-1}$$

Adding one time period to all the variables,

$$(1b) I_t = \alpha Y_{t-s+1} - (1 - \delta) K_t$$

Thus, the relationship between the desired capital stock and the level of aggregate demand specified in equation (1) could be extended to the relationship between the desired level of gross investment, the level of output demand, and the stock of capital:

$$I_t^d = \alpha Y_{t-s+1} - (1 - \delta) K_t$$

(Since the capital stock is always adjusted through changes in the level of net investment and the rate of depreciation, the relationship between the desired capital stock and the desired level of gross investment will henceforth be applied to all the models reviewed in this section of the paper).

P.K.Clark (1979) points out, nevertheless, that economists were not satisfied with this simple accelerator model because it suffered from the unrealistic built-in assumption that the “capital stock could be instantaneously adjusted to the desired level at no additional cost ... as if net additions to capital were instantaneously available at a constant price” (P.K. Clark, 1979, p.77). In addition, adjustment may be incomplete because the rising supply prices for capital goods, installation costs, and production lags may increase costs to the point where only partial adjustment is optimal (P.K. Clark, 1979, p.78).

A capital stock adjustment model of a dynamic nature was, henceforth, developed by Roy F. Harrod in his “Essay in Dynamic Theory” in 1939 under the influence of Keynes’ The General Theory of Employment, Interest, and Money (Rima, 1978, p.416). Following Harrod’s model, an adjustment-cost approach was fully constructed by Eisner and Strotz (P.K. Clark, 1979, p. 78), the pertinent version of which would be:

$$I_t - I_{t-1} = \lambda (I_t^d - I_{t-1}) + u_t ,$$

Where the difference between actual and optimal gross investment is eliminated at the speed of the adjustment coefficient, λ . Substituting equation (3) into model (4), we get

$$I_t^d = \lambda \alpha Y_{t-s} - \lambda (1 - \delta) K_t + (1 - \lambda) I_{t-1} + u_t ,$$

Which states that desired gross investment, I_t^d , is a function of output in period s, Y_{t-s} , the level of gross investment in the previous period, I_{t-1} , and the capital stock in period t, K_t , subject to an adjustment coefficient, λ .

Model (5), however, is never used in this form. It is rather the basis upon which Keynesian, neoclassical, or a synthesis of Keynesian-neoclassical models are built. Other variables, such as Keynesian cash flow variables or neoclassical production functions are usually substituted into the model. These variations are analyzed in the subsequent parts of this section.

B – Keynesian Flow Variables

One variation combines the original simple accelerator model, $K_t^d = K_t = \alpha Y_{t-s}$, with cash flow variables first laid out by Keynes as determinants of investment. In chapter 11 of his *General Theory*, Keynes linked investment spending to the present value of stream of profit flows expected from an extra built unit of capital accumulation. For a given investment decision, Keynes considered cost and the flow of net returns from period 1 to period n. Then, he evaluated the marginal efficiency of an investment project which he defined as the rate of interest that will discount the present value of the project to zero. Kalecki (1969) developed this approach most fully after economists had been working on the influence of flow variables on various aspects of investment throughout the sixties. These economists emphasized, following in the footsteps of Keynes, flow variables like the present value of profit flows, the ability of firms to generate investment funds from profits and through debt finance, and the level of net annual interest expense. In the eighties, it has been suggested that accelerator variables like output, sales, or capacity utilization and flow variables like after-tax profit that affect the finances of the firm and therefore its ability to invest, would have a strong positive influence on nonresidential fixed investment. The flow form of interest, i.e., interest commitments of firms, would have a negative impact (e.g., see Fazzari and Mott, 1986, p.173). This school's specification of model (5) then would be:

$$I_t^d = I_t = \alpha Y_{t-s} + \beta \Pi_{t-s} + \gamma \Gamma_{t-s} + u_t,$$

Such that $\alpha > 0$, $\beta > 0$, and $\gamma < 0$, and where Π equals after-tax profit plus depreciation allowance minus dividends, and Γ is the annual interest expense. As is obvious from model (6), all independent variables are lagged by the period s. Finally, since the levels of optimal and actual investment are implicitly assumed to be always equal ($I_t^d = I_t$), no adjustment term, λ , is included.

C – The Accelerator-Flow Model

The simple accelerator-flow model described in part B of this section has evolved in several directions in recent literature. Although cash flow variables are considered amongst the main sources of internal funding of investment since they are generally cheaper than external finance as proposed by Duesenberry in his book *Business Cycles and Economic Growth* (McGraw-Hill, 1958), and although they predict the direction of future output and profitability, flow variables would perform better when integrated in the adjustment-cost framework. The purpose of such integration would be to combine flow variables with an adjustment-cost approach. And the resulting accelerator-flow model has the additional advantage of capturing the restraint imposed by the increasing marginal cost of supplying capital, and the effect of the irreversibility of investments projects over and above the simple flow model. Eisner (1978) is a leading proponent of this type of model.

Adding a profit variable to model (4), we obtain,

$$I_t - I_{t-1} = \lambda (I_t^d - I_{t-1}) + \beta \Pi_{t-s} + u_t,$$

Then substituting equation (3) into model (7), we get,

$$I_t = \lambda \alpha Y_{t-s} - \lambda (1 - \delta) K_t + (1 - \lambda) I_{t-1} + \beta \Pi_{t-s} + u_t.$$

D – The Neoclassical Model

In the Classical tradition of Adam Smith and David Ricardo, profits are the source of all capital accumulation. Investment is seen to respond to output demand, but increases in output demand are the result of increases in capital accumulation. That's because according to Say's Law supply creates its own demand. Technically, the output of any industry is a function of

that industry's inputs. Thus, the optimization of profits becomes dependent on input prices in the classical model. The capital goods industry is no exception to that rule and is therefore sensitive to the rental price of capital. Henceforth, many economists argued that any model of nonresidential fixed investment, and all investment for that matter, should incorporate some measure of the cost of capital. Jorgenson (1967) and others maintain that the stock adjustment model should incorporate "the neoclassical principle that the optimal combination of factor inputs should be a function of their relative prices" (P.K. Clark, 1979, p.82). Several measures of the cost of capital were thus devised. Elliott (1980) provides a summary of four of those measures with econometric tests for them. Most of these measures, in fact, include terms for the interest, inflation, depreciation, and tax rates, or some combination thereof.

Nevertheless, the inclusion of measures of the cost of capital in model (5) did not complete the neoclassical model. Both Keynesian and neoclassical economists, such as Lawrence and Siow (1985), and Taylor (1982), pointed out the so-called aggregation problem. Capital is not a homogeneous entity. Different types of capital have different demand parameters, and may not respond in the same manner to changes in the average index of capital cost. Such an index might turn out to be empirically irrelevant in spite of the theoretical validity of its inclusion in the model. The role of interest rates, for example, as one such index has been particularly controversial in the investment literature as is expounded in section III.

Furthermore, the assumption of a Cobb-Douglas production function does not necessarily describe accurately the actual technical conditions of production in the capital goods industry. In fact, the production structure was found to have flexible functional forms by Berndt and Wood (1975), Griffin and Gregory (1976), and Garofalo and Malhorta (1984).

To correct for these unrealistic assumptions, a modified neoclassical model emerged. The work of Garofalo and Malhorta (1985) addresses the above two criticisms by:

disaggregating investment into two separate categories, one for structures and another for equipment, and assuming a translog production function with no restrictions on the magnitude of the elasticities of substitution.

Their model is summarized in the following system of equations (Garofalo and Malhorta, 1985, p. 53):

$$(9) I_{tN} \approx K_t - K_{t-1}$$

$$(10) K_t = f(K_t^d, K_{t-1})$$

$$(11) K^d = g(P_{it}, Y_t, T_t)$$

where I_{tN} is net investment in period t ; K_t is the capital stock in period t ; K_t^d is the desired capital stock in period t ; P_{it} is the price index of the i th input in period t ; and T_t is an index of technology.

And, "although a single model is developed, two specifications of the model are estimated. First, a four-factor model with building capital (K_B), machinery capital (K_M), labor (L), and energy (E) as inputs is estimated... Second, a three-factor model is estimated with K_B and K_M aggregated into a single index of capital (K_A)" (Garofalo and Malhorta, 1985, p. 53). Each of these forms of investment accounts, hence, for the role of other inputs*. Then, each of K_B , K_M , K_A are considered separately by Garofalo and Malhorta (1985) who found the disaggregated model to outperform the standard aggregated model (p.61).

*Note: [Garofalo and Malhorta develop their reasoning in several pages of mathematical derivations. To exemplify the influence of the production function on the stock of optimum capital without reproducing Garofalo and Malhorta's mathematics, a simplified summary of Jorgenson's pioneering analysis (1967) is provided.

Given the Cobb-Douglas production function, $y = \alpha K^\gamma L^{(1-\gamma)} \Rightarrow$

$$\partial y / \partial K = \alpha \gamma K^{(\gamma-1)} L^{(1-\gamma)}$$

$$\Rightarrow \partial y / \partial K = [\alpha \gamma K^\gamma L^{(1-\gamma)}] / K$$

$$\Rightarrow \partial y / \partial K = \gamma y / K$$

Setting the value of this marginal product ($\gamma y / K$ times p) equal to the rental price of capital, c , and rearranging gives:

$K = (p \gamma y) / c = K^*$, where K^* is the optimum capital stock (G. Ackley, 1978, p.634) (end of note)].

Following the line of reasoning developed earlier in part A of this section on the relationship between the capital stock and the level of investment, K_t is substituted with the level of gross investment I_t , and K_t^d with the level of desired gross investment I_t^d . Disregarding equation (9), and substituting equation (11a) into (10a) below, we get the following functional form for the modified neoclassical model in equation (12):

$$(10a) I_t - I_{t-1} = \lambda (I_t^d - I_{t-1}) + u_t, \text{ i.e., model (4),}$$

$$(11a) I_t^d = \alpha P_{it} + \beta Y_t + \gamma T_t - (1 - \delta) K_t,$$

Now substituting (11a) into (10a) we get:

$$(12) I_t = \lambda \alpha P_{it} + \lambda \beta Y_t + \lambda \gamma T_t - \lambda (1 - \delta) K_t + (1 - \lambda) I_{t-1} + u_t.$$

E – The Q-Theory of Investment

While all the preceding four variations of investment models use a combination of real variables relating to output, interest, and after-tax profits, the q-theory of investment, first expounded by Jamis Tobin (1967), is modeled in a financial formula. "If the market value of a firm exceeds the replacement cost of its assets, it can increase its market value by investing in more fixed capital. Conversely, if the market value of a firm is less than the replacement cost of its assets, it can increase the value of shareholders equity by reducing the stock of fixed assets" (P.K.Clark, 1979, p.84). Thus, variations in investment will be dependent on variations in Q , where Q equals the ratio of a firm's value to its replacement cost of capital.

Thus, given

$$(4) I_t - I_{t-1} = \lambda (I_t^d - I_{t-1}) + u_t, \text{ where according to the q-theory of investment,}$$

$$I_t^d = a Q_{t-s},$$

Substituting equation (13) above into model (4), we obtain

$$I_t = \lambda a Q_{t-s} + (1 - \lambda) I_{t-1} + u_t.$$

Subsequently, the q-theory of investment became a rival of cash flow variables in investment models (Fazzari and Mott, 1986, p.172). This is because “marginal q is the expectation of a present value of a stream of marginal profit” (Abel and Blanchard, 1986, p. 250). And that concept is very similar to cash flow variables like after-tax profit flows except that it has been situated in a context of a finance-based model.

Nevertheless, models using average Q, which has been used as a proxy for marginal Q and which is defined as the value of firm divided by the replacement cost of its capital, continued to flourish (e.g., vonFurtenberg 1977, and Summers 1980). These have been criticized on a theoretical basis because “the capital stock is not homogenous, so that the estimate of replacement cost in the denominator of Q may have only a tenuous connection with the true cost of replacing existing capacity” (P.K. Clark, 1979, p.85). They have also been criticized because Q does not “separate out interest rate from output effects” (Lawrence and Siow, 1985, p.360).

Abel and Blanchard (1986) tried to correct for these criticisms by estimating marginal Q instead of average Q, where marginal Q is arithmetically the ratio of the valuation of an additional unit of capital to the cost of this unit. They found that marginal Q, like average Q, “leaves unexplained a large serially correlated fraction of investment”, and “output and profit variables still enter significantly when added to our investment equations” (Abel and Blanchard, 1986, p.250).

III – Theoretical Premises

A – THE SYNTHESIS

Most econometric studies of investment today are not strictly Keynesian or neoclassical. Rather, the main body of the literature presents models that are a synthesis of elements from both schools. A synthesis of a neoclassical orientation could be exemplified by Coen and Hickman (1980) who assuming a Cobb-Douglas production function estimated a log-linear relationship that “expresses the demands for capital and labor inputs as functions of their own lagged values, of expected output, the expected wage-rental ratio, and the trend rate of technical progress” (p. 215). A synthesis with a Keynesian leaning is that of Lawrence and Siow (1985) where investment is a function of its own lagged value, expected output, nominal interest rate, and the rate of inflation (p. 365). Thus, even though both studies emphasize the role of some measure of cost of capital, the wage-rental ratio in the first case, and nominal interest in the second, Lawrence and Siow attribute the explanatory power of nominal interest rates not to interest rates as the rental price of capital per se, but to its predictive value with respect to GNP.

It is the opinion of the present writer that from a purely theoretical point of view, a synthesis model can describe more accurately the dynamics of the investment process than any of individual models examined. For while the simple accelerator model and the flow models both lack an adjustment parameter for the capital stock, the accelerator-flow model includes both a stock adjustment parameter and a crucial cash flow variable. And while the simple neoclassical model suffers from unrealistic assumptions regarding aggregation and the technical conditions of the production structure, it provides a measure of the cost of capital which is lacking in most alternative models. Yet, neither does the accelerator-flow model have a capital cost index, nor does the modified neoclassical model have a cash flow variable so essential for internal funding and as an index of the expectations of the firm. Therefore, it seems that a **synthesized model that combines some measure of the cost of capital with the accelerator-flow model may be the most adequate theoretical formulation of the relationship between investment and its determining variables.**

The question here immediately arises as to the specific nature of the index of cost of capital that should be adopted in such a model. This is the question to be explored next.

B – THE INTEREST RATE CONTROVERSY

Despite the standard assumption that investment and interest rates are inversely related, much controversy surrounds this issue on the empirical level. Benanke (1983), using a q-theory of investment approach to test data for the years 1947 – 79, found that an increase in real interest rates of one-percent (holding nominal interest rates constant) decreases net equipment investment by 12.1%, while investment in net structures decreased by only 6.3%. By contrast, Feldstein (1983) found after using data for the years 1948 – 79 that “high interest rates may have caused firms to reduce investment in long-lived structures by more than the reduction in equipment investment” (p.148). To complicate things further, Lawrence and Siow (1985) found while studying investment in producer equipment in the years 1947 –80 that “higher nominal interest rates would be inversely related with new investment expenditure decisions, despite the fact that real interest rates remained constant” (p.361). They, however, concluded that even though “the real cost of capital does matter in explaining investment initially... this effect is relatively small and becomes insignificant after two quarters in the case of producer equipment” (p.374).

Other writers led by Clark (1979) state that the rental price of capital services “is not very helpful in explaining quarterly data on business fixed investment in the United States over the past twenty-five years”, 1954-1978 (p. 104). Clark, nevertheless, does not formally reject the inverse relationship between interest rates and investment, but claims it must be estimated “with more comprehensive data than quarterly aggregates” (1979, p.104). Clark then proceeds to contradict Lawrence and Siow writing that this relationship is “likely to be felt gradually, over long periods of time” (1979, p.104).

Consequently, the present writer agrees with Lawrence and Siow that “because of all these conflicting results, how interest rates affect investment behavior remains inconclusive although this is an important question in macroeconomic modeling and the theory of the business cycle” (1985, p.360). Thus, it seems that the nature of the relationship between interest rate and investment depends on whether tax and depreciation rates are included in the rental price of capital services term, how the model is specified mathematically, and the number of distributed lags, to choose a few among many possibilities.

Moreover, in view of the fact that most models use quarterly data, it appears appropriate to take Clark’s advice regarding the need of “**using more comprehensive data than quarterly aggregates**” in building a new model of investment. Hence, this paper examines historical trends rather than quarter-to-quarter variations in an effort to focus on some of the more long term and substantive causal factors.

Finally, this model will test the hypothesis presented in some recent articles that assert that the relationship between real interest rates and investment is subject to a ratchet effect (Larkins and Gill, 1985). The ratchet principle emphasizes the impact of the last highest value of real interest rate on investment. Thus, as real interest rates rise, the cost of investing grows larger which triggers shifts to new investment techniques designed to diminish cost. When interest rates recede from their previous peak, the new technology remains installed until a still higher interest rate is recorded. One example would be a rise in the cost of inputs compounded by a higher rate of interest that induces businesses to invest in and adopt a new technology which is neither labor nor energy-intensive (Feldstein, 1983, p. 148).

IV – Model and Data

In the preceding pages it was suggested that a synthesis of the accelerator-flow model that incorporates some measure of interest rate would be more justified theoretically than the other alternative models. It was also pointed out that since the exact relationship between interest

rates and investment is not yet established, the choice of any particular measure of interest rate as a cost of capital goods is still open to experimentation. In this paper, interest rates are included as a ratchet variable in an attempt to test its effect on business expenditure for new plant and equipment, as proposed by Larkins and Gill (1985). In accordance with Clark's suggestion (1979, p. 104), annual data are used estimation purposes for the years 1950 – 1988.

Theoretically, the ratchet interest rate, R_t , and the level of real output, Y_t , are hypothesized to determine the level of the optimal or desired new business spending for plant and equipment, I_t^d . This relationship could be written as follows:

$$I_t^d = a_0 + (a_1 - a_2 R_t) Y_t,$$

Whereby the impact of the ratchet real interest rate increases as the level of real output increases; and where Y_t is equal to real personal consumption, C_t , plus real gross investment, I_t , plus real government spending, G_t , plus real net exports, X_t , i.e., Y_t is equal to GNP_t , thus the identity:

$$(16) Y_t \approx C_t + I_t + G_t + X_t = GNP_t$$

In defining Y_t as real demand in the economy, we have adopted the principle that investment in the capital goods sector is undertaken to support the activities of the rest of the economy, which is an adaptation of the principle used by Larkins and Gill to describe the relationship between inventories and final business sales (1985, p.18).

Model (4) which as be recalled states that the difference between actual and desired investment is eliminated at the speed of the partial adjustment coefficient λ ,

$$(4) I_t - I_{t-1} = \lambda (I_t^d - I_{t-1}) + u_t,$$

where $0 \leq \lambda \leq 1$. Hence, if $\lambda = 1$, the gap between actual and desired investment is narrowed in the current period, whereas if $\lambda = 0$, the gap remains unbridged.

Substituting equation (15) into model (4),

$$(17) I_t - I_{t-1} = \lambda [(a_0 + (a_1 - a_2 R_t) Y_t - I_{t-1})] + u_t$$

In addition our model includes factors that impinge on the investment process without being part of the accelerator or adjustment mechanisms. The most important among these are:

a cash flow variable as it is the source of internal funding for investment, and as it is the source of future output and profitability. Since profit is targeted by economists as the prime cash flow variable, we use real after-tax profits of non-financial corporate business without inventory valuation adjustment and capital consumption allowance, π_t . Profits, π_t , are then divided by a proxy for capacity utilization, the total manufacturing capacity utilization rate, CP_t . The resulting series, (π_t / CP_t) , is technically a measure of the average profit per one-percent of capacity utilized, where profit is measured in real billion dollars. It is expected that the term (π_t / CP_t) will have a strong positive impact on the level of investment as the latter is theorized to be a function of profits (vonUngern-Sternberg, 1980, p.747).

a dummy variable for recession years, DR , as it is expected the level of investment will fall disproportionately in recession years due to bleak expectations on profits and output demand.

A dummy variable, DT , to capture the change in tax parameters after the Economic Recovery Tax Act, ERTA, which was signed into law in August 1981, but which began to exert

its impact on investment expenditure in 1983 – 1984. “The corporate income tax was ... reduced from 48 to 46 percent, and ERTA allowed accelerated depreciation of new capital assets and a system of tax credits for investment. Both of these provisions decreased the effective tax burden on new investment” (Schnitzer, 1987, p.134). Thus, the variable, DT, is expected to have a positive impact on investment as a lower tax burden will increase after-tax profits, and thereby shift the investment function upward.

Substituting π_t , DR, and DT above into model (17), we obtain:

$$(18) I_t - I_{t-1} = \lambda [(a_0 + (a_1 - a_2 R_t) Y_t - I_{t-1}) + a_3 (\pi_t / CP_t) + a_4 DR + a_5 DT + v_t ,$$

where v_t is the disturbance term.

Solving for the level of gross investment in the current period, I_t , we get:

$$(18a) I_t = \lambda a_0 + \lambda a_1 Y_t - \lambda a_2 R_t Y_t + (1 - \lambda) I_{t-1} + a_3 (\pi_t / CP_t) + a_4 DR + a_5 DT + v_t ,$$

which is the final equation to be estimated with the OLS procedure. It should be noted, however, that the coefficient of output demand, Y_t , and that of the ratchet interest rate, R_t , represent only short-run estimations of the impact of changes in these independent variables on the level of investment. To calculate the long-run estimations, a_1 and a_2 , λa_1 and λa_2 have to be divided by λ which represents the speed of adjusting the actual to the desired level. How λ is arithmetically obtained from the coefficient of the lagged investment variable, I_{t-1} , will be shown in the next section.

The data used in the estimation of model (18a) are all obtained from the Economic Report of the President. Output demand, gross investment, and profits are all annual rates measured in billions of current dollars then deflated by the Producer Price Index, base year – 1982. The capacity utilization variable is represented by the output-capacity ratio for the manufacturing sector annual rates.

The generation of numerical values for the ratchet interest rate variable is fairly simple. First, the rate of change in the Producer Price Index, base year, 1982, is subtracted from commercial paper rate (6 months) to derive real interest rates. The first value of the real rate of interest is set equal to the first value in the ratchet series. If the second value of the real rate of interest is greater than the first, the second value is recorded after the first ratchet value. If not, the first ratchet value is retained throughout the subsequent years until the next higher real interest rate comes along. Thus, the last highest value for the real interest rate is recorded so long as it is above that of the preceding years. When this procedure is completed, we should end up with a real interest rate series where the last highest value of the ratchet series where the highest value of the ratchet series is the same as the last highest in the interest rates series.

V – RESULTS

Applying the OLS method to model (18a), and using the above annual data, the following results are obtained:

$$I_t = - 22.86 - 0.039 Y_t - 0.052 R_t Y_t + 0.59 I_{t-1} + 23.06 \pi_t / CP_t - 14.57 DR + 13.98 DT$$

Table 2: Estimated Coefficients and Associated T-Values

	Constant	Y_t	$R_t Y_t$	I_{t-1}	π_t/CP_t	DR	DT
Coefficient	-22.86	-0.039	-0.052	0.59	23.06	-14.57	13.98
T-Value	-4.29	4.27	-0.9	9.61	2.87	-2.87	4.3

Table 3: Vital Statistics for the Estimated Model

Period of Fit	R-Squared	Adjusted R ²	Durbin-Watson, D-W	Number of Observations, n	F-Value	Prob > F	h-statistic
1950-1988	0.99	0.99	2.17	39	1053.139	0.0001	-0.575

Thus, the estimated model explains more than 99 percent of the variations in real investment in plant and equipment during the period 1950 – 1988. The F-statistic suggests that the overall fit is statistically significant at the 1 percent level. The Durbin-Watson test is not applicable in this case since we are using a lagged dependent variable as an independent variable. Therefore, the h-statistic is calculated instead, and it is found to be well below the critical value of 1.67. This signifies that the estimated equation does not suffer from an autocorrelation problem.

All the coefficients have the expected signs. And except for the scaled ratchet variable, all the estimated coefficients are significant at least at the 1-percent level for the one-tailed test.

The statistically insignificant t-value for the scaled ratchet shows that albeit its coefficient enters the model with the right sign, its impact on the level of investment is statistically invalid. One reason for that could be tax exemptions on interest payments for nonresidential fixed investment (Abel and Blanchard, 1986, p.255). Indeed, “the Modigliani – Miller work shows that for certain well specified capital market conditions the only impact of debt financing upon the cost of capital arises from the tax deductibility of interest payments” (Elliott, 1980, p.985). “Tax laws and depreciation allowances offset some of the higher cost of capital” (Garofalo and Malhorta, 1985, p.58). Nonetheless, definitions for the rental price of capital that accounted for tax parameters and depreciation have not yet produced uncontroversial conclusions. And neither does the inclusion of the new ratchet rate of interest salvage this relationship from its empirical inconclusiveness. In other words, there is still room for further experimentation, maybe with a ratchet that accounts for the tax deductibility of interest payments on investment.

In the interpretation of the estimated coefficients, it should be remembered that the coefficients of both output demand, Y_t , and the scaled ratchet variable, $R_t Y_t$, stand only for the immediate short-run impact of their change on the level of gross investment. To obtain the short-run impact of an increase in real output demand by one billion dollars, we should get the partial derivative of I_t with respect to Y_t :

$$\partial I_t / \partial Y_t = 0.039 - 0.052 R_t.$$

At the point of means of R , which is equal to 0.054, meaning that the average ratchet interest rate between 1950 and 1988 is 5.4%, the numerical value of the short-run of the partial derivative is:

$$\partial I_t / \partial Y_t = 0.039 - (0.052)(0.054) = 0.036.$$

Thus, an increase of one billion dollars in real output elicits an increase in real business expenditure for new plant and equipment by \$36 million in the short-run.

And even though the t-value of the ratchet interest rate is insignificant, we will calculate its short and long run coefficients, and the ratchet interest elasticity of gross nonresidential fixed investment for comparative purposes. Similarly, $\partial I_t / \partial R_t = -0.052 Y_t$, which at the mean of Y

equals -121.212. Hence, if the coefficient of the interest ratchet had been significant we would have said that an increase in the scaled ratchet by 1 percent leads to a decrease in real gross investment by \$121 billion in the short-run.

To obtain the long-run impact, both coefficients have to be divided by λ which is equal to one plus the coefficient of the lagged dependent variable I_{t-1} . Hence, $1 + (-0.59) = \lambda = 0.41$, which means that the speed of adjusting the actual to the desired or optimal level of gross investment is 41% in one year, which is very slow since it implies that it takes about two and a half years to eliminate a given discrepancy.

Dividing the estimated coefficients of output demand and the scaled ratchet by $\lambda = 0.41$, we derive their long-run estimates. Thus, $\partial I_t / \partial Y_t = (0.039/\lambda) - (0.052/\lambda) R_t = 0.88$ at the mean of R . As real output demand increases by \$1 billion, the long-run overall response of real gross investment would be an increase of \$88 million. Similarly, $\partial I_t / \partial R_t = (-0.052/\lambda) Y_t = -295.64$ at the mean of Y . If the coefficient of the ratchet interest rate had been significant, as the ratchet interest rate increases by 1 percent, real gross investment would decline by \$295 billion in the long-run. Below, coefficients and elasticities are compared in Table 4:

Table 4: The Elasticity of Investment with Respect to Output Demand and the Ratchet Interest Rate, and their Estimated Coefficients in the Short and Long Runs

	Coefficients		Elasticities	
	Short-run	Long-run	Short-run	Long-run
Output D	0.036	0.088	0.41	0.995
Ratchet	-121.2	-295.64	-0.032	-0.077

The elasticities for real gross investment with respect to real output demand and the ratchet interest rate were calculated at the point of means. The mean of gross real investment is \$206.18 billion, that of output demand, \$2331 billion, both in 1982 prices, that of the scaled ratchet, $R_t Y_t$, \$126.85 billion, and that of the interest rate ratchet, 0.054, or 5.4%.

The calculated elasticities of output demand are inelastic in the short-run and unitary elastic in the long-run. Given other things, this implies that an increase in total demand by one-percent would probably increase gross nonresidential fixed investment in new plant and equipment by about one-percent in the long-run.

On the other hand, generalizations are not possible about the ratchet elasticity of nonresidential fixed investment because its t-value is insignificant. But if it has been significant, it could have been said, then, that gross investment is inelastic with respect to interest in the short and the long-run.

The cash flow variable, π_t / CP_t , enters the equation positively as predicted. Its coefficient implies that as the average real profit per one-percent of capacity utilized increases by \$ 1 billion, firms would undertake the expansion of their productive capacity further by spending an extra \$ 23.06 billion on new plant and equipment. This could be explained by the fact that increased profits provide firms with cheaper sources of investment funding, and that higher profit rates indicate higher potential total demand.

Finally, the dummy variable for recession years shifts the intercept term downwards by 14.57, so that the intercept becomes $(-22.86) + (-14.57) = -37.43$. This means that during recession years low expectations shift the investment function disproportionately downward in the short-term. Dividing the intercept by $\lambda = 0.41$, we get the long-term intercept of $(-37.43) / 0.41 = (-91.29)$. The intercept would then be in the long-run, during recession years, $(-91.29) + (-14.57) = -105.86$.

= -70.32, which shows that a recession would shift investment downward in the long-run even further.

By comparison, the dummy variable denoting the change in tax rules shifts the intercept term upwards by 13.98, so that it becomes in the short-run $(-22.86) + (13.98) = -8.57$, which shows that the tax laws introduced in the beginning of the eighties have had a positive impact on nonresidential fixed investment. The same institutional change in tax rules has a long-run effect that is also positive albeit weaker. Thus in the long-run, $(-55.75) + (13.98) = -41.77$ is the intercept of the investment function in the aftermath of the change in tax parameters.

The statistical results analyzed above show that while no exact relationship, if any, could be established between the ratchet interest rate, on one hand, and gross nonresidential fixed investment on the other, investment is mostly influenced by total output demand and the average profit rate per unit of capacity utilized. The influence of output demand in the whole economy is both short-run and long-run with the long-run impact well above than twice the short-run effect. The potent effect of the profit variable corroborates the findings of other papers, e.g., Eisner, 1978, and Fazzari and Mott, 1986, which emphasize the role of cash flow variables, like profit, to investment.

The output demand elasticity of gross investment which is almost unitary elastic in the long-run suggests that policy recommendations oriented towards stimulating output might better stimulate investment than policies that seek to control investment through interest rates. This is because according to this paper, and many others, a definite causality could not be established between interest rates and gross nonresidential fixed investment in new plant and equipment. A ratchet interest rate variable does not clear the ambiguity that shrouds this relationship even in the context of an accelerator-cash flow model.

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Using NSGAI for Solving Multi-objective Master Production Scheduling Problems with Application

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Abstract:

The master production schedule (MPS) problem is a typical NP-hard problem. So, searching for the global optimal solution in a MPS problem usually demands an effort most industries are not willing to pay. Therefore, the use of meta-heuristics that generates good solutions in reasonable computer time becomes an attractive alternative. In this paper, a Non-dominated Sorting Genetic Algorithm-II (NSGA-II) is used to solving multi-objective master production schedule (MOMPS). The NSGAI is a very effective algorithm for solving multi-objective optimization problems and finding optimal Pareto front. The MOMPS was applied in the Cement plant in Mosul city. The application involves determine the gross requirements by demand forecasting using artificial neural networks, in addition to determination of the available capacity of each production line by estimating the parameter values of Renewal Process model for all failures and calculating the availability. The results related that multi-objective model was presented suitable framework for MOMPS and optimum use.

Keywords—Master Production Schedule; Non-Dominated Sorting; Genetic Algorithm; Multi-Objective Optimization.

1. Introduction

The key success of a manufacturing company to be competitive in recent globalization is to satisfy customer's requirement on time with good quality of products and services. Obviously, this will be a challenging mission for decision makers particularly in today's highly dynamic market environment which is characterized by short product life-cycle, high product variety (customization), unpredictable demand pattern and short customer lead times. The gaining competitive advantage is being more difficult due to the uncertainty of the market environment. It's required smooth communication and effective coordination between marketing/sales and manufacturing department to ensure that the company resources can cope the varying customer demand. Master Production Schedule (MPS) is a function in Production Management System, which provides mechanism for the dynamic interaction between marketing and manufacturing [14].

In most industries worldwide, the creation of an MPS considers conflicting objectives, such as maximization of service levels, efficient use of resources, and minimization of inventory levels. Unfortunately, the complexity and effort demanded for the creation of a master plan grows rapidly as the production scenario increases, especially when resources are limited, which is the case for most industries. Due to such complexity, industries usually use simple heuristics implemented in spreadsheets that provide a quick plan, but can compromise efficiency and costs [12].

In general, master scheduling problems are NP-hard problems, that is, unlikely there is no an algorithm that can find an optimal MPS solution in polynomial time. In practical, this means that the processing time required to solve such problem will quickly and enormously grow as the problem size grows. For this reason, truly optimal solution is quite difficult to be found.

Therefore, meta-heuristic or evolutionary algorithms such as genetic algorithm, simulated annealing, tabu search, etc. are also employed to obtain optimum solution [16].

The main advantages of Evolutionary algorithms are: they do not require the objective function to be differentiable or continuous, they do not require the evaluation of gradients and they can escape from local minima [5].

In this paper, a NSGAI is used to solving multi-objective master production schedule (MOMPS). The purpose of this paper is to apply the MOMPS in the cement plant. The application involves determine the gross requirements by demand forecasting using artificial neural networks and determination of the available capacity of each production line.

The paper is organized as follows: Section 2 present a brief revision of master production scheduling and genetic algorithms. The multi-objective genetic algorithm NSGAI to solve BAP has been proffered in Section 3. In Section 4, a MOMPS has been created for the cement plant. The conclusion of this study has been presented in Section 5.

2. A BIT FROM PRODUCTION PLANNING OPTIMIZATION AND GENETIC ALGORITHMS

This section explain some of the fundamental concepts behind production planning, in particular, master production scheduling and genetic algorithms.

2.1 Master production scheduling: Basics

According to the American Production and Inventory Control Society (APICS), a master production plan is a declaration of what the company expects to manufacture, which become a series of planning decisions that drives the material requirements planning (MRP) system. It represents what the company intends to produce expressed in configuration, quantities and specific dates. The master plan is not a sales forecast, which represents a demand declaration. It should take into consideration the demand, pending orders, material availability, projected ending inventory levels, capacity availability, managerial policies and goals, among others. The master plan is the result of the master production scheduling [7].

MPS problems usually involve conflicting objectives, like minimizing inventory and set-up times, and maximizing service levels. Because of all this, use of heuristics and meta-heuristics are suggested for the resolution of these types of problems. Several artificial intelligence metaheuristics have been applied to optimization, among them, genetic algorithms, taboo search, ant colony, beam search and simulated annealing [12].

Wu et al. (2002) [19] built a mathematical model of MPS and developed a genetic algorithm incorporating several techniques to satisfy constraints for making an optimized MPS of production lines with both assembly and processing. *Vieira & Ribas* (2004) [5] applied simulated annealing to solve production planning problem, more specially, master production schedule. *Soares & Vieira* (2008) [12] introduced new genetic algorithm structure for solving MPS problem. This study formulates the fitness function, which aims to minimize inventory level, maximize service level, minimize overtime and minimize inventory level below safety stock.

2.2 Mathematical Model of MPS

The master production schedule problem can be mathematically modeled as a mixed integer program as follows [14]:

$$\text{Min } EI = \frac{\sum_{k=1}^K \sum_{p=1}^P EI_{kp}}{TH} \quad (1)$$

$$\text{Min } RNM = \frac{\sum_{k=1}^K \sum_{p=1}^P RNM_{kp}}{TH} \quad (2)$$

$$\text{Min } BSS = \frac{\sum_{k=1}^K \sum_{p=1}^P BSS_{kp}}{TH} \quad (3)$$

$$\text{Min } OC = \sum_{r=1}^R \sum_{p=1}^P OC_{rp} \quad (4)$$

subject to:

$$BI_{kp} = \begin{cases} OH_k & \text{if } (p = 1) \\ EI_{k(p-1)} & \text{if } (p > 1) \end{cases} \quad (5)$$

$$EI_{kp} = \max \left[0, \left((MPST_{kp} + BI_{kp}) - GR_{kp} \right) \right] \quad (6)$$

$$MPST_{kp} = \sum_{r=1}^R MPS_{kpr} \quad (7)$$

$$MPS_{kpr} = BN_{kpr} * BS_{kpr} \quad (8)$$

$$RNM_{kp} = \max \left[0, \left(GR_{kp} - (MPST_{kp} + BI_{kp}) \right) \right] \quad (9)$$

$$BSS_{kp} = \max \left[0, (SS_{kp} - EI_{kp}) \right] \quad (10)$$

$$CUH_{rp} = \sum_{k=1}^K \frac{(MPS_{kpr})}{UR_{kr}} \quad (11)$$

$$CUH_{rp} \leq AC_{rp} \quad (12)$$

$$OC_{rp} = \max \left[0, (CUH_{rp} - AC_{rp}) \right] \quad (13)$$

In this formulation, each character expresses the value as follows. K : Total quantity of different products, R : Total quantity of different productive resources, P : Total number of planning periods, TH : Total planning horizon, EI_{kp} : Ending inventory level generated for product k at period p , RNM_{kp} : Requirements not met for product k at period p , BSS_{kp} : Quantity below safety inventory level for product k at period p , OC_{rp} : Over capacity needed at resource r at period p , BI_{kp} : Initial inventory level of the product k at period p , OH_k : Initial available inventory (on-hand), at the first scheduling period, GR_{kp} : Gross requirement for product k at period p , BS_{kp} : Standard lot size for product k at period p , NR_{kp} : Net requirement for product k at period p , considering infinity capacity, SS_{kp} : Safety inventory level for product k at period p , UR_{kr} : Production rate for product k at resource r (units per hour), AC_{rp} : Available capacity, in hours, at resource p at period p , BN_{kpr} : Quantity of standard lot sizes needed for the production of the product k at resource r , at period p (number of lots), MPS_{kpr} : Total quantity to be manufactured of the product k at resource r at period p , $MPST_{kp}$: Total quantity to be manufactured of the product k at period p (considering all available resources), CUH_{rp} : Capacity used from the resource r at period p , CUP_{rp} : Percent rate obtained from the relation of the number of hours consumed from the resource r at period p , and the available number of hours to the same resource and period.

3. Multiobjective Genetic Algorithm For MOMPS

Multi-objective optimization is a research topic attracting much attention because many optimization problems involve multiple and conflicting objectives and a compromise may have to be made among these objectives. The most important concept in multi-objective optimization is Pareto optimality. A solution is Pareto optimal if it is not dominated by any other solution in terms of all objectives considered [2]. Since a number of solutions may be Pareto optimal, the task of multi-objective optimization is to find as many as possible such non dominated solutions, and this task is quite complex. In this section, a simulation-based multi-objective optimization method that combines simulation evaluation of performance and meta-heuristic search with multi-objective genetic algorithms called NSGA-II is adapted for the optimization of bed allocation. We use a multi-objective optimization method because there are more than one objective in bed allocation optimization especially patient admission rate and human resources.

GA is a search technique based on the mechanism of natural selection and reproduction introduced by Holland and is used to search large, non-linear solution spaces where expert knowledge is lacking or difficult to encode and where traditional optimization techniques fall short. It starts with an initial set of randomly generated solutions called population and each individual in the population is called chromosome representing a solution. Each chromosome is composed of a set of elements called genes. At each iteration (generation) of GA, all newly generated chromosomes are evaluated using a fitness function to determine their qualities. High quality chromosomes are selected to produce offspring chromosomes through genetic operators, namely, crossover and mutation. After a number of generations, the GA converges to a chromosome which is very likely to be an optimal solution or a solution close to the optimum [3].

3.1 NSGA II Principle

NSGA-II computes successive generations of a population of solutions belonging to non-dominated fronts. The non-dominated set is identified and constitutes the non-dominated front of level 1 or front 1. In order to find the individuals in the next non-dominated front, the solutions of front 1 are discounted temporarily and the above procedure is repeated. This process continues until all fronts are identified. In order to maintain diversity in the population, the crowding-distance is used. The overall structure of the NSGAII is specified by Algorithm 1 [13].

Algorithm 1: NSGAII overall structure

```

Create the initial population  $P$  of size  $n$ 
Evaluate the  $n$  solutions using simulation
Sort  $P$  by non domination
Compute the crowding distance of each solution
while Stopping Criterion do
Create and add  $n$  children to  $P$  (using genetic operators: selection, crossover and mutation of two parents)
Sort  $P$  by non domination
Compute the crowding distance of each solution
 $newP = \emptyset$ 
 $i = 1$ 
while  $|newP| + |front(i)| \leq n$  do
Add  $front(i)$  to  $newP$ 
 $i = i + 1$ 
end while
 $missing = n - |newP|$ 
if  $missing \neq 0$  then
Sort the solutions by descending order of the crowding distance
for  $j = 1$  to  $missing$  do
Add the  $j$ th solution of  $front(i)$  to  $newP$ 
end for
 $P = newP$ 
end if
end while

```

3.2 GA Components for Multi-Objective MPS

In this study, the BAP has two objectives, namely patient admission rate and nursing hours, to optimize. Basic operations that characterize our adapted NSGA-II are explained as follows.

a. Input Informatin

For the master scheduling optimization, the software implemented takes into consideration as much parameters as possible found in actual industrial environments:

- number and description of products;
- number and description of productive resources (production lines, workstations, machines, production cells);
- number and description of time periods and duration for each period (periods with different durations are allowed);
- initial (on-hand) inventories—product quantities in the beginning of the planning horizon;
- gross requirements—needed quantity per product per period, estimated from forecasting and customers orders;
- batch sizes—production standard lot sizes per product per period;
- safety inventory level per product per period;
- production rate—the quantity a resource can manufacture of a product per time unit;
- setup time per product, non-depended on operation sequence; and
- available capacity per resource per period.

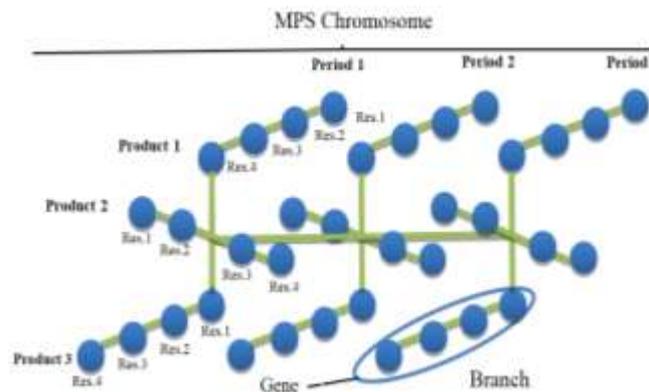
b. Chromosome Structured

The composition and shape of the country (chromosome) in MPS problems differs in the way of representation from the most representations found in the literature, which consider a single chromosome represented by a single bit vector structure. Fig. 1 illustrate the conceptual model for the structure implemented for a scenario with three products, four resources, and three periods [15].

The structure uses an alphabet to represent a country as a set of integer positive numbers. Each sphere in the structure represents a gene. A set of genes makes a branch, which represents the distribution of quantities to be made at the various available resources for a given product at a specific time period.

A set of branches composing the branch group represents the total distribution of quantities to be made of all the products at every resource, in a given time period. The complete MPS individual is made of a set of branch group. The length of this set is given by the number of time periods in the master plan horizon. The set of MPS countries making a population will evolve according to the NSGAI configuration in search for the best country (solution or master schedule).

Fig. 1. Structure of the MPS Chromosome



c. Initial Population Creation

The NSGA-II starts the search by generating a population of candidate solutions. In our implementation, The size of the population (number of countries) and the way the initial population is created have a significant influence in the performance of the algorithm and to

the quality of the results. The ideal situation would be to have the greatest possible diversity of countries to better through the search space. The pseudo code of population creation function for multi resources, multi products and multi periods may be written as follows:

```

for k=1:K
  for r=1:R
    if UR(k,r)≠ 0
for p=1:FP
  IP=randi([0,round(GR(k,p)/BS(k,p)),nPop,1)*BS(k,p);
  Pop=[Pop IP];
  IP=[];
end
    else
for p=1:P
  IP=zeros(nPop,1);
  Pop=[Pop IP];
  IP=[];
end
    end
  end
end
end

```

Where `randi([imin,imax],m,n)` returns m -by- n matrix containing integer values drawn from the discrete uniform distribution on the interval $(imin,imax)$ [10]. This heuristic approach fills up the most possible diversity, with values always respecting the standard lot size restriction. Consider a hypothetical situation where the gross requirement for a given product at a certain time period (time bucket) is 3,000 units, the standard lot size is 500 units, and there are four possible productive resources available to make the product, the genes for the first country in the population in the first period would be “{0;500;1,000;1500}” second country would have “{2,000; 3,000; 2,500; 500}”, and so on, sequentially for all individuals in the population.

d. Selection

Selection is a process in which chromosomes are chosen according to their fitness function value or their rank value. In this study, the tournament parent selection is used. Tournament selection is one of selection methods in genetic algorithms which runs a *tournament* among a few individuals chosen at random from the population and selects the winner (the one with the best fitness) for crossover. The tournament size used in our computational experiments is 2.

e. Crossover and Mutation

The crossover produces new offspring chromosomes from parent individuals. Two new chromosomes are created by exchanging some genes of two parent chromosomes. We use in our implementation the single-point crossover. This kind of crossover creates a pair of offspring by exchanging parts of the parents after a randomly chosen crossover point.

The mutation includes adding and subtracting one bed to different random genes in the chromosome. The function of mutation is to maintain the diversity of the population in order to prevent too fast convergence of the algorithm.

f. Crowding Distance Calculation

As the overall population size of P is $2n$, we cannot accommodate all fronts in the new parent population ($newP$) of size n . The non accommodated fronts are simply deleted. When the last allowed front is considered, there may exist more solutions in the last front than the remaining slots in the new population. In order to avoid arbitrarily choosing individuals, we choose the individuals that can assure diversity between the considered ones; that is what we call a niching strategy. For this reason, we calculate the crowding distance measuring the Euclidean distance

between the neighboring individuals in each front (Fig. 1). The Algorithm 2 describes the crowding distance procedure [13].

Algorithm 2: Crowding distance calculation

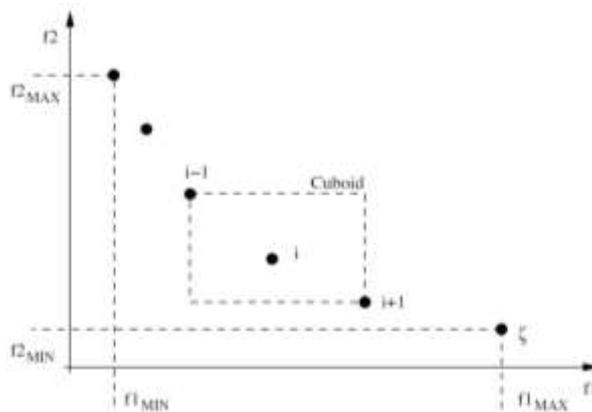
```

Let  $\zeta$  the number of solutions
for each solution  $i$  do
Initialize the distance to 0
for each objective  $m$  do
Sort the solutions according to the objective  $m$ 
 $d_1 = 0, d_\zeta = \infty$ 
for  $i = 2$  to  $(\zeta - 1)$  do
 $d_i = d_i + (f_m^{i+1} - f_m^{i-1}) / (f_m^{MAX} - f_m^{MIN})$ 
end for
end for
end for

```

Where f_m^i is the value of the objective function m of the i th solution. Thereafter, those strings with largest crowding distance values are chosen to become the new parent population. Once the non-dominated sorting is over, the new parent population, $newP$, is created by choosing solutions of different non-dominated fronts.

Fig. 1. Crowding distance



g. Stopping Conditions

There are no universal stopping conditions accepted for multi-objective genetic algorithms. In this study, we simply stop our algorithm after a given number of iterations (N_g).

4. CREATE MOMPS FOR Cement plant

In this section, we create a master production schedule to kufa cement plant. The plant was established in 1977, and currently provides two types of products.

A. Determine Input Parameters of MPS

Table 1 shows the details of MPS parameters required to create MPS problem of cement plant. The production rates in table 2. is primary before calculating availability.

TABLE 7. THE INPUT PARAMETERS OF MPS

Parameters	Value
K	2 (C1,C2)
R	9 (BO1,BO2,BN1,BN2,BW1,BW2, HO1,HO2,HN)
P	6 weeks
UR_{kp}	Table 2.

BS_{kp}	10 ton for all products and all periods
OH_k	(49500, 3600)
SS_{kp}	(33000, 2800)
AC_{rp}	128 hours/week for each resource
OL_{max}	28 hours/week for each resource

TABLE 2. THE PRIMARY PRODUCTION RATES (TON/HOUR)

Res.	C1	C2
BO1	6.88	0.00
BO2	6.88	0.00
BN1	46.25	0.00
BN2	46.25	0.00
BW1	68.75	0.00
BW2	68.75	0.00
HO1	0.00	4.69
HO2	0.00	4.69
HN	59.38	0.00

B. Determine Production Rates

To determine production rates, we must simulate the random machine failure following a certain probabilistic distribution. The scenario of this simulation is to apply failure on active work stations. Nine failure controls STO_1, STO_2, ..., STO_9 are set to trigger the random failure in work stations BO1, BO2, ..., HN respectively. In this study, we apply the Renewal Process model with normal distribution to analyze nine data sets, each one belongs to one of the types of failure. By using Least squares method, we estimate the parameter values for all failures, which are presented in Table 3. Table 4. The availability values according to estimated parameters.

TABLE 3. THE PARAMETER VALUES FOR ALL FAILURES

Failure	Res.	Availability	MTTF		MTBF	
			μ	σ	μ	σ
STO_1	BO1	22.68%	18.55	3.2	5.44	2.9
STO_2	BO2	6.71%	22.39	18.9	1.61	1.5
STO_3	BN1	14.19%	20.59	18.9	3.41	1.6
STO_4	BN2	72.21%	6.67	2.4	17.33	8.1
STO_5	BW1	51.23%	11.71	10.9	12.29	4.8
STO_6	BW2	88.22%	2.82	0.1	21.17	4.1
STO_7	HO1	28.62%	17.13	2.8	6.87	2.5
STO_8	HO2	0.86%	23.79	23.8	0.21	0.1
STO_9	HN	12.79%	20.93	19.1	3.07	2.8

TABLE 4. THE PRODUCTION RATES (TON/HOUR)

Res.	C1	C2
BO1	1.56	0.00
BO2	0.46	0.00
BN1	6.56	0.00
BN2	33.40	0.00
BW1	35.22	0.00
BW2	60.65	0.00
HO1	0.00	1.34
HO2	0.00	0.04
HN	7.60	0.00

C. Determine Gross Requirements

During the process of formulate MPS, as the most important input, gross requirements (demand) forecast has play great role in the final formation of MPS. BP neural network model has strong fault-tolerant performance, learning performance, self-adaptive performance and non-linearity map ability, and it is adaptive to solve some problems like non-determinacy inference of complex causal relation, judgment, recognition, classification and so on [1] .So try to use BP network algorithm in the MPS gross requirements forecast model.

We used the weekly demand data for each product. The sample data covered the time period from 31 January 2009 to 31 December 2013 and contains a total of 202 observations. The data were divided into a training, validation and testing set for conducting the experiment in order to determine the best neural network structure.

In general, a three layer feed forward neural network model has been used for this study. The logistic and identity function have been used as activation function for the hidden nodes and output node respectively. Since multi-step ahead forecasting will be done using iterative procedure so only one output node is employed. Hence, the model uncertainty is associated only with the number of input nodes (p) which is the number of lagged observations in this case and number of hidden layer nodes (q). The number of input nodes and hidden nodes were determined with the help of Monte Carlo simulation. We varied the number of input units from 1 to 12 as it plays a significant role in mapping the autocorrelation structure. The number of hidden units varied from 2 to 12.

By using Pletarion Synapse Neural Networks development environment, we find the best structure and gross requirements for each product as seen in table 5.

TABLE 5. THE BEST ANN STRUCTURES AND GROSS REQUIREMENTS

Pr.	Str.	Weeks					
		1 st	2 nd	3 rd	4 th	5 th	6 th
C1	6,7,1	11835	15928	16051	9677	9872	17513
C2	5,4,1	172	244	575	287	244	244

C. Create MPS Model

Having substituted the parameter values into Equation 1. The multi-objective model for the MPS problem is obtained as follows:

$$\begin{aligned} \text{Min } EI &= \frac{\sum_{k=1}^2 \sum_{p=1}^6 EI_{kp}}{5} \\ \text{Min } RNM &= \frac{\sum_{k=1}^2 \sum_{p=1}^6 RNM_{kp}}{5} \\ \text{Min } BSS &= \frac{\sum_{k=1}^2 \sum_{p=1}^6 BSS_{kp}}{5} \\ \text{Min } OC &= \sum_{r=1}^9 \sum_{p=1}^6 OC_{rp} \end{aligned}$$

s.t.

$$\begin{aligned} CUH_{rp} - AC_{rp} &\leq 28 \\ x_{krp} &\geq 0 ; k = 1,2; r = 1 \dots 9; p = 1 \dots 6 \end{aligned}$$

D. The Solution

Solving the above objectives using NSGAI algorithm, the degree satisfaction and achievement level of objectives for the optimum solution are obtained as follows.

$$Z_1 = 34073, Z_2 = 123, Z_3 = 1731.96, Z_4 = 3.8$$

The best MPS solution is presented in Table 6. The value “zero” indicate that there are no products to be manufactured in the related resource and at the corresponding time period.

Table 6. The best MPS solution found

		Week					
Res.		1 st	2 nd	3 rd	4 th	5 th	6 th
C1	BO1	150	30	140	170	70	0
	BO2	40	0	0	0	0	0
	BN1	730	0	10	720	20	0
	BN2	110	3630	1500	3740	3740	3220
	BW1	3940	0	3640	3940	3720	3750
	BW2	6790	6790	4390	6790	6790	3760
	HO1	0	0	0	0	0	0
	HO2	0	0	0	0	0	0
	HN	850	0	850	0	850	0
	Total	12610	10450	10530	15360	15190	10730
C2	BO1	0	0	0	0	0	0
	BO2	0	0	0	0	0	0
	BN1	0	0	0	0	0	0
	BN2	0	0	0	0	0	0
	BW1	0	0	0	0	0	0
	BW2	0	0	0	0	0	0
	HO1	150	150	150	150	150	150
	HO2	0	0	0	0	0	0
	HN	0	0	0	0	0	0
	Total	150	150	150	150	150	150

5. Comparison between NSGAII and ga

Soares *et al.* (2008) [12] solved the MPS model using genetic algorithm. To provide benchmarking, the algorithm proposed of Soares’s study will be used here to solve MPS model for cement plant.

The parameter settings of GA algorithm are described as follow: p_c is equal to 0.9, p_m is 0.7, the size of population is equal to 500 and the maximum number of iterations is equal to 1000 generations.

As a final result, the comparison of performance measures between NSGAII and GA of MPS model for the cement plant production scenario is presented by Table 6.

TABLE 6. THE COMPARISON BETWEEN NSGAII AND GA

Alg.	<i>EI</i>	<i>RNM</i>	<i>BSS</i>	<i>OC</i>
GA	35588	314	2485.7	14.33
NSGAII	34073	123	1731.96	3.8

The solution of GA yields high levels of all objectives while the solution of NSGAII yields lower inventory level, lower requirement not met, lower inventory below safety stock and lower overtime. It seems that the GA may be not able to assigned properly overtime (“where and when” question is not addressed accurately). Theoretically, overtime should be able to reduce inventory level if it is placed on appropriate resource and right time. In contrary, the NSGAII can effectively address when the additional capacity must be substituted, how much it is required and at which resource should be added.

6. Conclusions

This paper proposes NSGAII for solving production planning, in particular, multi-objective MPS problems and its performance is evaluated by create MOMPS for Cement plant. The

NSGAI can solve efficiently the multi objective model of MPS. It has ability to determine intelligently how much, when, and where the additional capacities (overtimes) are required such that the inventory can be reduced without affecting customer service level. The comparison results show the efficiency and capabilities of the proposed algorithm in finding the optimum. The performance achieved is quite satisfactory and promising for solving MPS models.

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The Impact of High Quality Relationship on Innovative Work Behavior Of Employees Through Psychological Wellbeing, A Case Of Pharmaceutical Sector

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Abstract:

The impact of qualities and experiences of high quality relationship is of great value to the companies and field of human resource. Pakistan is facing critical situation regarding qualities and experiences of relationship of employees. Innovative work behavior of employees has not been studied in developing countries like Pakistan. In order to assist the business in pharmaceutical sector this study is aimed at investigating the effect of experiences and qualities of high quality relationship on innovative work behavior of employees. Pharmaceutical sector was considered for this study as this sector has significant contribution in Gross Domestic Product (GDP) of Pakistan. This research was quantitative in nature in which data was collected from managerial and non-managerial employees of pharmaceutical sector. Total 310 questionnaires were completely filled and entered in SPSS for analysis. Correlation analysis was performed in SPSS to show relationship between the variables. Model was tested through structural equation modeling in AMOS and goodness of fit indices were estimated using Hu and Bentler (2010) criteria and all the values were found to show good fit model. To test the mediation among variables through regression the SOBEL test was used as a supplemental test. All the direct and mediational hypotheses were accepted. The results reveal that the psychological wellbeing mediates the relationship between experiences, qualities of high quality relationship and innovative work behavior. Limitation of the study and managerial implications were also discussed along with guideline for future research.

Keywords: Qualities of relationship, Experiences of relationship, Psychological Wellbeing, Innovative work Behavior and Pharmaceutical Sector.

INTRODUCTION

Capacities and experiences of high quality relationship have an effect on the innovative work behavior of employees since long time to researchers and practitioners. Researchers found that how effectively these constructs help to enhance the psychological wellbeing of employees by contributing the technical and structural core of organization by implementing the measures to improve the innovative work behavior of

employees. Capacities of high quality relationship have three dimensions which are connectivity, emotional carrying and tensility of employees within the organization. While experiences of high quality relationships consist of mutuality and positive regard of workers within the organizations. This study investigated the impact of capacities and experiences of high quality relationships on employee's creative work behavior which is being mediated by psychological wellbeing. Three dimensions being used in order to measure the aptitudes of high quality relationships including Emotional Aptitude, tensility and connectivity while experiences of high quality relationships are dimensioned into Mutuality and Positive Regard. This study explains whether the relationship between these interpersonal relationships and innovative work behavior of employees is mediated by psychological wellbeing or not? The direct association between capacities, experiences of high quality relationships and innovative work behavior through different analysis.

Organizations want to keep their employees innovative because when capacities and experiences of employees working in the organization will be high, they will work creatively and resultantly perform well for the wellbeing of the organization. Organizational creativity is a complicated phenomenon which enables a structure to follow the environmental and technically latest capabilities and maintain competitive position in the market. Psychological wellbeing also play a vital role in the well performance of organization when employees are psychologically and emotionally strong they work creatively and in a unique way.

Interactional relationships at work place have an important effect on the employee's psychological wellbeing and innovative work behavior. High quality relationships are those streams through which employees behave well in the organization and work innovatively to create a competitive advantage for other firms. In public sector organizations these capacities and experiences of relationships are low as compared to private sector organizations in Pakistan. Previous researcher proved that there exists a significantly positive relationship between these variables. Dutton and Heaphy, (2003) proposed that experiences and capacities of high quality relationships become a reason to explore and define the features that make a supportive work environment between two people. At the same time employees who experience high quality relationship have a feeling of esteem and associated with the firm which supports them to fulfill the probability followed by problems with solutions. Our study is based on the work of Dutton and Heaphy, (2003) who provided this conception to explain this relationships. The first cluster explains the features and capacities of high quality relationships while the other captured the experience of every person in the relationship. Psychological wellbeing has a mediatory role in our study which mediates the relationship between independent and dependent variable and it's scale is developed by Heun, (2001). Innovative work behavior keeps the organization within the market and maintain its competitive advantage and is in direct relationship with these relationships and it's scale was developed by Etlie and O'Keefe, (1982). Previous investigations showed that there exists positive and direct relationship between these variable (Carmeli, 2009).

The problem of this study is to examine the impact of capacities and experiences of high quality relationships, by considering the intervening play of psychological wellbeing in the pharmaceutical sector of Lahore, Pakistan. Innovative work behavior of employees is of significant importance for the management of any organization. Revealing the most important reason of innovative work behavior will help the management to take important measures to take important decisions regarding that. The objective of this study is to examine the connection between capacities and experiences of high quality relationship and innovative work behavior in the presence of mediating variable psychological wellbeing.

The study of examining the impact of capacities and experiences of high quality relationships on innovative work behavior of employees will be of great value to the pharmaceutical sector and human resource development companies. This study is a contribution to many studies that captured this main concept so that it is important human in resource scenario. This investigation will assist to those organizations that have a desire to implement these concepts in order to progressively improve the innovative work behavior of employees. This study will also be an addition to the existing body of knowledge nationally as well as internationally in the relevant field. This study aims at to develop more interest in this scenario so that the research in future could be conducted in the context of different sectors.

LITERATURE REVIEW

2.1. Capacities of High Quality Relationships

The present era is the competing one and for every organization, it is important to construct interpersonal relationship between workers and management in order to sustain a reputation in a market. Interpersonal relationship has significant impact on people at work place (Dutton & Ragins, 2007). Through high-quality interpersonal relationship at work place, people engage in learning behavior that helps an organization for achieving its desire goals (Lewin and Regine, 2000). The capacities of relationship enable members to exchange their views, ideas, information and experience for solving problems and establish new conduct for improving work process and outcomes. These relationships and associations have some bearing on the personnel working in an organization, on their involvement in some socialistic attitudes and on the coordination cooperation and interaction and identification of faults (Weick and Roberts, 1993).

Relationship has different capacities and functional characteristics like emotional carrying capacity, tensility and connectivity. Emotional carrying capacity describes the level of positive as well as adverse feelings. These relations demonstrate a higher emotional facing aptitude which proposes that an individual face multi dimensions feelings of each other. By establishing a culture of sharing ideas and thoughts and exchanging analytical data, new innovations can be created. Kozlowski and Ilgen, (2006), proposed that by encouraging positive alterations at work environment organizations can enhance these relationships. Argote, (1999) proposed that some learning behaviors can be implemented to improve work behaviors and to carry on the steps of reflections, due to that we can enhance and share the knowledge base. Previous studies investigated that there is very little information available about the facilitation of these types of behaviors in organizations but some observers have also notices that the investigation about these learning behaviors mostly remained unobserved (Carmeli, 2007, p. 41). At work place these relations are the base factors if employed by personnel can assist the organization for the achievement of its goals. Researchers investigated that aptitude of these relations and their dimensions focus on the short description of the extent of these relational naught at workplace and it assist in making the organization of gaining its value. Previous researches proposed that these high connections are demonstrated by higher extent of connectivity and in higher aptitude relationships there exists lot of experiences according to a specific environment appreciated by vitality and positive esteem. Actually studies have demonstrated that these types of interpersonal relationships are the benchmarks for developing a higher level of learning behavior in any organization (Dodgson, 1993).

Emotional Carrying Capacity

Emotional carrying capacity can be briefly termed as an association's capability to deal with all types of emotional feelings according to the situation (Carmeli, 2009). Emotional carrying capacity is the level of showing all dimensions of feelings in organizations. Emotions are one of the parts of people daily life experience in workplace and it assists us to know the relationships with others (Fineman, 2000). Having more emotional carrying capacity in a relationship presents greater quality of the relationship between two or more people and they can manage and control emotions of each other more efficiently. Having greater emotional carrying capacity people did not have problem to convey their sentiments to each other, having no fear to communicate objectionable thoughts rather they will more convenient to demonstrate such a vexing feelings in a favorable way. Greater emotional carrying capacity makes a positive understanding among persons and they feel easy to reveal their irritating views. Greater emotional carrying capacity in a relationship has more acceptability for each other and they feel more comfortable to say their emotions positive and negative and this build better understanding for them (Dutton and Heaphy, 2003).

According to Dutton and Heaphy, (2003) there are three properties of Emotional carrying capacity which are communication of maximum emotions to interactive person, showing the negative ones and do it in a positive and developing manner. Stephens et al., (2013) said that It is visible, stated or unstated actions of different individuals that convey their inner feeling and sentiments about a particular situation. Kennedy-Moore and Watson, (2001) proposed that emotional communication can be considered as a

significant source of knowing each other's instant reactions of a particular dealing in a workplace. Weiss and Cropanzano, (1996) said that by sharing of emotion provide frankness and trust and bring people close, which can affect the productivity directly enabling people for more emotions will also increase their loyalty to the organization.

Dutton and Ragins, (2007b) proposed that solid emotions can affect the relationship, obligation and productivity. Kelly and Barsade, (2001) proposed that more information sharing will be helpful for solving the problems and it will also enhance the commitment of the participants. She further explores that expressing more emotions, confronting them boldly and response it positively even the negative ones, will build a trustworthy, committed, friendly, and empathetic relationship. Thoits, (1996) investigated that in an interaction different people demonstrate different emotions, understanding those emotions; they can learn how to use them by positively reacting them and observers can judge the commitment in this regard.

Bandura, (1986) said, being conscious of others and attentive what they like and dislike and how they will response and what they can feel, will lead a trustful and confident connection and more acceptability. Individuals can make quick decisions relating to particular event and can obtain more opportunities and choices. Ambady et al., (2000) estimated that expression of both positive and negative emotions in a suitable way is recognizable component and in any interaction lead a very important role to judge, understands and conclude the situation. It also provides the basis for the high quality relationships. Stephens, (2011) argued that this issue is being discussed for many years and past research shows that either to reveal or conceal emotion, it provides flexible environment and it depends upon the situation and behaviors give some reason.

Tensility

Tensility is the aptitude of any association to face and to perform in different situations and the capacity to bounce back after setbacks (Dutton and Heaphy, 2003). A relationship having tensility have more acceptability for relationship partners, it includes the ability to setback, endure stress, withhold and cooperate in pressure and difficult situations. A higher quality relationship will have larger tensility. Tensility arise in a relationship of higher quality and it demonstrates the acceptability of relationship partners. Carmeli et al., (2009) Tensility in a relationship indicates the level of cooperation in different difficult situations and the tough times showing the support, help in tensions, clashes and bend a high quality relationship. Dutton and Heaphy, (2003) proposed that tensile strength and tensile pressure are the aptitudes of a relationship usually used to appraise the quality of a relationship in the situations of crashes pressure. It includes how the relationship partners deal with one another when there exist some kind of pressure, tension, conflict or stress in the working environment and how efficiently the manage such situations and find an effective solution pertains at that time. The tensile strain limit is characterized as the most extreme tractable strain that strengthen on the ductile strain limit. It is a simple and widely used gauging the relationship level. Swaddiwudhipong et al., (2003) proposed that tensility in a relationship is its capacity to accommodate in difficulties face the hurdles in working place withstanding during the strains and stress managing the stress and obtaining the solution it is a level of empathy containing in a relationship to handle and deal with the obstacles providing the relationship partners a place for worktogether and to do things for others.

2.1.3. Connectivity

Carmeli et al., (2009) proposed that Connectivity can be defined as the openness level in relationships to listen new ideas, influences, attentiveness to new opportunities and people. It is the level of openness and inspiration for development in a relationship. Dutton and Heaphy, (2003) and Marcial and Heaphy, (2004) connectivity assists the individuals to gain the possible benefits and progress chances from different situations seek and learn new ideas, building a trustful environment at workplace through connectivity. Relationship partners learn how to accept different people; they become observant for new opportunities and chances to avail it and to take use it properly and efficiently they use those ideas for the benefit of whole system. Connectivity provides such an environment for relationship partners which support them to seek new opportunities take chances encourage them to discover and implement new ways to obtain their goals it provide harmless and convenient workplace, people openly and bravely listen others either they

came from strange source or pattern, it builds a safe bond among them, they want to try new techniques and styles.

Edmondson, (1999) proposed that connectivity also plays a vital role in relationships and places such connections that enable the relationship partners to learn and grow and eventually creativity. Hargadon, (2006) investigated that connectivity not only individually effect the innovative behavior but it also creates a strong interpersonal relationship among the employees and then bring out the innovative behavior. Amabile, (1998) explained that if the relationship partners have more connectivity will be able to create a strong bond with each other, they fell more secure to share their ideas feelings and emotions to each other and will be able to work on new things boldly and confidently. Amabile, (1998) people work together need a level of easiness and satisfaction so that they can feel enjoyment at their work and it may become entertaining for them. Furthermore he stated that connectivity with the boss will provide a sense a safety and inspiration to work on new ideas and opportunities and an appreciated performance can be produced at the end.

Amabile, (1998) proposed that Supervisor's connectivity with their juniors will create a compassion and carefulness and assistance for the employees to perform in better way, and increase the possibilities of maximum with minimum. A connective environment will also create a free and frank communication and it increase the level of understanding and in such an environment creativity and innovation will be promoted. Amabile et al., (2005) explained that connective environment among the coworkers is now highly admired and required by the organizations where innovation and creativity give them the competitive edge because connectivity in the relationship is highly associated with the creativity and innovation. Carmeli, (2009) explained that a relationship containing the connectivity flexible enough for the novelty and encourage new ideas and opportunities.

Carmeli et al., (2009) found that connectivity is allied with innovative behavior and due to the straight relationship of connectivity and innovative behavior people will become more creative, find new ways and solutions of respective problems. Amabile, (1996) explained that People will feel mentally relaxed secure and easy to explore their ideas, implement their new plans apply their techniques. Connectivity with the managerial staff and seniors will provide juniors or subordinates energy, self-confidence better understanding or communication to share their ideas their new approaches they recognize their place and will be praised for their work which is related to the stress free environment that is brought out by connectivity. Amabile, (1998) proposed that seniors help lessen the stress cooperate and understand the feelings of their appreciate for their good performance due to compassion which is formed by the connectivity rather a less connective environment effect badly upon the performance and innovative behavior of the employee, they feel insecure, depressed and hesitated in a workplace where lack of connectivity exists (Albrecht and Hall, 1991, Schawlow, 1997, Delbecq and Mills, 1985). Creativity requires peace of mind (Kanter, 1983) and stress free environment which came in to existence with the better connectivity, new ideas can be brought out through the sharing of feelings, emotions and open communication. Carmeli, (2009) proposed that in higher quality relationship connectivity and reliance a vital role for creativity and innovation, emotional sharing and tensility which is critically important for this. People learn by sharing their experiences their information and skills that is blessed through better connectivity and understanding among them. Carmeli et al., (2013) explained in former studies that workplace connectivity for recognition and proper solutions for the problem which in turn brings the creativity and innovation.

EXPERIENCES OF HIGH QUALITY RELATIONSHIPS

Mutuality

It expresses how much people participate in high quality relationships for each other's development (Jordan, 1991). Researcher proposed that mutuality is the name of mutual sharing of ideas, thoughts, notions

and emotions in which people get involved for creating a good relation. Mutuality focuses on the condition when employee got involved and participates in any work mutually. Jordan, (1991) further proposed that sense of cooperation and coordination enhance the sense of mutual consent for self-disclosure in accomplishment of any task. Identical processes are also recognized in these relationships for the encouragement of mutual understanding to develop a feeling of surety (Sarnat, 2001). Walsh et al., (2002) in his study showed that a feeling of mutuality was the most important factor influencing trainees' willingness to disclose mistakes to their supervisors. Hence, when there is a high degree of mutuality, there is greater mutual empathy, which fosters a sense of psychological safety.

Positive Regard

It represents the degree to which persons experience the feelings of being known or loved (Rogers, 1951). Researcher have investigated that the personnel who demonstrate strong relationships have a sense of belongingness and esteem for others even this relation is for a limited time. Individuals who are respected by other employees within an organization are due to the reason that they got valued for their presentation. When an employee respects other employee, they demonstrate a scenario of belongingness and positive regard for each other, they develop a sense of social respect which makes a feeling of ability (Dutton, 2003b). When people understand that they are valued for their work, it encourages them to share and speak about their problems without got frightened from any harsh result. Edmondson, (2004) proposed that the feeling of competency makes a person confident about the monitoring and judgment about their basic point and it makes them more competent and more regarded towards their goal. But when people in a strong association or connection with each other want to create their value, it develops an environment in which employees can free express their feelings about their ideas.

PSYCHOLOGICAL WELLBEING

Psychological wellbeing is person's ability to manage complex environments to suit personal needs and values, sense of autonomy in thoughts, continued growth and development as person, self-acceptance, establish ties to others and pursuits meaningful goals. According to Ryff, (1989a) and Ryff, (1989b), psychological wellbeing constitute following components of psychological wellbeing including a constructive behavior towards a person, high quality relationships among employees, a feeling of self-determination, freedom from casual standards, having a clear objective and faith, one's environmental mastery and extrovert towards personality development. There are many sub fields for psychological wellbeing variable which may be same mindedness and self-acceptance. The characters neuroticism and extraversion have been powerfully related with adverse and optimistic psychological well-being (Diener, 1999).

Self-acceptance is acceptance of self in spite of deficiencies, According to Shepard, (1978), self-acceptance is an individual's satisfaction or happiness with himself, and is thought to be necessary for good mental health. Self-acceptance involves self-understanding, a realistic, albeit subjective, awareness of one's strengths and weaknesses. It results in an individual's feeling about himself that he is of "unique worth".

According to Diener, (1997), psychological wellbeing may be in the form of thoughts or in the form of affect. The cognitive part of psychological wellbeing is an evidence grounded consideration of life, like when a person analyzes cognitive and evaluative decisions about one's gratification about life completely and the affective part is a hedonic assessment directed by feelings and spirits like incidence with which people experience dispositions in response to their lives. The supposition behind this idea is that many people assess their life as either good or bad, so they are generally able to offer conclusions and sometimes people consistently experience emotions, which have a constructive impact or a negative effect. Consequently, people have a level of particular well-being even if they do not often deliberately consider about it, and the psychological system offers practically a relentless assessment of what is happening to the person.

INNOVATIVE WORK BEHAVIOR

Innovative work behavior is a purposeful conception, introduction and implementation of new thoughts for the given task, group or organization for achieve a common goal (Janssen, 2000). Innovative behavior is an employee's intentional introduction or application of new ideas, products, processes, and procedures to his or her work role, work unit, or organization (West and Farr 1989, 1990b). Innovation has to do with the production or adoption of useful ideas and idea implementation ((Kanter, 1988). Engaging in innovative acts in a workplace brings benefits and costs for employees beyond a sense of intrinsic enjoyment ((Janssen, 2003),

Janssen, (2000) proposed that if a constant stream of originations is to be recognized then every employee must be ready and capable to transform that he or she must retain inventive work comporment. Employee innovative behavior is a significant asset that allows an organization to be successful in a lively business environment (Kanter, 1983., West & Farr., 1990a). Engaging in innovative acts in a workplace brings benefits and costs for employees beyond a sense of intrinsic enjoyment (Janssen, 2003). De Jong and Den Hartog, (2008) investigated that the significance of constant innovations has also been frazzled in workplace on numerous general controlling ideologies like total quality management. For teams, the interactive, relational processes among members can ease the sharing of information, learning processes, and the development of adaptive solutions to problems which leads to innovation (Paulus & Nijstad, 2003). Employees working in an organization should know the possible failures will be tolerated during the investigation for creativity and it will not be punishable and it is necessary for the casual innovation in that workplace (Deacon, 2008). Curiosity in discrete innovation has also cause investigations being conceded out in the backgrounds of temperament physiognomies, productivities, and conduct. In the present age it is mandatory for managers to try new stuff, be innovative and creative and advance the procedure. West and Farr, (1989) proposed that innovative behavior in the place of work is believed as composite behavior consisting of a set of three different behavioral tasks, idea generation, idea promotion, and idea realization.

According to Carmeli and Spreitzer, (2009) employees' innovative work behavior is the groundwork of any high-performance association and is superficial particularly in a knowledge-based economy where imperceptible assets come to the vanguard. Although innovations are intentionally performed to provide benefits (West, 1989; West & Farr, 1989) and it may be necessary for an individual employee to invest substantial and demanding efforts in generating, promoting, and realizing innovative change. West and Farr, (1989) proposed that innovative behavior in the place of work is believed as composite behavior consisting of a set of three different behavioral tasks, idea generation, idea promotion, and idea realization.

Knowledge sources are the basic building blocks in facilitating creativity and innovation in organizations and enable them to create a value (Grant, 1996)). Employees who worked as an organization's front liner dealing with their clients are more capable to see probabilities for alteration and improvement in effort developments and procedures which many may be undetectable to managers or others authorized work places responsible for revolution in the association (Carmeli and Spreitzer, 2009). Innovative behavior is demarcated here as the deliberate establishment, overview, and application of new ideas within a work role, group, or organization, in order to benefit role performance, the group, or the organization.

2.5 Hypotheses development

(Figure: Proposed hypothesized model)

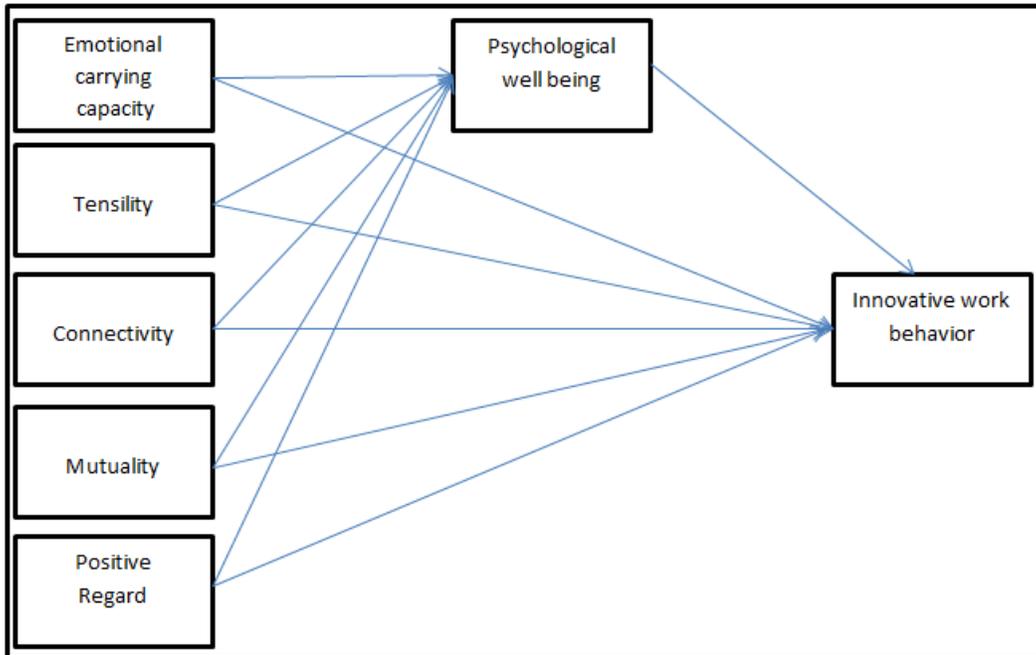


Figure 2.0

2.5.1. Hypotheses Development

Direct hypotheses

H 1: There exists a positive relationship between emotional carrying capacity, tensility, connectivity and innovative work behavior.

H 2: There exist a positive relationship between mutuality, Positive regard and innovative work behavior

H 3: There exist a positive relationship between psychological wellbeing and innovative work behavior.

H 4: There exist a positive relationship between emotional carrying capacity, tensility, connectivity and psychological wellbeing.

H 5: There exist a positive relationship between mutuality, Positive regard and psychological wellbeing.

Mediation hypotheses

H 6 a: Psychological Wellbeing mediates the relationship between Emotional Carrying Capacity and Innovative work behavior.

H 6 b: Psychological Wellbeing mediates the relationship between Tensility and Innovative Work Behavior.

H 6 c: Psychological Wellbeing mediates the relationship between Connectivity and Innovative Work Behavior.

H 7 a: Psychological Wellbeing mediates the relationship between Mutuality and Innovative Work Behavior.

H 7 b: Psychological Wellbeing mediates the relationship between Positive Regard and Innovative Work Behavior.

METHODOLOGY

The description of our study includes design of research, size of sample and data collection procedures. This section also explains the data collection instrument being applied, target population, sample size and the procedures of survey being applied in detail. This study investigated the influence of capacities and experiences of high quality relationships on employee innovative work behavior. Three dimensions being used in order to measure capacity of high quality relationship: emotional carrying capacity, tensility and connectivity while two dimensions of experiences of high quality relationship being used which are

mutuality and positive regard. This study explains whether the relationship between capacities, experiences of high quality relationship and innovative work behavior by psychological wellbeing or not? The direct relationship between variables of high quality relationships and innovative work behavior is also being explained in this study through different analysis. This study used self-administered questionnaires for the data collection from the respondents. The current study tried to focus the pharmaceutical companies in Lahore, Pakistan. The different industries were selected randomly to collect the data, so the sample selected for this study represents the entire population of pharmaceutical sector hospitals of Lahore. For this study 402 questionnaires were distributed among the employees of different private sector pharmaceutical companies of Lahore, Pakistan. Convenience sampling technique is used in order to distribute the questionnaires among hospitals. So 350 questionnaires were distributed among firms and 310 of which were correctly and completely filled questionnaires. Total 310 questionnaires were correctly filled and the overall response rate was 88%. The current study is based on the primary data. Personally administered questionnaires were used for data collection. The measures of different variables used in this questionnaire were adopted from the previous research. The two pages questionnaire consists of the questions of variables and at the demographics in start. First five questions were asked regarding the variable emotional carrying capacity. Next four questions were related to tensility, three questions related to positive regard, four questions regarding mutuality, five questions related to psychological wellbeing and last six questions were regarding innovative work behavior.

Data collection and data analysis

Mean and Standard Deviation of the variables

The values of the mean of all the respective variables are given in the table 4.4.1. The values of the mean and standard deviation of Emotional Carrying Capacity, Tensility and Connectivity, Mutuality, Positive Regard, Innovative Work Behavior and Psychological Wellbeing are M= 3.3884, 3.6462, 3.9121, 3.7339, 3.7183, 3.8586, 3.5632 with Standard Deviation 0.62, 0.70, 0.64, 0.57, 0.68, 0.59 and 0.75 respectively. The mean value of Mutuality is highest with 3.9121, indicating that employees are very towards mutual cooperation within the organization.

Table 1: Mean and Standard Deviation of the variables

Variables	Chronbach's Alpha	Mean	Std. Deviation
Emotional carrying capacity	0.563	3.3884	0.62099
Tensility	0.662	3.6462	0.70541
Connectivity	0.670	3.9121	0.64779
Mutuality	0.594	3.7339	0.57922
Positive regard	0.655	3.7183	0.68910
Psychological wellbeing	0.742	3.5632	0.75372
Innovative work Behavior	0.724	3.8586	0.59573

The reliability of the variable emotional carrying capacity is $r = 0.563$, same as the reliability of the measure tensility and connectivity are $r = 0.662$ and 0.670 respectively. The reliability of the measure mutuality and positive regard are $r = 0.594$ and $r = 0.655$ respectively. Similarly the reliability values of the psychological wellbeing and innovative work behavior are $r = 0.742$ and $r = 0.724$ respectively.

Correlation among variables

Table 2.0: Correlation among Variables

Variables	Emotional carrying capacity	Tensility	Connectivity	Mutuality	Positive regard	Psychological wellbeing	Innovative work Behavior
Emotional carrying capacity	1						
Tensility	.205**	1					
Connectivity	.285**	.360**	1				
Mutuality	.297**	.287**	.476**	1			
Positive regard	.379**	.210**	.374**	.329**	1		
Psychological wellbeing	.447**	.272**	.212**	.448**	.343**	1	
Innovative work Behavior	.364**	.323**	.401**	.408**	.289**	.412**	1

The Pearson's product moment co-efficient of correlation was found between emotional carrying capacity, Tensility, Connectivity, Mutuality, Positive Regard, Psychological wellbeing and innovative work behavior. The correlation between emotional carrying capacity and tensility is $r = .205$, $p < 0.01$, indicating that there is a positive relationship between both the variables. The correlation between emotional carrying capacity and connectivity is $r = .285$, indicating positive relationship with $p < 0.01$. There exist a positive relationship between emotional carrying capacity and Mutuality is $r = .297$ which is positive with the value of $p < 0.01$. The Pearson's correlation was found between emotional carrying capacity and positive regard is $.379$, $p < 0.01$, which indicates that there exist a positive relationship between both the variables. Similarly, there exist a positive relationship between emotional carrying capacity and psychological wellbeing with the value of $r = .447$, $p < 0.01$ indicating high positive relationship among the variables. Finally, Pearson's product moment co-efficient of correlation was found between emotional carrying capacity and innovative work behavior with the value of $r = .364$, $p < 0.01$. The above table showed that the dimensions of variables of high quality relationship are positively correlated with the innovative work behavior and psychological wellbeing with the p value less than 0.01.

Measurement Model

Table for standardized estimates

Table 3.0 Standardized Regression Weights: (Group number 1 - Default model)

			Estimate
EC5	<---	ECC	.667
EC4	<---	ECC	.524
EC3	<---	ECC	.349
EC1	<---	ECC	.490
T4	<---	Tensility	.495
T3	<---	Tensility	.690
T2	<---	Tensility	.815
T1	<---	Tensility	.489
C4	<---	Connectivity	.536
C3	<---	Connectivity	.620

			Estimate
C2	<---	Connectivity	.698
C1	<---	Connectivity	.581
PR3	<---	Postive	.564
PR2	<---	Postive	.655
PR1	<---	Postive	.670
M1	<---	Mutuality	.574
M3	<---	Mutuality	.608
M4	<---	Mutuality	.593
PW1	<---	Wellbeing	.651
PW2	<---	Wellbeing	.604
PW3	<---	Wellbeing	.612
PW4	<---	Wellbeing	.718
IB6	<---	Workbehavior	.434
IB3	<---	Workbehavior	.620
IB2	<---	Workbehavior	.782
IB1	<---	Workbehavior	.639

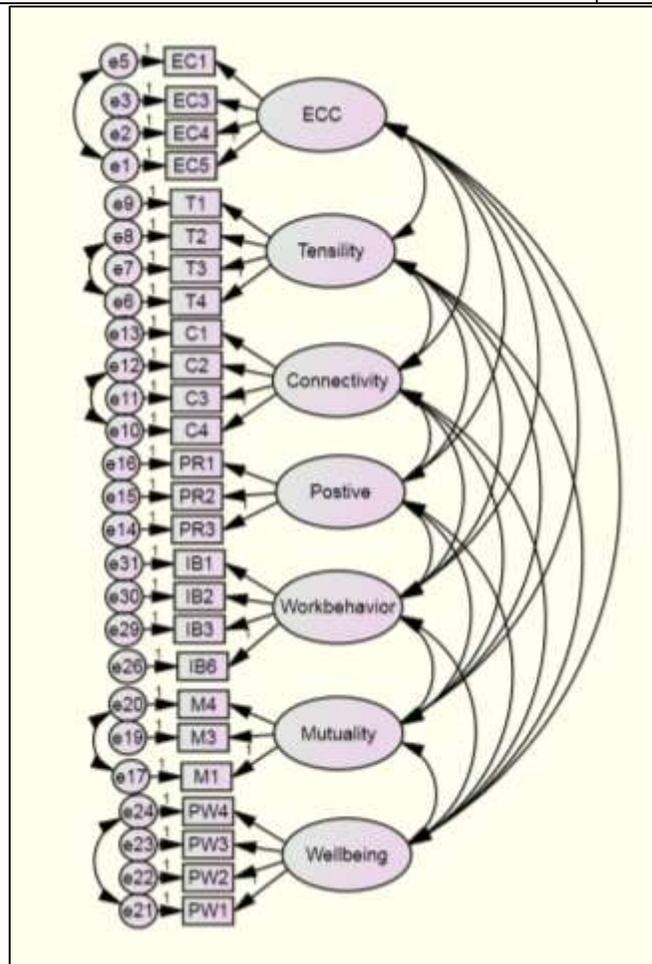


Figure 2.0 Measurement Model

Table 4.0 Model fit summary

Model fit indices	Measurement	Threshold
X2	310	
CMIN/DF	2.468	< 3 good ; < 5 Permissible
CFI	0.798	Closer to 1 ; Good
GFI	0.860	>0.90
AGFI	0.820	< 0.80
RMR	0.059	< 0.06
RMSEA	0.069	< 0.06
PCLOSE	0.000	> 0.05

AMOS gives a set of indices which are affective to evaluate whether or not the data confirmed to the hypothesized model. These indices reveal the degree to which the variables associate with one another as the model would estimate. In this study Chi square, CMIN/DF, Comparative fit indices (CFI), Goodness of Fit Index (GFI), Adjusted Goodness of Fit Index (AGFI) and Route Mean Square Error of Approximation (RMSEA) were used to evaluate the model fitness. Chi square is a common goodness-of-fit evaluator to find out overall model fitness. Chi square value of 310 with 142 DFs, is significant at $p < 0.001$. Dividing chi square value by degree of freedom we get 2.63 which indicates a good fit within the recommended range of less than 5 (Carmines & McIver, 1981), CMIN/DF (the likelihood ratio of chi square) value is $2.468 < 5$ indicates a good fit. Another commonly reported statistic is the Goodness of Fit Index (GFI) as its name suggest. If its value closer to 0.90 or higher indicates a good fit while the Adjusted Goodness of Fit Index value (AGFI) is 0.820 reflect a good fit. In this study, the measurement model is perfect fit model where GFI value is 0.860 and AGFI value is 0.820. Comparative fit index (CFI) examines the fit of a user-specified solution relative to a limited baseline model in which the covariance's among all variables is hypothesized as fixed to zero or no association among input indicators . The CFI values varieties from 0 to 1 .The value of CFI nearer to 1 interprets the model as very good fit Overall results indicated that the measurement model accepted as a good fit with the help of Chi-Square, CMIN/DF, CFI, GFI, AGFI, RMR, RMSEA and PCLOSE indices.

Structural Equation Modeling

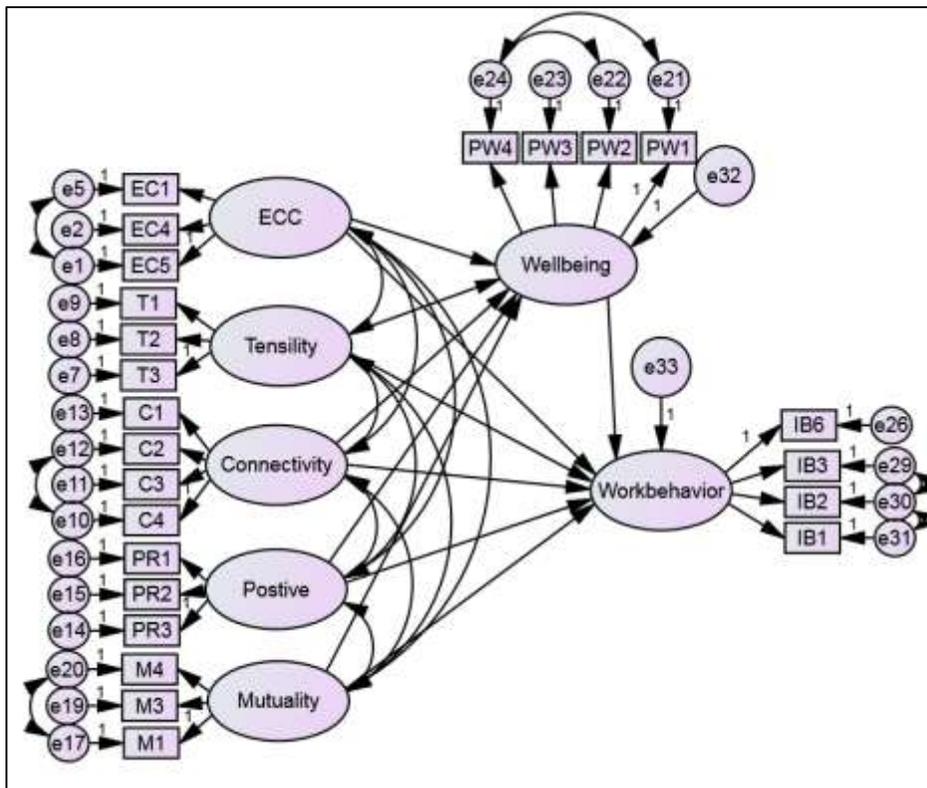


Figure 3.0 Structural Equation Modeling

Table 4.0 Model Fitness

CMIN/DF	RMR	GFI	AGFI	CFI	RMSEA	PCLOSE
2.500	0.056	0.873	0.829	0.818	0.070	0.000

Table for standardized estimates

Table 5.0 Standardized Regression Weights: (Group number 1 - Default model)

			Estimate
Wellbeing	<---	ECC	.449
Wellbeing	<---	Tensility	.076
Wellbeing	<---	Connectivity	-.274
Wellbeing	<---	Postive	.080
Wellbeing	<---	Mutuality	.554
Workbehavior	<---	Wellbeing	.231

These variables showed significant and positive association with Affective commitment because regression weight of relationships exceeds 0.

Mediation Analysis using Structural models

Mediation can be defined as the existence of a predictor which have an impact on the other variable by the interposition of another variable (Preacher and Hayes, 2008; Little et al., 2007). Investigating mediation in highly complicated models explains the procedure through which one construct have an impact on the other variable (Little, et al., 2007). According to MacKinnon, et al., (2002) there are many procedures to test the mediation effects, but the mostly used method is ‘causal steps strategy’ of Baron and Kenny (1986). Preacher and Hayes, (2008) proposed that causal step strategy can only effective when the sample size is huge.

Baron and Kenny (1986) causal strategy model proposed that three conditions must be fulfilled for mediation analysis see figure 4.12 for details):

X and Y are expressively correlated (path a)

M is expressively associated with Y (path b)

With the arrival of M, the relationship of X and Y reduces.

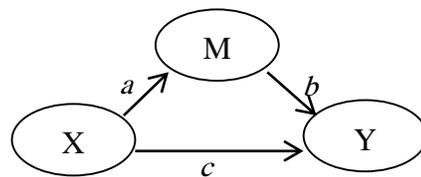


Figure 4.0 Mediation Model of Baron and Kenny

Psychological wellbeing as mediator between emotional carrying capacity and innovative work behavior

Mediation analysis for path of Emotional Carrying Capacity (ECC)- Psychological Wellbeing (PWB)-Innovative Work Behavior (IWB) is presented in figure 4.4 constituting three paths ECC-PSW (a), PWB-IWB (B) and ECC-IWB (c). When these paths were observed through SEM, it was noticed that model was fit with acceptable fitness indices ($X^2 = 123.998$, $Df=46$, $p=0.000$, $GFI=0.940$, $AGFI= 0.898$, $CFI= 0.890$, $RMSEA= 0.074$, $CMIN/DF = 2.695$)

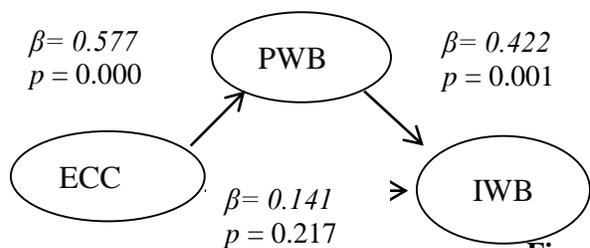


Figure 5.0

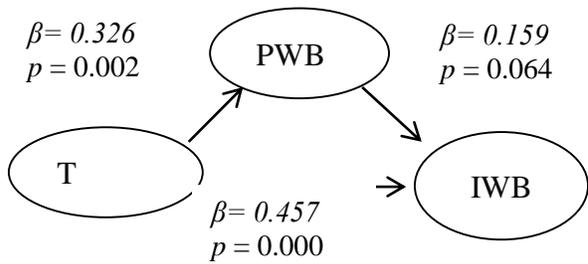
Mediation Analysis (ECC-PWB-IWB)

Model Fitness Indices

$X^2 = 123.998$, $Df=46$, $p=0.000$,
 $GFI=0.940$, $AGFI= 0.898$, $CFI= 0.890$,
 $RMSEA= 0.074$, $CMIN/DF = 2.695$

Psychological wellbeing as mediator between emotional Tensility and innovative work behavior

Mediation analysis for path of Emotional Carrying Capacity (T)- Psychological Wellbeing (PWB)-Innovative Work Behavior (IWB) is presented in figure 4.4 constituting three paths T-PSW (a), PWB-IWB (B) and T-IWB (c). After observing these paths through structural modeling equation (SEM), it was observed that model was perfectly fit with acceptable fitness indices ($X^2 = .8863$, $DF=24$, $p=0.000$, $GFI=0.955$, $AGFI= 0.915$, $CFI= 0.916$, $RMSEA= 0.076$, $CMIN/DF = 2.787$)

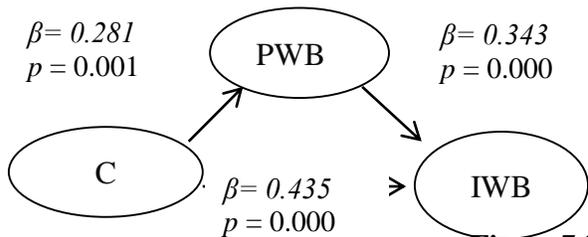


Model Fitness Indices
 $X^2 = .8863$, $DF=24$, $p=0.000$,
 $GFI=0.955$, $AGFI= 0.915$, $CFI= 0.916$,
 $RMSEA= 0.076$, $CMIN/DF = 2.787$

Figure 6.0
 Mediation Analysis (T-PWB-IWB)

Psychological wellbeing as mediator between Connectivity and innovative work behavior

Mediation analysis for path of Emotional Connectivity (C)- Psychological Wellbeing (PWB)-Innovative Work Behavior (IWB) is presented in figure 4.4 constituting three paths C-PSW (a), PWB-IWB (B) and C-IWB (c). The observed paths proved that the model is fir with the model fit indices of ($X^2 = 110.572$, $DF=46$, $p=0.000$, $GFI=0.945$, $AGFI= 0.907$, $CFI= 0.918$, $RMSEA= 0.067$, $CMIN/DF = 2.404$)



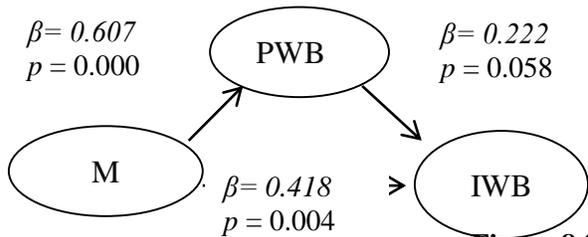
Model Fitness Indices
 $X^2 = 110.572$, $DF=46$, $p=0.000$,
 $GFI=0.945$, $AGFI= 0.907$, $CFI= 0.918$,
 $RMSEA= 0.067$, $CMIN/DF = 2.404$

Figure 7.0
 Mediation Analysis (C-PWB-IWB)

Psychological wellbeing as mediator between Mutuality and innovative work behavior

Mediation analysis for path of Mutuality (M)- Psychological Wellbeing (PWB)-Innovative Work

Behavior (IWB) is presented in figure 4.4 constituting three paths M-PSW (a), PWB-IWB (b) and M-IWB (c). The observed paths proved that the model is fir with the model fit indices of ($X^2 = 99.229$, $DF=36$, $p=0.000$, $GFI=0.944$, $AGFI= 0.898$, $CFI= 0.911$, $RMSEA= 0.075$, $CMIN/DF = 2.756$).



Model Fitness Indices

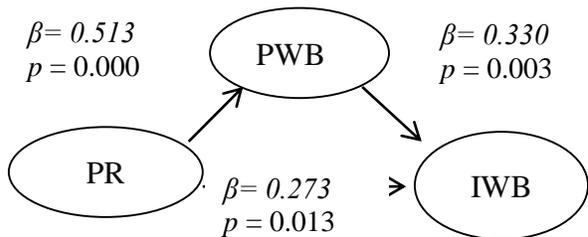
$X^2 = 99.229$, $DF=36$, $p=0.000$,
 $GFI=0.944$, $AGFI= 0.898$, $CFI= 0.911$,
 $RMSEA= 0.075$, $CMIN/DF = 2.756$

Figure 8.0

Mediation Analysis (M-PWB-IWB)

Psychological wellbeing as mediator between positive regard and innovative work behavior

Mediation analysis for path of Mutuality (PR)- Psychological Wellbeing (PWB)-Innovative Work Behavior (IWB) is presented in figure 4.4 constituting three paths PR-PSW (a), PWB-IWB (b) and PR-IWB (c). The observed paths proved that the model is fit with the model fit indices of ($X^2 = 106.559$, $DF=37$, $p=0.000$, $GFI=0.937$, $AGFI= 0.887$, $CFI= 0.906$, $RMSEA= 0.078$, $CMIN/DF = 2.880$).



Model Fitness Indices

$X^2 = 106.559$, $DF=37$, $p=0.000$,
 $GFI=0.937$, $AGFI= 0.887$, $CFI= 0.906$,
 $RMSEA= 0.078$, $CMIN/DF = 2.880$

Figure 9.0

Mediation Analysis (PR-PWB-IWB)

5. FINDINGS AND CONCLUSION

5.1.1 Direct Hypotheses

The results of regression analysis show that all direct hypotheses are accepted. The results reflect that there exist a positive relationship between independent variables (capacities and experiences of high quality relationship), dependent variable (Innovative work behavior) and mediating variable (Psychological wellbeing). The results also show the significant direct and positive relationship between the mediating variable, psychological wellbeing and dependent variable, innovative work behavior.

5.1.2 Mediation Hypotheses

The results of SOBEL test for Mediation show that all mediation hypotheses are accepted. The results reflect that the variable psychological wellbeing mediates the relationship capacities, experiences of high quality relationship and innovative work behavior. Mediation testing revealed that in the presence of mediating variable psychological wellbeing, there is a significant direct effect between experiences of high quality relationship, capacities of high quality relationship (emotional carrying capacity, tensility and connectivity) psychological wellbeing and innovative work behavior. The results show that there exists full mediation among the variables in our study.

5.2 Conclusion

The purpose of this study was to examine the impact of capacities and experiences of high quality relationship on innovative work behavior of employees with the mediating role of psychological wellbeing. This study contributed to existing body of knowledge. Results indicated that the hypothesized model of innovative work behavior, psychological wellbeing, capacities of high quality relationship and experiences of high quality relationship fit the data well. Our observation found that there is a significant direct and positive relationship between dependent variable, mediating variable and independent variables. The results also show the significant direct and positive relationship between the mediating variable, psychological wellbeing and innovative work behavior. Further, the mediating variable psychological wellbeing mediates the relationship between dependent and independent variable. The results reflect that there exists a full mediation among these variables in our study.

5.3 LIMITATIONS and RECOMMENDATIONS

Limitations

There are several limitations of this study. This study is limited in the sense that it captures only the pharmaceutical sector employees; it could not be carried out on the employees belonging to other sectors as well. This study only examines the mediating effect of psychological wellbeing on the innovative work behavior of employees. It could be carried out to examine the mediating effect of psychological wellbeing on other variables as well. This study covers the pharmaceutical sector of only one city, Lahore Pakistan. It could be carried out on total pharmaceutical sector of Pakistan with more resources and time.

Recommendations

Managers can improve the innovative work behavior of employees of pharmaceutical sector by the proper enhancement of capacities of high quality relationship. Policy makers can improve the innovative work behavior of employees of pharmaceutical sector by the proper coordinating the experiences of high quality relationship of employees with each other. Organizations should take measures to improve the psychological wellbeing of employees of pharmaceutical sector by the proper implementation of the capacities of high quality relationship. Higher management should improve the psychological wellbeing of

employees of pharmaceutical sector by reducing the gap among employees to enhance high quality relationship.

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Higher Education System in Pakistan and Transition to Knowledge Economy

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Abstract:

The medium term plan of HEC, Pakistan, put the knowledge economy at the center point. This paper analyzes the higher education situation of Pakistan in light of various indicators like knowledge & technology index, patent output and patent uptake, and various other indices. The performance is dismally poor. The nature of current industry in Pakistan is also discussed. It is concluded that the present situation of governance, faculty quality, and funding of R&D is a mismatch. There is a strong need to re-look and re-engineer our higher education system, especially public sector, to be able to contribute to the national economy and to national prosperity. There are fears that retrofitting of system may not work. A complete overhauling is proposed, which seems impossible within the dynamics of present governance model.

Keywords: Patents; Innovation; Research & Development; H Index

Introduction

The concept of knowledge economy has transformed the traditional concept of knowledge from a philosophical and pure academic reference to an economic connotation. Under this emerging concept, knowledge is not a mere belief and state of mind but a set of experiences learned and reflected through human practices (Jensen, 2012; Turner, 2012). World Bank accepted four pillars of knowledge economy including economic and institutional regime, education and skill of population, information infrastructure, and innovation system (WorldBank, 2007). Developed and emerging global economies have concentrated to win advancements in these four pillars and pursued a paradigm shift in their economic frontiers (de la Paz-Marín, Gutiérrez, & Hervás-Martínez, 2015). Literature demonstrates that a number of countries moved very quickly towards knowledge based economy whereas many economies were very slow in this process. Knowledge production and dissemination mechanisms highly contribute for success in such endeavors. These mechanisms generally operate under higher education systems and are aimed to influence, promote, and comprehensively nurture all four pillars of the knowledge based economies. Countries with emerging economies vary in their efforts for developing and transfiguring innovative and knowledge economy promoter educational systems (Weber, 2011).

Higher education system in Pakistan remained under high criticism due to not meeting global tasks of skill development, technological advancement and knowledge economy formation (Bano & Taylor, 2014; Lodhi & Zaman, 2012). We in this article reviewed the growth of higher education in Pakistan concentrating on its contribution in realizing the task of knowledge based economy in the country. We analyzed Pakistani efforts comparing its performance against different economic and educational indicators with SAARC (South Asian Association for Regional Cooperation) countries.

Nature of Pakistan Economy

Pakistan's economy remained dependent on agricultural products especially that have export potentials. Many indicators demonstrate that agriculture sector positively contributes in economic growth of the country. The crop economy provides raw material to the industrial sector, which increases employment opportunities and promotes the country exports (Afzal, 2006; Henneberry & Khan, 2000). Composition of Pakistan economy shows that agriculture sector is sharing more 20-25% of the GDP since 2008-09. Agriculture and services including transport and communication are demonstrating positive growth since 2008-09. Otherwise remaining sectors of Pakistan economy including industry, large-scale manufacturing, construction, wholesale and retail trade and finance and insurance were demonstrating negative growth rate in 2008-09. The situation, however, changed in four years and the country demonstrated positive growth rate in all reported sectors of the economy (NationalBankofPakistan, 2014).

A regional comparison demonstrates that the export of goods and services provided 13% share in the GDP of Pakistan in 2013 whereas for Bhutan, India and Bangladesh these shares were 40%, 25% and 20% respectively. The imports of goods and services of Pakistan are 20% of its GDP whereas for Bhutan, India and Bangladesh these shares are 63%, 28% and 27% respectively (WorldBank, 2014b). The share of imports of goods and services in Pakistan GDP is 53% higher than the share of exports of Goods and services. However this ratio is 57%, 12% and 35% for Bhutan, India and Bangladesh. Less share of export of services and goods and a widening gap between the exports and imports unveil the fragile conditions of Pakistan economy that is also reflected in many international economic reports. For instance, the World Bank forecasting for the years 2014, 2015, and 2016 situates Pakistan among the South Asian countries with lowest GDP growth rates (WorldBank, 2014a). It is estimated that Bhutan, India and Sri Lanka would perform better than Pakistan in next two years. Pakistan, on the other hand, has observed a stagnant condition in the shares of three major sectors of Pakistan's economy (agricultural, industrial, and services) since 2008-09 (NationalBankofPakistan, 2014) and the situation may persist in near future (WorldBank, 2014a).

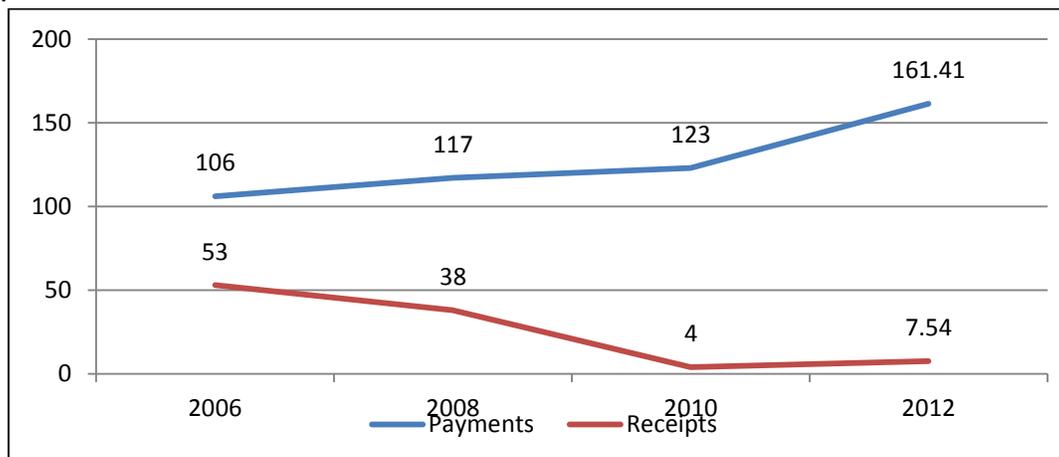


Figure 1. Charges for the use of intellectual property in payments and receipts between residents and nonresidents for the authorized use of proprietary rights (such as patents, trademarks, copyrights, industrial processes and designs including trade secrets, and franchises) and for the use, through licensing agreements, of produced originals or prototypes (such as copyrights on books and manuscripts, computer software, cinematographic works, and sound recordings) and related rights (such as for live performances and television, cable, or satellite broadcast). Data are in millions of current U.S. dollars. Source: (WorldBank, 2014b)

Comparison of the gaps between shares of export and import of goods and services in GDPs of different countries strengthens the idea that this gap reduces in the countries that have developed knowledge based economies. Another major indicator of economic output of knowledge production is gaining property rights. Data show that gaps between payments and receipts of property rights have widened in previous years in Pakistan (see figure 1). It reflects a deteriorating condition of intellectual and technical advancements, which are closely linked with economic stagnation in the country. In next section of this

paper, we try to examine the reasons of this economic recession in the context of knowledge economy, research, innovation and higher education. It is important to investigate how Pakistan's economy is utilizing knowledge and innovation as capital and economy revolutionizer, and to what extent higher education in Pakistan has potential to turn the economy from traditional to a knowledge based track.

Pakistan's Preparedness for Knowledge Economy

Knowledge economy establishes its foundation on academic and technological innovation and research. Global Innovation Index (GII) 2014 situates Pakistan in second last position in the SAARC region. India gains highest position in the GII securing 76th position out of 143 countries scoring 33.7/100 points (Dutta, Lanvin, & Wunch-Vincent, 2014). Pakistan is on 134th position with the score of 24.0/100. Only Nepal is lagging behind Pakistan with 136th position in the SAARC region (table 1). The Global Innovation Index provides ranking of 143 countries in which Pakistan stands on 134th position. Only nine countries in the report perform lesser than Pakistan in the global innovation index.

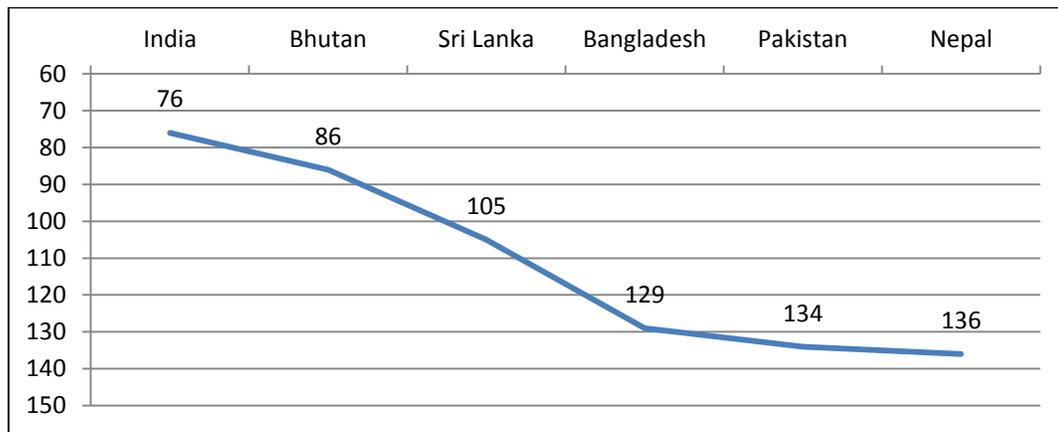


Figure 2. Comparison of SAARC countries' ranking out of 143 countries on Global Innovation Index. Data for Afghanistan and Maldives are not available. Source: Global Innovation Index 2014, published by World Intellectual Property Organization (WIPO), editors: Dutta, et al. (2014).

The concept of innovation is highly related with knowledge production and absorption. Use of knowledge as capital generator has revolutionized higher education systems globally. Investment in human capital and research is considered vital for constructing knowledge base economy (Turner, 2012). Deteriorate and static condition of Pakistan economy and a lower performance in global innovation index may be linked with the lesser investment in human capital and research. Consequently Pakistan demonstrates lower ranking (139th position out of 143 countries) in human capital and research index with the score of only 09.8/100 (Table 01). Three areas of human capital and research are projected in the index in which Pakistan performance is comparatively better in research and development securing 68th position. Pakistan score in research and development indicator is 9.8/100 whereas India gets 31st position with the score of 32. It shows that despite a comparatively better position in global ranking Pakistan's score is significantly low in research and development, which produces problematic consequences for the country economy. The worsened situation in school and tertiary education has further exploited the results of lesser investment in research and development. Pakistan ranks on 141st and 124th position in the indicators of school and tertiary education, respectively securing 10.7 and 8.9 scores out of 100. These scores are lowest in the SAARC region. Lesser ranking in research and development and deteriorate positioning in school and tertiary education in Pakistan produced complex results in knowledge and technology output index. Pakistan scored 21.9 points in knowledge and technology output index whereas India's score was 32.2 against this indicator. Sri Lanka and Bangladesh also demonstrated better position than Pakistan. The scores of Pakistan against the three indicators of knowledge and technology outputs i.e. knowledge creation, knowledge impact and knowledge diffusion are 10.0, 29.7 and 26.0 respectively.

Table 1

Comparison of values/scores (0-100) obtained by SAARC countries on different indicators of Global Innovation Index

Indicators	India	Bhutan	Sri Lanka	Bangladesh	Pakistan	Nepal
Global Innovation Index	33.7	31.8	29.0	24.4	24.0	23.8
Human Capital & Research	22.7	17.0	17.1	14.1	09.8	15.5
Education (School)	24.7	42.3	29.9	20.6	10.7	31.5
Tertiary Education	11.7	08.8	18.2	15.0	08.9	12.6
Research & Development	32.0	00.0	03.4	05.1	09.8	02.8
Knowledge & Technology Outputs	32.2	02.8	26.5	22.2	21.9	11.2
Knowledge Creation	18.4	05.1	07.1	06.1	10.0	11.4
Knowledge Impact	34.1	02.5	34.9	29.9	29.7	02.4
Knowledge Diffusion	44.1	00.7	37.5	30.5	26.0	19.9
Business Sophistication	28.0	29.3	19.8	14.9	19.3	31.3
Knowledge Workers	25.0	31.1	23.6	11.8	17.5	38.3
Innovation Linkages	38.9	43.4	21.9	25.5	20.1	28.0
Knowledge Absorption	20.2	13.3	13.9	07.3	20.3	27.6

Source: Global Innovation Index 2014, published by World Intellectual Property Organization (WIPO), editors: Dutta, et al. (2014). Data for Afghanistan and Maldives are not available.

India, Bhutan, Sri Lanka and Bangladesh performed better than Pakistan in human capital and research index. The countries are also higher than Pakistan in knowledge and technology outputs except Bhutan. Though Pakistan's ranking is comparatively higher in research and development index with 68th position and second in the SAARC region yet its score against the indicator (9.8) is very low than India (32.0) and other countries of the region. One result of comparatively higher ranking in research and development may be the relatively higher ranking of Pakistan in knowledge creation indicator in the SAARC region. Pakistan demonstrates 79th position in knowledge creation index securing 3rd position in the SAARC region. However, the scores Pakistan obtained in research and development and knowledge creation indicators are significantly low (table 1).

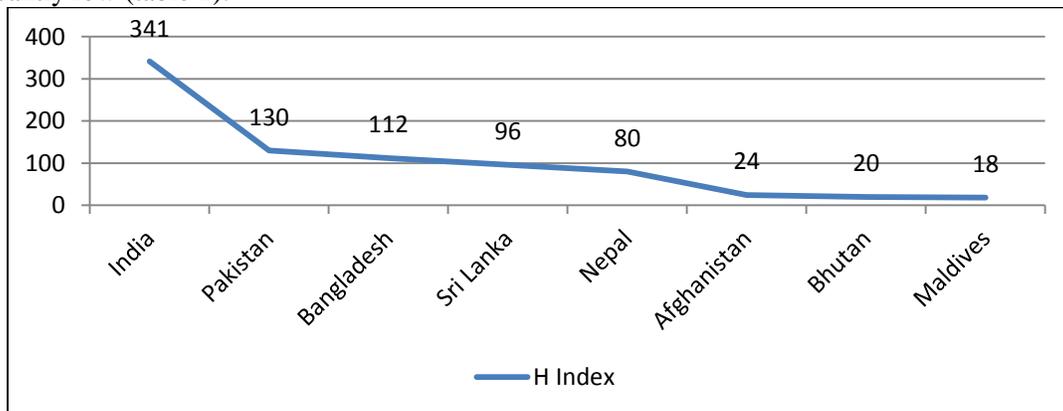


Figure 3. Comparison of H Index (2013) obtained by SAARC countries. Source: The SCImago Journal & Country Ranking based on Scopus database. URL: <http://www.scimagojr.com/countryrank>.

The gap between knowledge creation in India and Pakistan is also visible in H Index. India scored 341 in H Index for the year 2013 whereas Pakistan's score was 130 (see figure 3). H Index shows the numbers of article (from the country), that receive h citations. Pakistan and India score 10.0 and 18.4 on knowledge creation indicator in global innovation index respectively. Citations and citable documents contribute in knowledge creation activities of the country. Though Pakistan is performing comparatively better than other SAARC countries (except India) in H index and knowledge creation indicator yet it demonstrates weak

performance in business sophistication indicator, which is a place where acquired and created knowledge is translated into economic practices.

Knowledge and technology outputs and knowledge creation should be reflected in the business sophistication to achieve the target of progressive knowledge economy. Data demonstrate that Pakistan's ranking is not stable in the business sophistication index. Pakistan is on 133rd position out of 143 countries in business sophistication index that is second last in the SAARC region scoring 19.3/100 points. The global innovation index presents three sub indicators of business sophistication including knowledge workers, innovation linkages and knowledge absorption. Pakistan performance is comparatively better in the knowledge absorption indicator in which it secured 2nd position in the SAARC countries and 99th position in the world gaining 20.3 scores. India is not far behind gaining 100th position in world ranking with 20.2 scores. Linkage of innovation with market business is among the essentials of knowledge economy. Pakistan's score is 20.3 that is lowest in the SAARC region. A small economy Bhutan is performing very well in the region obtaining 43.4 scores under this indicator. India's score is 38.9 and Nepal is showing the score of 28.0 against innovation linkages indicator. Pakistan's weaker performance in this area has worsened the neglected impacts of weak position in human capital and research index. Similarly Pakistan is on second last position in the region with 129th position in world in the category of knowledge workers scoring 17.5/100 points (table 1).

Another indicator of knowledge based economy is numbers of patent granted by the country to its residents. Table 2 provides detail data of patent applications (a country received) and patent grants (a country granted) in the year 2012. It also shows how many patent applications were filed abroad. There is a wide gap between the Indian and Pakistani data.

Table 2

Comparison of patent applications and patent grants awarded in SAARC countries in 2012

Country	Patent Applications			Patent Grants		
	Residents	Non-Residents	Abroad	Residents	Non-Residents	Abroad
India	9553	34402	8620	722	3606	2866
Pakistan	96	798	16	13	299	13
Bangladesh	67	287	04	-	-	01
Sri Lanka	-	-	33	-	-	06

Source: World Intellectual Property Organization (WIPO) database, last updated 03/2014. URL: http://www.wipo.int/ipstats/en/statistics/country_profile/

Resident = domestic filings; Non-resident = filings coming in from other countries; Abroad = filings going out to other countries

India received 9553 patent applications from the residents of India and 34402 from the non-residents. Indian residents also filed 8620 patent applications abroad. Pakistan, on the other hand, received 96 patent applications from Pakistani residents and 798 from the non-residents. Only 16 patent applications were filed abroad by Pakistani citizens. There is a gap between patent grants in Pakistan and India. India granted 722 patents to Indian citizens whereas Pakistan granted only 13 patents to Pakistan's residents. The 2866 Indians received patents abroad whereas only 13 Pakistani residents received patents abroad. The performance of other SAARC countries is more pathetic. Nepal granted 02 patents to its residents. Sri Lanka, Afghanistan and Bangladesh received 06, 02, and 01 patent abroad. Pakistan's weak performance against business sophistication indicator, its sub indicators and patent applications & grants question the application of higher education products in national economy.

Currently 160 HEC recognized public and private sector universities and degree awarding institutes are functioning across the country. A recent report of World Economic Forum ranks 148 countries on global competitiveness. Though the report has its foundations on Executive Opinions Survey carrying out globally yet its importance cannot be undermined in this era of emerging knowledge economies. The global competitiveness report demonstrates that India, Bhutan and Sri Lanka are in comparatively better position than Pakistan in many indicators including quality of the education system. Pakistan is lagging behind India, Bhutan and Sri Lanka in availability of research and training services (Schwab, 2014). Economic role of

higher education demands a knowledge based linkage between university and finance producers e.g. agriculture, industry and business. Ultimate results of application of knowledge in industry are uptake and registration of patents, as well as receipts of intellectual property rights, which demonstrates a significant shift in the composition of economy. We in Pakistan are facing a static situation in the economy in this regard and Gross Development Products (GDP) is fundamentally relying on agriculture and services sectors.

Conclusions

Pakistan predominantly keeps an agrarian economy producing agricultural products that are directly exportable or provided to industrial sector as raw materials. However the emerge of knowledge based economies has aroused the need of intervening innovation and knowledge capital into traditional agrarian and industrial economies. More than half share of GDP of Pakistan is occupied by services sector. Agricultural and industrial sectors share in rest of the economy. This ratio is majorly stagnant from several years. The average GDP growth rate as well as forecast for 2014, 2015 and 2016 situates Pakistan in the countries who demonstrate reasonably lower GDP growth. We attempted to trace out the reasons of this economic recession assessing the country's performance against basic components of knowledge economy. We found that Pakistan is second last country in the SAARC region in global innovation index securing 134th position out of 143 global economies. Pakistan's performance is lowest against the indicator of human capital and research in the region. Though Pakistan performed comparatively better in research and development indicator securing second position in the region yet the gap between first ranked India (32 points) and second ranked Pakistan (9.8 points) in the region questioned the commitment of Pakistan higher education sector with research and development. A wide gap between the values of H Index for India (341) and Pakistan (130) also explore this issue. Similar gap is also visible in patents grants of India (4328) and Pakistan (312) in the year 2012. Share of the exports of goods and services in GDP was significantly lower for Pakistan (13%) than Bhutan (40%), India (25%) and Bangladesh (20%) in the year 2013. Share of the imports of goods and services is 53% higher than the share of exports of Goods and services in Pakistan GDP. This ratio is very low for India (12%) and Bangladesh (35%). Gap between the payments and receipts of intellectual property rights is also widening. Pakistani residents (individual and companies) received \$7.54 million of intellectual property rights in 2012 whereas payments of Pakistani individuals and companies for the said period were \$161.41million. It demonstrates that Pakistani residents (including academia, researchers, scientists, technologists etc.) are not integrating and using their achievements for promoting national economy. We concluded in this paper that not only the structure of higher education and research is weak in the country but the situation in applying knowledge outcome in practical economy is also unsatisfactory. Global competitiveness report 2014 ranked Pakistan lower than Sri Lanka, India, and Bhutan in the indicator of quality of education system. Innovation linkages of Pakistan are also in lowest position in the SAARC region. This paper recommends a paradigm shift in the educational preferences especially at higher level in Pakistan. Universities and research institutes should initiate more ventures for research and development. A mechanism that focuses on introduction, application and integration of higher education inventions and innovations in industry and economy is also recommended. Higher education system, in this regard, can revolutionize the traditional concept of economy to a knowledge based economy in Pakistan.

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EFFECT OF CORE COMPETENCE ON SUSTAINABLE COMPETITIVE ADVANTAGES OF BATIK BANYUMAS SMALL AND MEDIUM ENTERPRISES

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Abstract:

Increasing competition threatens the attractiveness of an industry and reducing the profitability of batik banyumas owners. Banyumas batik small and medium enterprises (BBSMEs) therefore focus on gaining sustainable competitive advantage to enable them respond to, and compete effectively in the market. By identifying their core competences, firms are able to concentrate on areas that give them a lead over competitors, provide a competitive advantage and increase its performance. This study seeks to determine the relationship between firm core competence, competitive advantage and performance of small and medium enterprises. Survey conducted on 58 owner and manager of small firm of Banyumas batik in Banyumas Region. The study used convenience sampling method. Respondents in this study were the owners and managers of Small to Medium Sized Enterprises of batik industry in Banyumas Region, Central Java, Indonesia. A questionnaire will be administered to the sample chosen for the study.

Data was analysed by multiple regression analysis. The testing result showed that relationship competence, adaptation competence and innovation competence has significantly effect on firms innovativeness. Competitiveness significantly effect on small and medium industry business performance. The ability of entrepreneurs to build business network has eased an information exchange and also to make a social relatedness in order to improve the competitive advantage. The result of the study provides contribution to Resources-Based View (RBV) theory, where the companies were able to improve all their capabilities in enhancing the competitive advantage and small and medium firm's performance.

Keywords : Core competence; Competitive Advantage; Performance; Batik; Banyumas

Introduction

The role of small medium enterproses (SMEs) in economic development and growth is crucial, and its contribution is not only in developing countries but also in developed ones. SMEs is considered as the exceptional industry since this kind of industry does not only absorb the larger sales force compared to the larger industry, but it also provides the most significant contribution to the national gross domestic product (GDP) (Tambunan, 2009). In the frame of national economy performance, SMEs has contributed 56 percent to the total GDP of Indonesia. This indicates that more than half of the Indonesian's economy has been supported by the SMEs (Kementerian Negara Koperasi and UKM, 2014). The development and SMEs role is not minor, since they can provide huge contribution in worker absorption. Many efforts have been performed by SMEs to create competitiveness, such as building a relationship with a larger industry, create a proper management, convenient technology, and continuous innovation.

Based on the data from Badan Pusat Statistik (Bureau of Statistics), Central Java (2009), textile industry has provided the largest contribution to the economy of Central Java. Batik is one of the work of art and it becomes the famous heritage of Indonesia. Batik has been adored by many countries. Batik has made Indonesia to be one of the excellent countries that produces the most unique silky traditional fabric in the world. This label comes from a long-standing tradition of batik, which has deeply rooted in Indonesian culture, as a rich various, creative and artistic tradition. In addition, batik has also been acknowledged by the United Nations Educational, Scientific, and Cultural Organization (UNESCO) as “Intangible World Heritage” in October 2009. The similar label was also given to “keris” (traditional personal sacred weapon) and puppets. In Central Java province, there are many batik industry clusters i.e. Solo, Pekalongan, Banyumas and sragen. Compared with batik from Solo, Pekalongan and Yogyakarta, Batik Banyumas still unknown but Banyumas Government try hard to promote Batik Banyumas as a part of local product which can penetrate international market. The introduction of imported batik in Indonesia becomes a threat and also a chance for batik industries, especially in Pekalongan, to maintain their competitive advantage and business performance. The ability to access government’s support, adaptability on business environment and the ability to build business relationship will be the most important factors in maintaining batik’s competitive advantage in the market (Meutia, 2012).

Small and medium-sized enterprises (SMEs) sector has an important role to play in developing economies not only in economic development, but also in poverty alleviation and job creation. The sector faces a number of constraints especially in accessing finance, markets; training and technology. The sector faces both problems and opportunities that affect their competitiveness. However, research carried earlier on small-scale enterprises reveal that the performance of a number of them is less than satisfactory. Various local studies have been conducted by Rahab, Najmudin and Istiqomah (2013) who study about strategy to develop local economic through industrial core competence. Another study, Anwar, Rahab and Priyono (2015) who did a study problems and challenge to create sustainable competitive advantage of Banyumas Batik Small and Medium Enterprises (BBSMEs). Rahab, Anwar, and Priyono (2015) researched on the significance of value chain up grading to support competitiveness of Banyumas Batik Industry. Meutia (2013) explore about role of innovation creativity, business network and adaptability on competitive advantage. There is limited empirical evidence on effects sources of core competence on competitive advantage and performance of Batik Banyumas industry. This study seeks to fill the existing research gap by conducting a study to determine the relationship between core competence, competitive advantage and performance of BBSMEs in Banyumas region.

Unfortunately, some literatures show the lack of consistency on main factors to reach the success of SME (O’Regan and Ghobadian, 2004). The studies have found mixed views; some experts stated that SMEs success is heavily influenced by the individual itself that is the entrepreneur and also the parties who explain the importance of external factors and internal factors coming from the outside environment such as economic condition, government’s policy. On the other hand, the availability of financial support and the nature of infrastructure support (Yusuf, 1995) has also found to explain that entrepreneurs as the owner of the business plays an important role in deciding the success of a business (Baum and Locke, 2004; Che Rose *et al.*, 2006; Man and Lau, 2005). External network is one succeeding factor in business because through the business network an industry will be able to share the information; exchange the useful information benefited both sides (Flora and Flora, 1993; Malecki, 1996; Woolcock, 1998). Even though there is a positive evaluation in social capital’s role in firm’s development, yet some researchers argued that social relationship would not always push the process of innovation development, on the contrary it will create belief, community development, higher tolerance to the external side and the creation of new ideas (Glaeser *et al.*, 1995; Putzle, 1997). An entrepreneur who has high social capital (based on extensive social network, status, personal relatedness, and existing reference) will tend to accept more funds from the investor compared with another entrepreneurs who has lower rate in these dimensions (Shane and Cable, 1998). External network provides a support such as access to the opportunity and resources; as a result, it will finally influence the micro-business performance (Burt, 1992; Johannisson, 1996).

The ability to build business network will enable the SMEs owner to reach any business information, particularly for the information that comes from the outside of his company. Keats and Hit (1998) stated

that dynamic environment significantly related to the performance. The result of this is hoped to show an influence of business environment on the company's performance (Hansen and Wenerfelt, 1989). There have been two factors that triggered the company's performance. The first is the role of external factors in determining the company's success; meanwhile the second one highlights the internal aspects of MSE, especially the entrepreneurs' characteristic. Study which focuses on external factors, generally observed the government's role in creating a conducive environment to reach the small business' success (Hazlina, 2007). Meutia (2013) find that business network significantly affected competitive advantage.

Innovation Capacity is another factor contributing to the SMEs competitiveness. Wahyono (2002) stated that continuous innovation in an organization was the basic needs to reach the competitive advantage. Conventionally, innovation can be expressed as a breakthrough in adapting the dynamic environment, which is related with new products. Nevertheless, simultaneously with the development of a company, innovation caters new ideas and new process application. Innovation is also viewed as company's mechanism in adapting with dynamic environment. Any changes in business environment have forced the companies to create any new thoughts, new ideas, and to offer the innovative products. Innovation has an important part in SMEs improvements because it will not only be the important tool to maintain the company's survival, but it also to win the strenuous competition. Batik is a product of high innovation, which becomes one of the Indonesian cultures that need to be maintained its existence. Innovation competence, ability to adapt with business environment change (adaptation competence) and relationship competence will be the important variables in improving competitiveness and the SMEs business performance. These variables have partially been investigated by previous researches on the SMEs, but they have been no study performed to explore the competitive advantage of batik industry, especially batik banyumas small medium enterprises in Banyumas region. Based on these explanation, this study aim to investigate effect of core competence dimensions (innovation competence, adaptation competence and relationship competence) on sustainable competitive advantage.

Literature Review and Hypothesis Development

Firm Core Competence

The definition of core competence varies among researchers. According to Selznick (1957) and Porter (1986), a core competence allows a firm to be different from its competitors in the same field of activity. Hamel and Heene (1994), Dosi and Teece (1998) state that a core competence is defined as the skills and the resources that allow a firm to achieve its goals. According to Hamel and Prahalad (1990), a core competence is the knowledge of the company. The resource-based view (RBV) approach to firm core competence argues that firms possess resources, a subset of which enables them to achieve sustainable competitive advantage, and a further subset which leads to superior long-term performance (Barney, 1991; Grant, 1991). The question of what drives the performance of a firm is a central issue in contemporary research on strategy that applies the of strategy (Barney, 2001; Farjoun, 1998). Strategic competence is a central driver of firm performance (Pehrsson, 2001). The concept is primarily an outgrowth of the resource-based view of strategy (Barney, 1991, 2001; Grant, 1991). In this view, resources essentially are said to confer competitive advantage to the extent that the resources must be difficult to create, buy, substitute, or imitate (Barney, 1991; Lippman and Rumelt, 1982). In line with this, strategic competence is considered to be a crucial source of heterogeneity that enables the firm to achieve competitive advantage and generate high performance. Sustainable competitive advantage is the unique position that an organization develops in relation to competitors that allows it to outperform them consistently (Hofer & Schendel, 1978).

The resource-based theory is considered as a useful framework to research and understand the dynamics of firms in their attempts to attain sustainable competitive advantage. Resource-based theories hold that enterprises with valuable, rare and inimitable resources have the potential of achieving superior outcomes thereby achieving sustainable competitive advantage (Wiklund and Shepherd 2003). Birney (1991) describes resources as inputs in a firm's production process. Resources are usually categorized as

either property-based or knowledge-based resources (Wiklund and Shepherd 2003). Property-based resources refer typically to tangible input resources while knowledge-based resources are the ways in which firms combine and transform tangible input resources. Knowledge-based resources are important in providing sustainable competitive advantage. Resource-based theories have largely focused on categorizing resources and examining the relationships between resource configurations and firm performance in its ultimate goal of attaining competitive advantage. Little attention has been devoted to examining the relationships between different resource configurations.

Sustainable Competitive Advantage

The idea of a Sustainable Competitive Advantage (SCA) surfaced in 1984, when Day (2004), suggested types of strategies that may help to sustain the competitive advantage. The actual term SCA emerged in 1985, when Porter discussed the basic types of competitive strategies that a firm can possess (low-cost or differentiation) in order to achieve a long-run SCA. Interestingly, no formal conceptual definition was presented by Porter in his discussion. Day and Wensley (1988) admit that there exists "no common meaning for „SCA“ in practice or in the marketing strategy literature". Barney (1991) has probably come the closest to a formal definition by offering the following: "A firm is said to have a sustained competitive advantage when it is implementing a value creating strategy not simultaneously being implemented by any current or potential competitors and when these other firms are unable to duplicate the benefits of this strategy (*italics in original*). Although lacking a formal definition, Coyne (1986) contributed to the construct by proposing that in order to possess an SCA, consumers must perceive some difference between a firm's product offering and the competitors offering.

In achieving sustainable competitive advantage in organizations, Barney (1991) argues that valuable, rare, and inimitable resources are necessary but not sufficient to facilitate better outcomes. Firms must also have an appropriate organization culture in place to take advantage of these resources. An entrepreneurial orientation fits in this context as it offers an important measure of the way firms are organized (Wiklund and Shepherd, 2003). Entrepreneurial orientation refers to a firm's strategic orientation, capturing specific entrepreneurial aspects of decision-making styles, methods and practices (Lumpkin and Dess, 1996). Previous studies (such as Kimuyu and Omiti, 2000; Zeller 1994) have largely focused on the direct link between individual strands or configurations of personal resources and access to bank credit while less attention has been devoted to how small enterprises can utilize these resources more effectively in its pursuit of sustainable competitive advantage.

Performance of Small and Medium Enterprise

SMEs growth is often closely associated with firm overall success and survival. Growth has been used as a simple measure of success in business. Growth is the most appropriate indicator of the performance for surviving SMEs. Moreover, growth is an important precondition for the achievement of other financial goals of business. From the point of view of an SMEs, growth is usually a critical precondition for its longevity. Young firms that grow have twice the probability of survival as young non-growing firms. It has been also found that strong growth may reduce the firm's profitability temporarily, but increase it in the long run (Parker, 1989). However, there are several conceptual and empirical challenges in the study of firm growth. Firm growth in general refers to increase in size. In research, firm growth has been operationalized in many ways and different measures have been used. This may be one reason for the contradictory results reported by previous studies, though other explanations have also been presented. The most frequently used measure for growth has been change in the firm's turnover.

However, it has been found that these measures, which are frequently used in the SMEs context, are strongly intercorrelated. Such an intercorrelation may not exist among capital-intensive large companies. Most studies of firm growth have focused on large companies or new venture, while the growth of established, long-lived SMEs seems to have attracted much less attention. In fact, many organizational life cycle models present growth as one stage of development in the organizational life cycle. On the other hand, it has been shown that most new jobs are created by existing, not new, SMEs.

Relationship between Core competence On Competitiveness

Network theory shows that the ability of the SMEs owner to get access into rare sources could economically be secured through a competence to build relationship with others, and this in turn will contribute to the business success (Zhao and Aram, 1995). Florin (2003) stated that relationship with others provides added value to their member by letting them to gain access to social resources which are implanted in a relationship, where the relationship itself provides a means to the SMEs owner to get external resources which are needed by the organization (Jarillo, 1989). Granovetter (1983) stated that individual who has business relationship, consist of relatives and colleague will likely gain an access to larger information compared with the individual who does not link to a network. Based on this reasoning, Fischer and Reuber (2003) stated that company owner needs to develop and improve its relationship with external environment to enhance their business growth. Network can improve social capital of SMEs owners (Coleman, 1988) since an access to the information is implanted in retrieved network. Therefore, Granovetter (1983) concluded that individual who has business relationship consist of family and friends (strong relatedness) will likely gain an access to larger information compared with the individual who have no kind of this relationship with others. Based on this logical reasoning, Fischer and Reuber (2003) stated that the owner of an organization needs to improve their relationship with external environment to enhance the business growth. Based on these empirical evidences, it can be generated hypothesis,

Hypothesis 1. Relationship competence have a positive impact on firm's competitiveness

Environment is the entire condition of external environment, which influences an organization. Environment consists of internal and external environment. Internal environment is closely related with the entire condition of an organization such as resources, capability, and core competence, which are owned, by an organization (Hitt *et al.*, 2001). Meanwhile, the external environment includes the general environment, type of industry and competitors. The lack of market power and dynamic environment surrounds the company as a consequence of new emerged markets faced by the SMEs makes it to be susceptible to any external influence compared to the toughness of a bigger company (Man and Lau, 2002). Baringer (1997) found that an organisation, which has a rapid growth enable to operate in a friendlier environment, compared to the organisation that has a slower pace. This clearly indicates that there is a positive influence of the environment's opportunity on the business competitive advantage.

According to Amit and Schoemaker (1993), organization has to be able to adapt itself with a fast changing environment and technology to achieve its competitiveness. The previous studies (Beal, 2000; Sinkovics *et al.*, 2004; Barokah, 2009) stated that adaptation competence affects the competitiveness. The competence of entrepreneurs in adapting themselves to business environment becomes an internal source, which is hard to be imitated by other companies, and this in turn will create competitiveness for the organization itself. Based on the above explanation and previous empirical findings, the second hypothesis can be generated,

H2: Adaptation competence have a positive impact on firm's competitiveness

Environment that is characterized by a rapid changing of customers preference, technology, and competition, a company must create competitive advantage to survive. The ability of an organization to innovate, keep its organisation learning, market orientation and entrepreneurship have been considered as the main capability of a company to reach its competitive advantage (Hult and Ketchen, 2001; Hurley and Hult, 1998; Ireland *et al.*, 2001). These capabilities also help the company to reach its competitive advantage and create a trend in the market. Former study explained that each of the four capabilities has adequately provided a power, although it does not give enough strength to develop a continuous competitive advantage. Competitive advantage is closely related with the developing generation of innovative product, and it in turn provides an advantage for the companies to win the competition. According to Chiarvesio (2004), a leading company is characterized by dynamic strategic behaviour in their ability to innovate, have a proper relationship management with market, suppliers, internationalize the process, organize and manages the business network by creating a new value for the customer (Mizik and Jacobson, 2003). Based on this explanation and previous empirical findings, hypothesis can be constructed,

H3: Inovation competence have a positive impact on firm's competitiveness

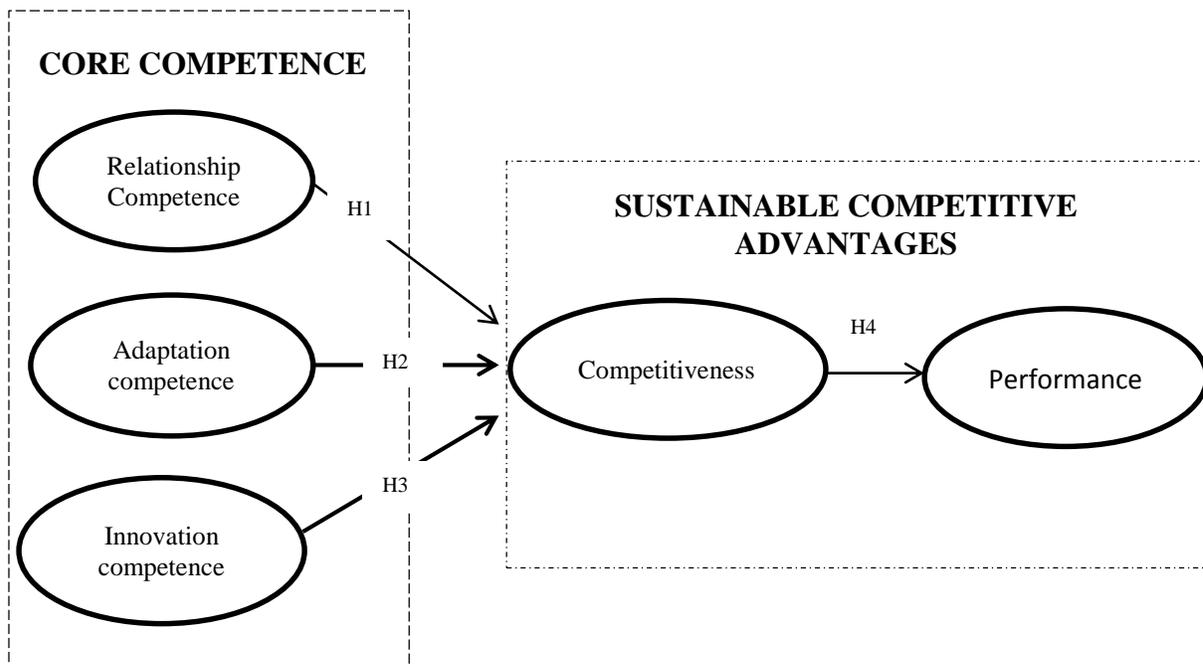
Relationship between Competitiveness and Business Performance

The result from Diosdad (2003) study shown that competitiveness can be viewed from company's position compared to their competitors' weaknesses and strengths. Competitiveness was derived from the ability of a company to keep their source superiority and its capability. Competitiveness indicates the company's skill and source superiority viewed by the customers or based on the lower cost attainment, market share and portability performance. Competitiveness can also be viewed from the amount and source of capital accumulated by the company.

According to Barney (1991), a company can be identified as a company that has mutual competition when it applies to value creation strategy, which is not simultaneously applied by their competitors (Sinkovics *et al.*, 2004). (Jennings and Lumpkin, 1992) stated that there is a lack of study focusing on the SMEs, as a matter of fact; environment and strategy strengthened the company's performance. Strategic approach has a potent to improve competitive ability, which provides a contribution to the company's performance improvement (Sinkovics *et al.*, 2004). Respatya (2001) stated that a company that produces goods and service has basically started paying attention on its competitive advantage to keep its surviving to earn profit. Competitive advantage pushes the SME's business performance through profit generation, sales development, and increasing the number of customers. Lisman *et al.*, (2004) and Ariya (2003) states that competitive advantage has positively influenced the organizational performance. In batik industry context, Meutia (2013) found that competitiveness affect on firm performance. Based on these explanation and previous empirical findings, the hypothesis can be generated,

H4 : Competitiveness have a positive impact on firm's performance

Based on the proposed hypotheses, a theoretical framework could be developed as shown in Figure 1. Dimension of core competence (relationship competence, adaptation competence and innovation competence will effect on competitiveness of firm and competitiveness directly effect on firm performance. We assume that competitiveness and performance are a part of sustainable competitive advantage.



Research Method

This study use quantitative approach. Population of this study is the owner and manager of batik banyumas small and medium enterprises (BBSMEs) of batik banyumas in 5 (five) regency. Data collection was done through directly survey in Juni until Juli 2015 using purposive sampling technique. The BBSMEs selected based on the purposive sampling technique with the following criteria: (i) it has at least 3 years working experience. This is to evaluate trend and the dynamic of batik market, (2) it has permanent workers which means that the company is relatively stable and able to continuously produce, (3) it involves not only distribution activities, but also production activities, (4) and it covers marketing nationwide. Total of 67 BBSMEs were included in the study. In total (67) questionnaires were distributed to the managers or owners. The number of usable returned questionnaires was (58) giving response rate 86 percent, a rate that is regarded as good. The survey was administered directly. The Questionnaire was in Indonesia, which is the communication language in Indonesia. A majority of the respondents (83 percent) were male. Fifty five percent of the respondents were (40–60) old and the majority of respondent (63 percent) with job experience between (4–8) years .

Measurement and Data Analysis

To test hypothesis, we used regression analysis by SPSS software 20. Two steps of detailed statistical analysis of data were involved. At the first stage, descriptive statistic analysis was performed to extract the mean and standard deviation of underlying study variables core competence, competitive advantage, organizational performance and their dimensions. At the second stage, multiple regression analysis was performed to understand the relationship among these variables. To measure the variables investigated in the study, few indicators are used based on previous researches and theories. As for the variable relationship competence, three indicators were used, namely: (i) the amount of network with production sector; (ii) the amount of network with the supplier; (iii) the amount of network with distribution channel. The second variable of the study is the adaptation competence on business environment. It is defined as the ability to adapt with dynamic uncertain environment such as the adaptability with the changes in customer's preference, market changes, competition, and the government's policy alteration and technology speed (Covin and Slevin, 1989; Stamp, 2008; Hazlina, 2010; Mc Ginnis, 1993). Innovation competence are measured by three indicators: (i) design innovation (ii) motif design innovation (iii) technology innovation. Meanwhile, competitiveness is the government's ability to provide an added value to win the competition. It is the result of product differentiation between competitor and it is not only a product of differentiation (Coyne, 1997). competitiveness indicators include: (i) the creation of better customer loyalty compared to the competitor, (ii) the creation of better product development compared to the competitor, (iii) the creation of better technological development compared to the competitor, (iii) and the creation of more various product development compared to the competitor. Finally, the business performance was measured by four indicators, namely: (i) sales development, (ii) working capital growth, (iii) customer growth, and (iv) profit development (Wiklund, 1999; Wiklund and Shepherd, 2005; Stamp, 2008).

Analysis and results

Table 1. shows summary statistics of the metric variables in the study. A check of correlations among the metric dependent variables found few significant correlations, and none that reached as high as 0,5, indicating that there were no problems with multicollinearity between variables.

Table 1. Mean of metric variable

Variable	Mean	SD
Relationship Competence		
REL1	1.83	0.22
REL2	1.95	0.22
REL3	1.96	0.21

Adaptation competence		
ADAP1	1.69	0.22
ADAP2	1.92	0.22
ADAP3	1.87	0.21
ADAP4	1.87	0.22
ADAP5	1.90	0.22
Innovation competence		
INNOV1	1.96	0.21
INNOV2	1.93	0.22
INNOV3	1.88	0.21
Competitiveness		
COMP1	1.82	0.22
COMP2	1.90	0.20
COMP3	1.68	0.24
COMP4	1.86	0.21
Performance		
PERF1	2.77	0.15
PERF2	2.84	0.13
PERF3	2.60	0.18
PERF4	2.91	0.17

Internal reliability for the adapted scale was compared to that reported in the developmental literature. Scales as presented in table 2 showed a good internal consistency. As can be seen in table 2 Cronbach alpha reliability coefficients are at acceptable levels and fall between 0,813 for performance scale and 0,851 for relationship competence. The overall questionnaire presented a Cronbach alpha of 0,97. Nunnally (1978) indicated 0.7 to be an acceptable reliability coefficient.

Table 2. Reliability analysis of core competence, competitive advantage and organizational performance.

Variable	Number of items	Cronbach alpha
Relationship Competence	3	0,851
Adaptation competence	5	0,819
Innovation competence	4	0,838
Competitiveness	4	0,819
Performance	4	0,813

Table 3 show effect of Core Competence dimensions (Relationship Competence, Adaptation competence and Innovation competence) on competitiveness of Banyumas Batik Industry.

Table 3. Summary of regression results

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	.864	.276		3.133	.002
REL	.234	.075	.223	3.100	.002
ADAP	.220	.068	.231	3.219	.002
INNOV	.299	.067	.309	4.444	.000

*Dependent variable: Competitiveness, the impact is significant at level ($\alpha = 0.05$)

Summary of regression results that explain effect of competitiveness on business performance of BBSMEs on Table 4.

Table 4. Summary of regression results

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.871	.263		7.121	.000
Comp	.478	.066	.472	7.247	.000

* Dependent variable: Business performance, the impact is significant at level ($\alpha = 0.05$).

Discussion

This study found that relationship competence significantly effect on competitiveness (sig: 0,002, t value: 3,100). This finding indicates that the entrepreneurs who is too responsive with the changes in an environment will be beneficial for the company since their wills a bulkiness of unsold inventory and at the same time there has been a new model of fashion in the market. It needs more fund to create new designs because the changing trends in fashion can get easily booming and fading. Empirical results showed that respondents were aggressive in dealing with anychanges that happened in a business environment, because they viewed it as an ordinary phenomenon. Most respondents were able to predict the changes that take place in a business environment; therefore, they were adapted to dealing with the changing trends, as they have already known how to deal with it.

In addition, the study found that adaptation competence significantly effect on competitiveness (sig: ,002, t value: 3,219). BBSMES continuously adapted themselves with the changing customer's preference, there would be no gain for their business. If the designs of fashion become outdated, most of the products will be unsold, their warehouse will be full by unsold goods, and it will be disadvantageous for the company. In order to avoid the unsold product, the Batik companies need to create a new design and material that are always searched by the customers, as Batik Banyumas has been known as the leader in the industry. Accordingly, the ability to continuously adapt with business environment will cause the additional of investment value such as keeping up the technological change and market changes, but in reality, the result has not fulfilled their wishes. Thus, the companies stated that they produce a design, which is specially ordered by customers.

Furthermore, the study also show that innovation competence significantly on competitiveness (sig: 0,000, t value: 4.444). Innovation competence will continuously burden the small firm to keep the change of new technology, including new design, batik motif and material. Based on the data in the field, creativity is needed in Batik industry and will be significant factor to attain the competitive advantage. Innovation competence, particularly in computer usage is aimed to create new design and new motives. Respondents do not pursue the seasonal product since it includes in uncertain demand. Based on the data, the entrepreneurs or creativity teams often observed the worldwide trend to create the new design that will be launched into the market. They usually exchange their information with national designers. Handwritten Batik usually has unique design and traditional characteristic and it is mainly intended to serve exporting needs. Be creative in responding the changes in product development and customer's preference will improve the competitive advantage, especially when the respondents are able to improve a better quality of product.

Finally, the study show that the competitive advantage significantly influence on the business performance (sig: .000, t value: 7.247). This finding indicates that the greater the competitive advantage will lead the higher the SMEs business performance. This finding is supported by the studies of Lisman et al. (2004), Ariya (2003) and Meutia (2014) which explain that competitive advantage positively influenced the firm performance. One major factor in competitive advantage that the SMEs should maintain is the difficulty rate of design and motives, so as to make it hard to be imitated by the competitor. Although the competitor can easily imitate the design, but the end products can be different in quality because of the perfect Batik making process. High creativity in Batik processing could easily make the Batik entrepreneur in Pekalongan to be the leader both in the national and international Batik markets. The result of this study is also in line with the Resources Based View (RBV) theory, which stated that an organization would maximally empower their capabilities to improve their relationship in increasing business network. The

result from this study also explains that competitive advantage will be reached if innovation creativity is continuously employed since innovation is one of the major capabilities in an organization.

Conclusion

This study provides empirical evidence of the relationship between core competence, competitive advantage and organizational performance. We consider core competence to be a vital determinant of competitive advantage and organizational performance. The study provides empirical evidence of the effects of core competence on competitiveness of batik banyumas industry. Study confirm that all three dimensions of core competence (relationship competence, adaptation competence and innovation competence) were significant in explaining firm's competitiveness. This current study also find that competitiveness of batik indutry effect on firm's performance. Therefore, BBSMEs owners can use the current findings to develop strategies that deepen competitive advantage and enhance organizational performance. The current findings may be used by managers to differentiate themselves in a competitive batik banyumas industry marketplace. To remain competitiveness and obtain sustainable competitive advantages, owners of BBSMEs can try to increase organizational performance by managing each dimension of core competence i.e. relationship competence, adaptation competence and innovation competence in the context of BBSMEs.

This implies that the BBSMEs could improve their sustainable competitive advantages by enhancing its competitiveness and its performance following the resources based view theory. In designing strategy for improving the SME business performance, limitations of the study should be noted. Further studies on these issues are hoped to taken care of these study limitations. This study only investigated variables from internal side of a company, while none of the external variables such as business environment and government's support was investigated. Another limitation of this study is we only used limited BBSMEs in Barlinmascakeb area, so its finding cannot be generalization for batik industry in another place and country.

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Assessing the Impact Greening Information Technology Tools and Technologies on Organizational Sustainability

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Abstract:

It is more than ever that organizations are increasingly being pressured governments and people to become socially responsible. This is what is often referred to as organizational sustainability. Based on literature reviewed for this study, organizations can achieve their sustainability goals and initiative using different means and methods that can assist in cutting down on energy consumption and the reduction CO2 emission. The literature reviewed for this study focused on the utilization of Information Technology (IT) as an enabler of organizational sustainability. Not much research efforts have focused on assessing the impact of certain IT tools and technologies on organizational sustainability. This study will assess the impact of specific “green” IT tools and technologies. These are: Collaboration tools, Cloud Computing for power management, Automation of workstation shutdown when not in use, Workflow technologies, Virtual Networking, Cloud Computing for resource optimization, Virtual Private Networks (VPN), Electronic Mail (Email), and Video Conferencing.

Keywords: Sustainability, Green IT, Corporate Responsibility, Green Computing

Introduction

Information Technology (IT) has proved itself to be a very reliable strategic business partner that enabled organizations to accomplish such strategic goals as operational excellence, efficient decision making processes, and competitiveness which ultimately led to organizational survival. Today, organizations, on a whole, have increasingly being pressured by people and governments to implement practices that meet the demands of their ethical, social, and environmental responsibilities. Therefore, due to the social consequences of how organizations handle such pressures, a whole new concept in organizational management has arisen today which often referred to as corporate citizenship also known as corporate sustainability. Today, more than ever, organizational leaders are vigorously planning and keenly pursuing to transform their organizations into becoming organizationally sustainable (Benn, S., Dunphy, D., & Griffiths, A. 2014). Large multinational organizations such as Coca-Cola, Wal-Mart, and Nestle have made it mandatory upon their suppliers to start implementing sustainability practices in their operations.

For these organizations, as well as many others, corporate sustainability has become a key strategic organizational initiative that they must plan for and implement in order meet the demands of becoming socially responsible. Corporate sustainability initiatives and reporting is no longer a burdensome task upon corporate leaders, but rather a continuous effort that is becoming the norm of daily business operations (Baskin, 2014).

The impact of the advances in technology and telecommunications have introduces a whole new set of global challenges in the early twenty-first century. A survey conducted by CIO magazine in 2008 of 280 IT executives, indicate that IT executives on a whole are in fact moving towards adopting the “greening”

of their IT operations initiative. According to the survey, these executive indicated that two principal reasons that they are adopting such initiative: cost-cutting by becoming more energy efficient and to become more socially responsible. Grant Thornton LLP (2007) conducted a survey of more than 500 business executives. According to this survey, all of the business executives surveyed agree that for the organization to be sustainable will certainly have a positive impact on the organization's reputation, its ability to realize its strategic goals, and profitability. Of those executives surveyed, 77% believe that their organizations' sustainability initiatives will have a significant impact on their business strategies for years to come.

The role of IT in assisting organizations in achieving corporate sustainability has been investigated and researched in recent years. However, the amount of research that has been conducted on which specific IT tools and technologies that can assist the organization in becoming sustainable has been minimal. Nevertheless, the role of IT in assisting organizations in meeting their sustainability initiatives has been effective in enhancing the organization's capabilities to improve its economic as well as its environmental performance (Ekins, 2000). IT has also been considered an enabler of ecological competence due to its role in such sustainable activities as efficient energy consumption, efficient logistics and transportation (Hilly, et al. 2006). Therefore, it is the goal of this study to take into consideration specific "greening" IT tool and technologies in order to measure their utilization by organizations towards the goal of becoming sustainable.

LITERATURE REVIEW

The concept of Corporate Sustainability (CS) which is also referred to as Corporate Social Responsibility (CSR) is not a new one in the business literature. According to Marrewijk and Were (2003), corporate sustainability denotes the deliberate organizational undertakings, which are often voluntary, that make evident the insertion of societal as well as ecological apprehensions in the organizational processes and transactions (Scientific American, 2013). Much of the literature investigated for this study refer to the role of IT in assisting organizations in meeting their social responsibility and sustainability initiatives as Green IT or Green Computing. These two terms refer to the utilization of IT resources and tools in an ecologically sustainable way, thus encouraging and assisting the organization in becoming socially responsible. Much of the IT research regarding the impact of Green Computing on business sustainability has predominantly been devoted to the efforts of making IT and its tools more energy efficient and more environmentally. Not much research has been devoted to the practices that organizations must undertake to utilize IT as an enabler of business sustainability. According to Murugesan (2008), Green Computing should be focused on the efforts of developing, engineering, utilizing, and the discarding of IT related hardware such as computers, monitors and storage devices in a competent and responsible manner that will not impact the environment in a negative way. In other word, the question becomes: Should we manufacture "Green IT" or should we utilize IT in a "Green" manner to accomplish business sustainability? In this context, Green IT is seen as the responsibility of the manufactures of IT related tools and equipment as well as the end users (the organizations) who use such tools and equipment. However, for the purposes of this study, the focus will be on the utilization of IT as a "greening agent" by organizations in a manner that will assist these organizations in meeting their organizational sustainability initiatives.

According to Molla et al. (2008), the role of IT in assisting organizations in meeting their sustainability initiatives can be approached from the standpoint that IT plays an important role in decreasing the negative environmental impacts of the organization's computing infrastructure. Brooks et al. (2010) indicates that the utilization of such infrastructure should include changes to the way that the organization conducts its daily business in a way that will improve energy consumption; therefore decreasing the negative environmental impacts of the organization's computing infrastructure. To accomplish that, Brooks et al. further indicates that the organization must adopt Green IT tools and technologies that will assist the organization in becoming sustainable. Based on the literature reviewed for this study, several Green IT tools and practices have been identified that are widely considered as having major positive impact in assisting organizations in becoming sustainable. These greening IT tools and practices are:

Email

Electronic Mail (email) is considered one of the most disruptive technologies utilized by organizations. According to Leong (2009), the United States Postal Service is facing a financial crisis due to the fact the email is replacing the traditional paper-based mail delivery. Utility companies are replacing the paper-based billing of their customers by online payment systems. Internal as well as external organizational communications has been chiefly conducted via email. This is due to the fact that the utilization of email has proven to bring significant financial benefits to the organization. According to Charlton (2014), overall, the utilization of email as a marketing tool has contributed 23% of their total sales compared to 18% in 2013. The utilization of email as a medium for communication and marketing has also had a significant positive impact on the natural environment. This is due to the fact that the utilization of email has cut down drastically the utilization of paper as the medium for communication.

Video Conferencing

Video Conferencing is one of a group of technologies that are referred to as Information and Communications Technologies (ICT). According to the Marriam Webster dictionary, video conferencing is defined as the “method of holding meetings that allows people who are in different cities, countries, etc. to hear each other and see each other on computer or televised screens.” This definition, in itself, is a testament of the capabilities of video conferencing technologies in assisting the organization in meeting its sustainability initiatives. Organizations are under increased pressures to compete on a global level which means that the new competitive business landscape requires organizations to seek new markets and to expand its operations beyond its normal and defined geographical locations. Consequently, this puts extra added burdens on the organization in the form of managing and controlling these globally dispersed parts of the organization, not to mention the costs associated in making these locations connected together and with the main office for the purpose of collaboration. For example, if a globally dispersed organization needs to hold a business conference or meeting in certain geographical location, often the company’s headquarters, such conference or meeting will certainly impact the environment in a negative way. This is due to the fact that the participants in such conference of meeting need to travel from different cities which means utilizing some form of transportation which is often air based or land based travel.

Cloud Computing and Virtualization

According to Oster (2011), the future of IT is represented in the practices and applications that are being offered by Cloud Computing. Oster indicates that this is due to the flexibility and the on-demand computing services that Cloud Computing represents; therefore, making the organizational investment in such computing infrastructure yields a high return on such investment. More recent research efforts have focused on the utilization of such services in order to assist organizations in becoming sustainable. The capabilities of Cloud Computing as a “greening” agent for the organizations computing infrastructure is manifested mainly through the virtualization of servers and datacenters which traditionally have high rates of energy consumption.

Server	Idle Power Usage	Power Usage at Average Load	Power Usage at Peak Load
Server 1 – Application	\$238.87	\$333.95	\$412.53
Server 2 – Database	\$238.87	\$333.95	\$412.53
Server 3 – Web	\$238.87	\$333.95	\$412.53
Total Cost	\$716.61	\$1,001.85	\$1,237.59

Table 8: Sample Application Energy Usage Cost Profile (in USD) Source: Microsoft” Green Computing” report, (2008)

Server	Idle Power Usage	Power Usage at Average Load	Power Usage at Peak Load
Server 1 – Application	6,125	8,562.9	10,577.7
Server 2 – Database	6,125	8,562.9	10,577.7
Server 3 – Web	6,125	8,562.9	10,577.7
Total Impact	18,375	25,688.7	31,733.1

Table 9: Sample Application Energy Usage Cost Profile (in pounds CO₂) Source: Microsoft” Green Computing” report, (2008)

According to Mell and Grance (2011, p. 2), Cloud Computing includes the following services:

Software as a Service (SaaS), which provides the ability provided to the consumer is to use the provider’s applications running on a cloud infrastructure². The applications are accessible from various client devices through either a thin client interface, such as a web browser (e.g., web-based email), or a program interface. The consumer does not manage or control the underlying cloud infrastructure including network, servers, operating systems, storage, or even individual application capabilities, with the possible exception of limited user-specific application configuration settings.

Platform as a Service (PaaS). The capability provided to the consumer is to deploy onto the cloud infrastructure consumer-created or acquired applications created using programming languages, libraries, services, and tools supported by the provider.³ The consumer does not manage or control the underlying cloud infrastructure including network, servers, operating systems, or storage, but has control over the deployed applications and possibly configuration settings for the application-hosting environment.

Infrastructure as a Service (IaaS). The capability provided to the consumer is to provision processing, storage, networks, and other fundamental computing resources where the consumer is able to deploy and run arbitrary software, which can include operating systems and applications. The consumer does not manage or control the underlying cloud infrastructure but has control over operating systems, storage, and deployed applications; and possibly limited control of select networking components (e.g., host firewalls).

RESEARCH METHODOLOGY

The aim of this study is to measure the extent of the utilization of Green IT tools and technologies by organizations towards the goal of becoming sustainable. This study utilized the Survey Questionnaire method for collecting the data needed. Such method is an appropriate one utilized in such quantitative studies (Cooper & Schindler, 2004, p. 161.) The results of this study will provide solid evidence that the organizational utilization of Green IT tools and technologies will certainly assist the organization in becoming sustainable. Further, the results of this study also provided a classification of the “greening capability” of each of these Green IT tools and technologies that are considered in this study. Please refer to Appendix B for a complete listing of the questionnaire used in this study.

Analysis Means and Methods

Survey questionnaire was analyzed by using the following scale:

<i>Answer Option</i>	<i>Weight</i>
Strongly Agree	4
Agree	3
Neutral	2

Disagree	1
Strongly Disagree	0

Table 10: Survey Questions Scale

Upon the collection of participants' responses, the mean and standard deviation were calculated for each question. Based on these calculations, the following categorization was used to determine the average weight for each question:

Low	if average weight is less than 2.0
Medium	if average weight is between 2.0. – 3.0
High	if average weight is above 3.0

Table 11: Questions weights based on the scale provided in Table 3

The survey questionnaire that was utilized in this study was developed online using the services of the Google Forms®. Participants in this study were informed of the straightforward nature of the survey as well as the purpose of the research. Participants were informed that participation in the study was strictly confidential and voluntary. Participants were informed that they were not required to reveal their identity in any shape or form. The privacy and safety of all participants in the survey was safeguarded.

Sample

Arbitrary collection of participants from a population that has an equal chance of participating was utilized in this study. The target number of participants in the survey was 300 active organizational leaders and executives who work for large US based for-profit organizations. This number of participants is consistent with previous similar studies. Such method of data collection is an effective one since it would be easier to collect the data where it would be stored in a central repository where access to such data is protected and efficient. The data collected for this study was then directly imported into Microsoft Excel 2010®. The direct import of data from a database eliminates the chances of errors if data was to be recorded manually from paper-based surveys.

VALIDITY AND RELIABILITY

To ensure the validity and reliability of the research instrument utilized for this research effort, a pre-test pilot was conducted which included 30 participating large Jordanian companies. These companies were selected to participate in this study due to their large IT operations. Limiting the participants to for-profit organizations was to aid in the validity of the study since non-for-profit organizations might not be concerned with being competitive (Ness, 2005) which is mandatory for this study.

BIAS

Mowshowitz (1981) indicates that avoiding bias and attaining impartiality in computing associated research is virtually impossible since such research is frequently founded on questions correlated with policies related to the implementation and application of technology. Mowshowitz further proclaims that in an effort to lessen the chances for bias, a researcher should circumvent taking too many positions or own viewpoints. Consequently, no position, as to whether IT has a positive or negative relationship with organizational sustainability, is taken in this study. This is in an effort to diminish or remove any chances of bias in the findings and conclusion of this study. Moreover, the researcher has adopted the utilization of quantitative methods for the examination and analysis of the data collected. An online survey questionnaire has been selected as the mechanism for data collection. Such instrument has the predisposition to significantly decrease the probabilities for bias since there is no direct interaction between the researcher and the participants (Neuman, 2000). The data collected for this study was instantly stored in a protected database. The online survey was available for a period of one month after which it was taken offline and data collected was then exported to an Excel spreadsheet which was then examined and analyzed. Lastly, the findings and conclusions of this research effort is open for discussion and examination amid those who are concerned in both the academic and the business fields.

ETHICAL CONSIDERATIONS

Participants were invited to partake in this research effort using invitations that were sent to them via electronic mail (email). Please refer to Appendix D for the actual invitation that was sent to these participants. It was made clear to these participants the researcher's name, the purpose of the study, why and how they have been nominated to participate, and the anticipated length of their participation. The invitations also enclosed details related to such essential issues as the confidentiality and privacy of each participant. Participants were made cognizant that their contribution to this research effort was strictly voluntary and that they can withdrawal from completing the survey at any time. Lastly, participants were given instructions on how to acquire the research results and findings if they wish to do so.

FINDINGS AND DISCUSSION

Invitations to participate in this study were emailed to 300 representatives of large for-profit US organizations. The number of participants was 37 out of the 300 representatives which translate into a 12.66% response rate. The survey questionnaire utilized for this study was divided into three sections as follows:

1. The first section included Questions 1 through 7. These questions were designed to gauge organizational commitment to and their perception of sustainability.
2. The second section included Questions 8 through 13. These questions were designed to discover the organizational benefits and goals for adopting and implementing sustainability initiatives.
3. The third section included Questions 14 through 22. These questions were designed to discover the extent of organizational utilization of a selected set of what is considered "greening" IT tools and technologies. These tools and technologies included:
 - a. Collaboration tools
 - b. Cloud Computing for power management
 - c. Automation of workstation shutdown when not in use
 - d. Workflow technologies
 - e. Virtual Networking
 - f. Cloud Computing for resource optimization
 - g. Virtual Private Networks (VPN)
 - h. Electronic Mail (Email)
 - i. Video Conferencing

Since the goal of this study is to examine the organizational utilization of these "greening" IT tools and technologies as enablers of organizational sustainability, the discussion and findings of this study will focus on the set of questions (14 through 22) that directly assist in meeting this goal.

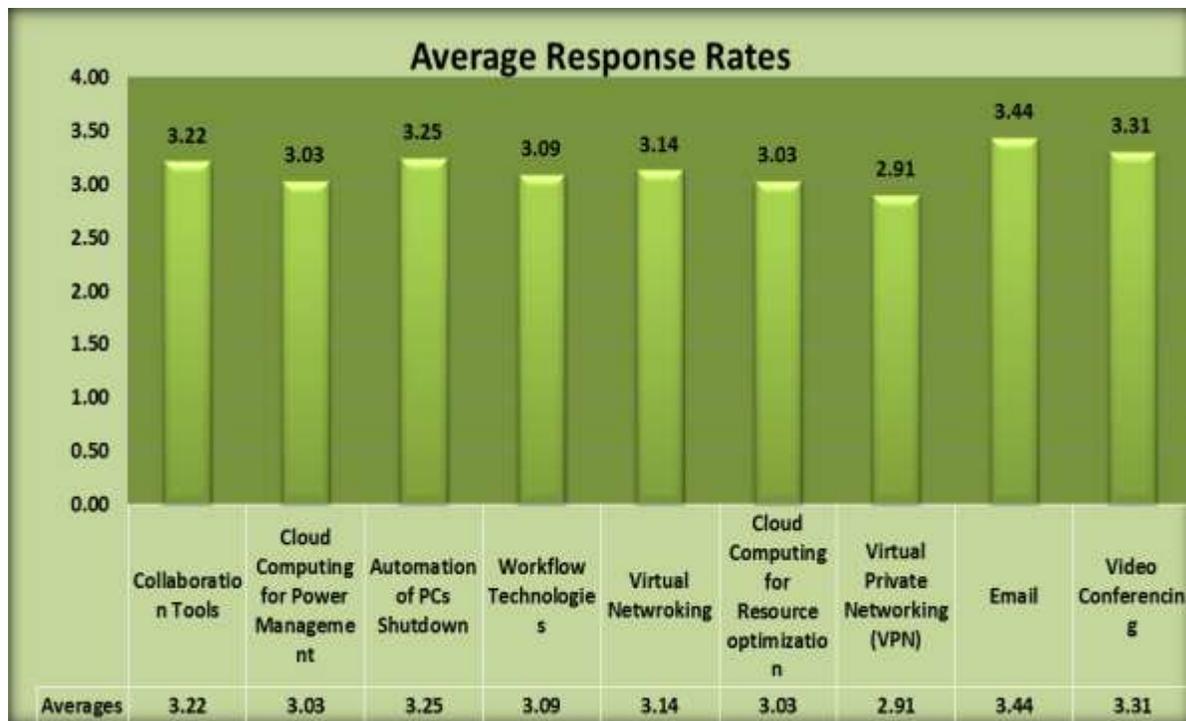


Figure 41: Average response rate for each of “greening” IT tools and technologies.

In the following section, a detailed discussion of the findings for each of the survey questions (questions 14 through 22) that relate the utilization of “greening” IT tools and technologies will be presented.

My organizations utilizes collaboration tools available in Web 2.0 such as tagging, RSS, and Wikis in order to facilitate more efficient communication and distribution of information

The total number of respondents was 37 out of which 28 respondents indicated that they agree and 9 respondents indicated that they strongly agree that their organizations do indeed utilize collaboration tools and technologies in order to facilitate more efficient communication and distribution of information. The average response rate was 3.22 which indicates a high degree of agreement by respondents as to the utilization of such collaboration tools and technologies towards achieving efficient organizational communications channels.

My organization is utilizing Cloud Computing technologies and techniques in an effort to achieve more resourceful utilization of IT resources and operations

The total number of respondents was 37 out of which 23 respondents indicated that they agree and 10 respondents indicated that they strongly agree that their organizations do indeed utilize Cloud Computing technologies and techniques in an effort to achieve more resourceful utilization of IT resources and operations. A total number of 4 respondents indicated that they do not know if their organizations utilize Cloud Computing technologies and techniques in an effort to achieve more resourceful utilization of IT resources and operations. The average response rate was 3.03 which indicates a high degree of agreement by respondents as to the utilization of Cloud Computing technologies and techniques in an effort to achieve more resourceful utilization of IT resources and operations.

My organization utilizes IT tools and techniques in order to automate the power management of personal computers

The total number of respondents was 37 out of which 28 respondents indicated that they agree and 9 respondents indicated that they strongly agree that their organizations do indeed utilize IT tools and techniques in order to automate the power management of personal computers. The average response rate was 3.25 which indicates a high degree of agreement by respondents as to the utilization of IT tools and techniques in order to automate the power management of personal computers.

My organization utilizes workflow technologies in order to reduce the amount of printing

The total number of respondents was 37 out of which 23 respondents indicated that they agree and 9 respondents indicated that they strongly agree that their organizations do indeed utilize workflow technologies in order to reduce the amount of printing. Four respondents indicated that they do not know and 1 respondent indicated that they disagree that their organizations utilize workflow technologies in order to reduce the amount of printing. The average response rate was 3.09 which indicates a high degree of agreement by respondents as to the utilization of workflow technologies in order to reduce the amount of printing.

My organization utilizes virtual network servers in order to decrease the dependence on physical hardware

The total number of respondents was 36 out of which 25 respondents indicated that they agree and 10 respondents indicated that they strongly agree that their organizations do indeed utilize virtual network servers in order to decrease the dependence on physical hardware. One respondent indicated that they do not know. The average response rate was 3.14 which indicates a high degree of agreement by respondents as to the utilization of virtual network servers in order to decrease the dependence on physical hardware.

My organization utilizes Cloud Computing technologies to optimize resources

The total number of respondents was 36 out of which 22 respondents indicated that they agree and 11 respondents indicated that they strongly agree that their organizations do indeed utilize Cloud Computing technologies to optimize resources. Four respondents indicated that they do not agree. The average response rate was 3.03 which indicates a high degree of agreement by respondents as to the utilization of Cloud Computing technologies to optimize resources.

My organization utilizes Virtual Private Networks (VPN) to allow employees to work from home

The total number of respondents was 37 out of which 23 respondents indicated that they agree and 8 respondents indicated that they strongly agree that their organizations do indeed utilize Virtual Private Networks (VPN) to allow employees to work from home. One respondent indicated that they do not know while 5 respondents indicated that they disagree. The average response rate was 2.91 which indicates a medium degree of agreement by respondents as to the utilization of Virtual Private Networks (VPN) by their organizations to allow employees to work from home

My organization utilizes email extensively in order to eliminate paper-based communication

The total number of respondents was 37 out of which 21 respondents indicated that they agree and 16 respondents indicated that they strongly agree that their organizations do indeed utilize email extensively in order to eliminate paper-based communication. The average response rate was 3.44 which indicates a high degree of agreement by respondents as to the extensive utilization of email in order to eliminate paper-based communication.

My organization utilizes Video Conferencing and Internet based techniques such as Webinars to communicate with remote employees and business partners

The total number of respondents was 37 out of which 23 respondents indicated that they agree and 13 respondents indicated that they strongly agree that their organizations do indeed utilize Video Conferencing and Internet based techniques such as Webinars to communicate with remote employees and business partners. One respondent indicated not knowing. The average response rate was 3.31 which indicates a high degree of agreement by respondents as to the utilization of Video Conferencing and Internet based techniques such as Webinars to communicate with remote employees and business partners.

CONCLUSION, RECOMMENDATIONS, AND FUTURE RESEARCH

The business and IT literature includes many studies and research efforts that are geared towards assisting organizations in achieving their sustainability initiatives. In this context, an organization that is seeking to achieve its sustainability goals and initiatives must take into consideration the powerful role of Information Technology (IT) in assisting these organizations in accomplishing such goals and initiative. This study has provided solid evidence that IT and its related tools and technologies are in fact assisting organizations in realizing their sustainability goals and initiatives.

	<i>Average Response Rate</i>	<i>Average Weight (Based on Table 3)</i>
Email	3.44	High
Video Conferencing	3.31	High
Automation of PCs Shutdown	3.25	High
Collaboration Tools	3.22	High
Virtual Networking	3.14	High
Workflow Technologies	3.09	High
Cloud Computing for Power Management	3.03	High
Cloud Computing for Resource optimization	3.03	High
Virtual Private Networking (VPN)	2.91	Medium

Table 12: Classification of each IT Greening IT tools and technologies based on the Average Response Rate

This study took into consideration certain “greening” IT tools and technologies that are considered as enablers of organizational sustainability. These tools and technologies included: Collaboration tools, Cloud Computing, automation of workstation shutdown, Workflow technologies, Virtual Networking, Virtual Private Networks (VPN), Electronic Mail (Email), and Video Conferencing. Based on the average participants’ response rate, each of these technologies had a high rate of agreement among survey participant except for VPN which had a medium rate of agreement. The top two highest scoring among these tools and technologies were Email and Video conferencing.

The utilization of email by organizations as the means of communicating has been considered a major factor in helping organizations achieve their sustainability initiatives. According to the United Nation’s Food and Agriculture Organization (FAO), the paper industry consumes 11% of the wood harvested from forests around the World. According to Alcatel-Lucent (2011) the utilization of email is helping organizations in significantly decreasing carbon emissions through the replacement of paper documents used for billing and payment by electronic bill payment methods.

The global nature of the business landscape today has made mandatory upon organizations to utilize different tools and technologies that will achieve optimum communications between the globally dispersed parts of the organization. Video Conferencing technologies will certainly enable the organization to accomplish efficient internal communication. Not only that, but also assist the organization in realizing its sustainability initiatives since such technologies drastically cut down the reliance on traditional means of transportation which are known to contribute significant amounts of pollutants. According to Nash (2011), an assessed value of \$5.8 million dollars was saved by CIO Magazine on its related business travel by using Video Teleconference (VTC). Nash further indicates that the utilization of VTC has contributed to a decrease of 7,500 metric tons of CO2 emissions in just air travel for CIO Magazine during the year 2010. According to Alcatel-Lucent (2011) ICT technologies such as teleconferencing and videoconferencing have considerably reduced business travel which has in turn decreased Greenhouse Gases (GHGs) significantly.

Cloud Computing, even though it was not among the highest scoring “greening” IT tools and technologies based on the findings of this study, it has the potential to be a powerful factor in enabling organization in realizing their sustainability goals. According to Microsoft “Green Computing” report (2008), “Cloud computing provides the next big thing in computing — some interesting architectural constructs, some great potential from a monetary aspect, and a very real option to provide a more environmentally friendly computing platform.” (p. 11) Therefore, it is the recommendation of this study that organization should investigate and consider the potential positive impact that Cloud Computing has on organizational sustainability. Future research efforts should take into consideration further investigation such potential. Future research efforts should also focus on attempting to quantitatively assess the positive impact that each of the “greening” IT tools and technologies on organizational sustainability. Other “greening” IT tools and technologies should also be taken into consideration is such research efforts.

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New business model for pharmaceutical companies to enhance competitiveness and create social value "

Glaxo Smith Kline (GSK) MODEL "

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Abstract:

This paper aims to provide shared value as a new business model for pharmaceutical companies to create social value and enhance company competitiveness. Based on the dedicative approach we analysed Glaxo Smith Kline programs that created shared value, we provide new way of doing business for pharmaceutical companies.

Key words: Shared value, Social value, Business value, business model, companies' competitiveness, Glaxo smith Kline.

Introduction:

An increasing number of companies are turning their attention to the vast health needs of our global population, and finding business opportunities in saving and extending lives. Pharmaceutical and medical device companies are now seizing opportunities to create shared value, they are beginning to realize that, in many cases, meeting some needs of the underserved in low- and middle-income countries may prove an important source of future growth and profitability.

Business are not profit from causing a social problems, business profit from solving a social problems, and this is a fundamental opportunity for business today to impact and address this social problems. Companies can create social value and economic value simultaneously, this new business model " shared value " is a new way to boost companies competitiveness.

The fundamental problem of this study is related to the way Glaxo smiths Kline (GSK) creates social value and enhances competitiveness, so the question is:

How Glaxo smiths Kline create social value and enhance competitiveness simultaneously!

What shared value means? How can we create shared value? Is this the new business model for Pharmaceutical companies? How can shared value enhance the competitiveness of a company?

This study aims to provide the concept of shared value as a new business model where we can solve social problems and in the same time make profit for company. We also provide the GSK model for addressing social problems.

1. Shared value definitions:

Shared value can be defined as policies and operating practices that enhance the competitiveness of a company while simultaneously advancing the economic and social conditions in the communities in which it operates (Porter .M.E & Kramer.M.2011,p66).

Shared value creation is a way of re-connecting a company with the society it is embedded in through identifying and expanding the connections between societal and economic progress, This means recognizing societal needs not exclusively as a burden on the business that only brings higher costs, but as a way to improve business performance while creating added value for the society as well (Lapiņa.I, Borkus.I, Stariņeca.O. 2012,p1606).

Shared value is a way of doing business that considers the society and environment not just as external settings that a company is operating in, but as an integral part of the business. Thinking of how to improve society's wellbeing becomes a step in thinking of how to achieve better business results(Lapiņa.I, Borkus.I, Stariņeca.O. 2012,p1607).

Creating economic value by creating societal value as one of the most powerful driving forces of productivity, innovation and growth and as the only possibility to recover lost legitimacy from society (Schmitt.J. 2014, p22).

"Creating shared value company" no longer thinks of profitability only, but rather focuses on achieving sustainable competitiveness through simultaneously delivering positive impact on society and environment. The activities should thus be based on long term investment in the company competitiveness and social/environmental objectives (Stephenson. C. 2008, p772)

Creating shared value in health is about competing to meet unmet health needs in low-resource populations across all countries and regions of the world (Peterson.K, Pfitzer.M, Mazzuri.S, Wendel.C, Hooson.C. 2014, p4).

2. Creating shared value and other terms:

2.1. shared value and corporate social responsibility:

Businesses create shared value when they can make a profit, create economic value while simultaneously meeting important social needs or important social goals like improving environmental performance, reducing problems of health, improving nutrition, reducing disability, improving safety, and helping people save for retirement (Driver.M. (2012, p423).

Corporate social responsibility is fundamentally about taking resources from the business, and investing those resources in being a good corporate citizen: recycling, giving money to social causes, reporting on social and environmental impacts, and engaging employees in community works.

Shared Value is aimed at changing how the core business operates strategy, structure, people, processes and rewards in order to deliver triple bottom line returns (Moore.C . 2014,p4).

The fundamental distinction is that CSR is about doing something separate from the business and CSV is about integrating social and environmental impact into the business, using that integration to drive economic value.

2.2. Shared value and social innovation:

Social innovation is a new ways to reach aims, in particular new organizational forms, new regulations, new lifestyles, which alter the direction of social change and which solve problems better than former practices. They should be worth being imitated and institutionalized (Schmitt.J. 2014,p4).

Social innovation is new ideas that work in meeting social goals. Innovative activities and services that are motivated by the goal of meeting a social need and that are predominantly developed and diffused through organizations whose primary purposes are social (Mulgan G 2006,p145).

The basic idea of shared value is that there are many opportunities in meeting these societal needs to actually create economic value in the process. Shared value is where you do both.

3. How pharmaceutical companies created shared value:

3.1. How shared value is created in general:

Companies can create economic value by creating societal value. There are three distinct ways to do this: by reconceiving products and markets, redefining productivity in the value chain and building supportive industry clusters at the company's locations. Each of these is part of the virtuous circle of shared value; improving value in one area gives rise to opportunities in the others.

3.1.1. Reconceiving Products and Markets:

Reconceiving products and markets means on the one hand rethinking a company's products with regard to society's needs and the benefit or harm which is inherent to them. This might include better nutrition or banking systems adapted to the needs of analphabets in rural sites of developing countries (Porter .M.E & Kramer.M,op,cit,p65).

Meeting needs in underserved markets often requires redesigned products or different distribution methods. These requirements can trigger fundamental innovations that also have application in traditional markets (Porter .M.E & Kramer.M, op, cit, p8).

3.1.2. Redefining Productivity in the Value Chain:

Redefining Productivity in the Value Chain is the second pillar of the shared value concept. A company's value chain offers many opportunities to create shared value by enhancing value chain productivity or by finding new ways of collaboration with partnering companies new ways of collaboration shall be applied, like increasing their access to inputs, sharing technology, or providing financing. Also, the downward side of the value chain has to be considered. The discovery of new distribution channels that have less environmental impact is presented as one example (Schmitt.J ,214.p23).

3.1.3. Enabling Local Cluster Development

No company is self-contained; the success of every company is affected by the supporting companies and infrastructure around it. Productivity and innovation are strongly influenced by "clusters," or geographic concentrations of firms, related businesses, suppliers, service providers and logistical infrastructure in a particular field.

Clusters are prominent in all successful and growing regional economies and play a crucial role in driving productivity, innovation, and competitiveness (Porter .M.E & Kramer.M,op,cit, p9).

When a firm builds clusters in its key locations, it also amplifies the connection between its success and its communities' success (Porter et al.,2011 p9).

3.2. How Pharmaceutical companies created shared value:

Two factors are necessary to create shared value. First, companies need to reorient themselves to systematically and relentlessly uncover new, unmet needs, and find new and better ways to address them, second, to achieve meaningful impact and attractive economic returns, firms need to do so at scale (Porter .M.E . 2014,p 8).

Face a double burden of infectious diseases and non-communicable diseases (NCDs), such as cardiovascular disease, diabetes, and cancer. Meeting these needs is challenging, even for sophisticated corporations (Porter .M.E . 2014,p 3).

Missing skills and knowledge, limited market information, ineffective regulation, inadequate health systems, and limited funding or inability of patients to pay present firms with huge barriers to entry. To overcome these barriers, companies are investing in three levels of shared value (see Table 1).

Table 1: Levels of Shared Value Creation for Pharmaceutical Companies

Reconceiving Products and Markets	Redefining Productivity in the Value Chain	Enabling Local Cluster Development
R&D for drugs, vaccines, and devices that fill unmet health needs <ul style="list-style-type: none"> • Adaptation of existing products to reduce complexity and cost • Tailored product offerings to meet local market conditions 	Collaborative and homegrown R&D to reduce cost and risk <ul style="list-style-type: none"> • Efficient, local supply chains and manufacturing to reduce production costs • Locally-adapted sales and distribution to penetrate new markets and better meet patient needs 	Behavior-change campaigns to increase the sophistication of demand for health care <ul style="list-style-type: none"> • Health system strengthening to enable delivery of needed products and services. • Advocacy and capacity building to strengthen policy and the regulatory environment

Source: Porter .M.E, Competing by Saving Lives: How Pharmaceutical and Medical Device Companies Create Shared Value in Global Health, FSG.USA, 2014, p4.

Efforts to create shared value across the three levels are mutually reinforcing, Productive and lower-cost value chains are essential to introducing redesigned product portfolios to underserved markets (Porter .M.E . 2014,p 4).

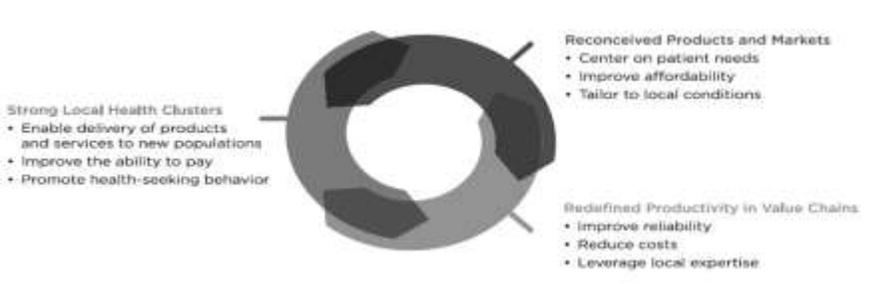
Strong clusters can enable firms to serve population segments that were previously out of reach, and can open up new, lower-cost manufacturing and distribution options. Leading firms are beginning to design multi-level approaches to harness this multiplier effect, though the right combination will be unique to a particular company and market (Porter .M.E . 2015).

Efforts to create shared value across the three levels are also mutually reinforcing (see shape 1).

Productive and lower-cost value chains are essential to connecting redesigned product portfolios to underserved markets (Porter .M.E . 2014,p 33).

. Strong clusters can enable firms to serve population segments that were previously out of reach, and can open up new, lower-cost manufacturing and distribution options (Porter .M.E . 2014a,p 30).

Shape 1: Efforts to create shared value are mutually reinforcing



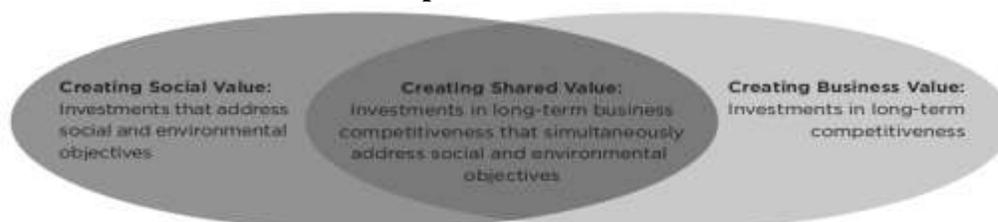
Porter .M.E (2014): Competing by Saving Lives: How Pharmaceutical and Medical Device Companies Create Shared Value in Global Health, FSG, and p16.

4. Shared value between social value and business value:

The most advanced companies have begun to look at social engagement through a different lens entirely. Rather than seeing business and society in opposition, they recognize the enormous potential of business to contribute to social progress. At the same time, they understand that firms depend on healthy and well-functioning societies to thrive (Bockstette.V& Stamp.M. 2011,p4).

Such companies seek to create “shared value” incorporating social issues into their core business strategies to benefit both society and their own long-term competitiveness (see shape 2 below).

Shape 2: Shared Value



Bockstette.V& Stamp.M (2011), p4.

5. Creating social value and business value at the three levels of Shared Value:

Creating shared value from reconceiving products and markets focuses on revenue growth market share, and profitability that arise from the environmental, social, or economic development benefits delivered by a company's products and services (Porter, M, Hills .G, Pfitzer.M, Patscheke .S, Hawkins.E. 2013,p1).

Creating shared value from redefining productivity in the value chain focuses on improvements in internal operations that improve cost, input access, quality, and productivity achieved through environmental improvements, better resource utilization, investment in employees, supplier capability, and other areas (Porter et al., 2013, p1).

Creating shared value from enabling local cluster development derives from improving the external environment for the company through community investments and strengthening local suppliers, local institutions, and local infrastructure in ways that also enhance business productivity. (see Table 2).

Table 2 : Three levels of Shared Value

LEVELS OF SHARED VALUE	BUSINESS RESULTS	SOCIAL RESULTS
Reconceiving product and markets: How targeting unmet needs drives incremental revenue and profits	Increased revenue Increased market share Increased market growth Improved profitability	Improved patient care Reduced carbon footprint Improved nutrition Improved education
Redefining productivity in the value chain: How better management of internal operations increases productivity and reduces risks	Improved productivity Reduced logistical and operating costs Secured supply Improved quality Improved profitability	Reduced energy use Reduced water use Reduced raw materials Improved job skills Improved employee incomes
Enabling cluster development: How changing societal conditions outside the company unleashes new growth and productivity gains	Reduced costs Secured supply Improved distribution infrastructure Improved workforce access Improved profitability	Improved education Increased job creation Improved health Improved incomes

Porter et al Measuring Shared Value How to Unlock Value by Linking Social and Business results, FSG·USA,2013,P3.

6. The Shared Value Measurement Process:

There are four steps to measure shared value: (Porter et al., 2013, p2)

Step 1: Identify the social issues to target:

The starting point for shared value is identifying and prioritizing specific social issues that represent opportunities to increase revenue or reduce costs. This requires a systematic screening of unmet social needs and gaps and an analysis of how they overlap with the business across the three levels of shared value. The result of this step is a list of prioritized social issues that a shared value strategy can target.

Step 2: Make the business case:

After identifying potential social impact at one or more of the three levels, the next step is to develop a solid business case based on research and analysis of how social improvement will directly improve business performance.

This step includes identifying the targets and specifying the activities and costs involved for each shared value opportunity, modeling the potential business and social results relative to the costs (i.e., value creation potential), and making a go/no-go decision.

Step 3: Track progress:

Using the business case as a roadmap, companies then track progress against the desired targets, as with any performance improvement process. This step includes tracking inputs and business activities, outputs, and financial performance (revenues and costs) relative to projections.

Step 4: Measure results and use insights to unlock new value:

The final step focuses on validating the anticipated link between social and business results and determining whether the outlay of corporate resources and efforts produced a good joint return.

7. Who is GlaxoSmithKline?

GlaxoSmithKline (GSK) is a British multinational pharmaceutical, biologics, vaccines and consumer healthcare company headquartered in London, United Kingdom. It is the world's fourth-largest pharmaceutical company measured by 2009 prescription drug sales (after Pfizer, Novartis, and Sanofi) (FACTBOX,p2015). It was established in 2000 by the merger of Glaxo Wellcome plc (formed from the acquisition of Wellcome plc by Glaxo plc) and SmithKline Beecham plc (formed from the merger of Beecham plc and SmithKline Beckman Corporation, which was formed by combining the Smith Kline French and Beckman companies).

GSK has a portfolio of products for major disease areas including asthma, cancer, virus control infections, mental health, diabetes and digestive conditions. It also has a large consumer healthcare division that produces and markets oral healthcare and nutritional products, drinks and over the counter medicines, including Sensodyne, Boost, Horlicks, Lucozade and Ribena (GSK Corporation,2015)

8. GlaxoSmithKline approaches enhance competitiveness and create social value:

GlaxoSmithKline designed multi-pronged approaches to provide holistic solutions to social and business problems, GlaxoSmithKline applied all three approaches to creating shared value (table3, 4, 5).

Table 3. Reconceiving Products and Markets

Area of Activity	Approaches	Company
Tailored product offerings to meet local market conditions	Product portfolio selection Tiered pricing Adapted packaging to reduce unit cost or improve safety	GSK set prices for its patented products in the least developed countries at a maximum of 25 percent of the price in the U.K. or France. GSK repackaged its Ventolin asthma medication from a 200-dose pre-filled inhaler at \$5 each to packs of two to three doses retailing for just a few cents.

Porter .M.E (2014): Competing by Saving Lives: How Pharmaceutical and Medical Device Companies, Create Shared Value in Global Health, FSG, p22.

GSK efforts to reconceived products and markets are perhaps the most advanced across the three levels of shared value, GSK have adopted tiered or discounted pricing for poor consumers, and redeveloping existing product lines to meet the needs of these new markets.

Table 4. Redefining Productivity in the Value Chain

Area of Activity	Approaches	Company
Collaborative and homegrown R&D to reduce cost and risk	Investment in new or existing local research institutions Collaborative approaches to reduce cost and share development risk	GSK created a new, jointly-owned company, ViiV Healthcare, that combines compounds owned by both firms to create a viable pipeline for new HIV medicines
Locally-adapted sales and distribution to penetrate new markets and better meet patient needs	Sales force reconfiguration New distribution approaches	GSK is working with its distributors to share the risk of switching to a higher volume model to ensure that price reductions are passed on to patients

Porter .M.E (2014): Competing by Saving Lives: How Pharmaceutical and Medical Device Companies, Create Shared Value in Global Health, FSG, p23

Gsk learn how to deliver reconceived products to new markets, investments to boost value chain productivity will become more common, Innovative partnerships are emerging to share the risks and reduce the costs of R&D, such as ViiV Healthcare (Porter .M.E . 2014, p 22).

Table 5. Enabling Local Cluster Development

Area of Activity	Approaches	Company
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Behavior-change campaigns to increase the sophistication of demand for pharmaceuticals products	Social marketing to increase health seeking behavior by patients, Patient education about disease management	partnership with Population Services International in all over the world. Porter .M.E (2014): Competing by Saving Lives: How Pharmaceutical and Medical Device Companies, Create Shared Value in Global Health,FSG,p4
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Porter .M.E (2014): Competing by Saving Lives: How Pharmaceutical and Medical Device Companies, Create Shared Value in Global Health, FSG, and p24.

GSK invest in health care clusters within low- and middle-income countries to improve patient awareness and demand, health systems, and the policy and regulatory environment, it not only bolster their own ability to reach new markets, but it also provide value to society that goes beyond the immediate benefit of their medicines (Porter .M.E . 2014,p 23).

9. GSK efforts and programs to create social value:

In order to create social and economic value GlaxoSmithKline has developed a set of programs, these programs aims to enhance our understanding of how GlaxoSmithKline as a business create value.

9.1. The health for all programs:

GSK has made such an efforts to provide health for all: (GSK Annual report, 2014a, p6)

9.1. 1. Open innovation

- GSK Adapt the open innovation R&D model, currently used for Diseases of the Developing World, to apply to other areas of great unmet medical need and scientific challenge, including infectious disease and Alzheimer’s disease, by 2015.
- Created the world’s first Open Lab for non-communicable diseases in Africa.
- Working with other pharmaceutical companies and academics to conduct a major study in dementia research, Continued working with the IMI’s New Drugs 4 Bad Bugs collaboration related to antibiotic research.

9.1. 2. Developing vaccines that don’t need to be kept cold:

- Invest in the development of vaccines that don’t require continuous refrigeration, making distribution easier and less expensive.
- Invested US\$1.8 million in research to enable a critical liquid component used in our malaria vaccine candidate to remain stable in hotter climates, working with the Bill and Melinda Gates Foundation.

9.1. 3. Better access to medicines and vaccines:

- Extended our tiered pricing approach to prescription medicines as well as vaccines, asking countries to pay based on their wealth and ability to pay; committed to freeze vaccine prices for Gavi graduating countries for ten years.

9.1. 4. Building products to better meet needs:

- Worked with partners to develop an inhaled form of oxytocin, which can prevent women dying from pregnancy-related causes, and to reformulate an antiseptic used in mouthwash to reduce newborn deaths.

9.1. 5. Reducing child Mortality:

- Continued our partnership with Save the Children which aims to reach one million children, matched employee fundraising of £1 million, launched second Health Innovation Award, obtained EMA agreement of pathway for chlorhexidine gel, and established Emergency Response work stream.

9.1. 6. Strengthening healthcare infrastructure:

- Continue to work with partners to support the development and strengthening of healthcare infrastructure. We anticipate this could improve access to healthcare for 20 million underserved people by 2020 (vs. 2012).
- Re-invested £6 million profits in Least Developed Countries to strengthen healthcare systems and partnered with the World Health Organization (WHO), the International Telecommunication Union, Vodafone, Barclays and others to pilot innovative healthcare delivery systems.

9.1. 7. Eliminating and controlling neglected tropical diseases:

Donated a further 858 million albendazole tablets to help eliminate LF and control intestinal worms; made progress towards identifying a preclinical candidate to combat the leishmaniasis parasite through our collaboration with the University of Dundee and Wellcome Trust.

9.1. 8. Fighting malaria:

- Build on our 30-year commitment to contribute to the fight against malaria through continued R&D investment and partnerships on the ground.
- Filed the world's first malaria vaccine candidate, RTS,S for regulatory approval; started phase III trials for tafenoquine to treat *P. vivax* malaria.

9.2. Responsible behavior programs:

GSK has made such an efforts to embedding ethical behavior across the business through: (GSK Annual report, 2014a, p7)

9.2.1. Transparency in clinical trial data

- Led the development of www.clinicalstudydatarequest.com where researchers can now request access to anonymised patient level data from over 1,000 clinical trials by GSK and other companies.

9.2.2. Minimizing animal Testing

- Launched a strategic initiative that has the potential to reduce our reliance on animal studies; continued looking for new ways to develop medicines using human cells and tissues together with the European Bioinformatics Institute and the Sanger Institute.

9.2.3. Promoting Human Rights

- Increased focus on the human rights impacts identified by an external assessment of our business, for example through our global Third Party Oversight program.

9.2.4. Engaging with patient advocacy groups and political stakeholders

- Demonstrate that all GSK interactions with patient advocacy groups and political stakeholders are conducted appropriately, ethically and transparently.
- Enhanced Global Standard Operating Procedures on public policy group and government official engagement; first full year of implementation of an Emerging Markets and Australasia patient advocacy strategy to broaden and deepen interactions with patient groups, whilst embedding the highest levels of transparency and governance.

9.3. Supporting people programs:

GSK has made such efforts and gave employees the opportunity to use their expertise to support non-profit organizations addressing major global health challenges, while building their own skills and experience through: (GSK Annual report, 2014a, p8)

9.3.1. Protecting the health and well-being of our people:

- Continue to create a working environment that inspires people to grow and perform in a healthy and resilient way.
- Provided preventive healthcare for over 14,000 employees and their families in 15 countries; over 5,200 of employees have participated in programs to improve personal resilience; injury and illness rate down 4% from 2013.

9.3.2. Promoting inclusion and diversity:

- Increased proportion of women in management from 41% to 42%; developing global standards to measure businesses' disability performance.

9.3.3. Community volunteering to create change:

98 employees volunteered with 39 non-profit organizations through our PULSE program; established a Volunteer Ambassador Network in 30 countries to develop locally relevant programs.

9.4. Protect the planet programs:

GSK committed to reduce the environmental impacts of operations products, GSK has made such an efforts to protect the planet: (GSK Annual report, 2014a, p9)

9.4.1. Aiming to be carbon neutral:

- Reduce our overall carbon footprint by 25% by 2020 (vs. 2010) and have a carbon neutral value chain by 2050.

- Cut Scope 1 and 2 emissions from our operations by 11% since 2013 and 19% since 2010; Scope 3 emissions up by 2%, this remains a challenge as the sales of our propellant based inhalers continue to grow.

9.4.2. Reducing our water impact:

- By 2020, reduce our water impact across the value chain by 20% (vs. 2010).
- Cut operational water use by 5% in 2013 and 20% since 2010 – hitting our 2015 target a year early; completed a four-year assessment to measure water impact across the value chain; recertified to Carbon Trust's Water Standard.

9.4.3. Reducing our waste:

- By 2020, reduce our operational waste by 50% (vs. 2010).
- We generated 159,000 tons of waste from our operations, 4% less than in 2013 and 11% less than 2010. Sent 6% of waste to landfill compared to 10% in 2010. 48 sites achieved zero waste to landfill.

9.4.4. Building sustainability in our supply chain:

- We remain committed to building a sustainable supply chain for our Nutrition portfolio. Changes to market dynamics within the portfolio are impacting our sourcing model so we are currently reviewing this commitment.

10. GSK programs enhanced company competitiveness:

GSK efforts and programs to create social value yield a value for the company, business value and financial value:

10.1. GSK programs create value to enhance company competitiveness:

GSK efforts and programs create value for the company: (GSK Annual report, 2014b, p8)

- GSK have a significant global commercial presence in more than 150 markets, a network of 84 manufacturing sites in 36 countries and large R&D centers in the UK, USA, Belgium and China.
- Since 2008 GSK have reshaped our global footprint to improve access to high growth potential markets including those in Asia Pacific, Latin America and Japan.
- GSK Group turnover £23.0bn in 2014
- Diversification delivering organic growth, Emerging Market sales up from c. 16% of turnover in 2008 to 27% today.
- £34 billion in returns paid to shareholders, including £24 billion of dividends and £10 billion of buy-backs. Dividend up from 57p in 2008 to 80p for 2014.
- £3.5 billion cumulative annual cost savings delivered through a range of restructuring programmes since 2008.
- £400 million of incremental savings delivered through restructuring initiatives and ongoing cost reduction.

10.2. GSK programs create financial value to enhance company competitiveness:

GSK efforts and programs create financial value for the company: (GSK Annual report, 2014b, p&"13)

- Core operating profit was £6.6 billion. Excluding currency effects.
- Free cash flow was £2.6 billion.
- Sales of new products were £1.5 billion in 2014, grew 84% and represented 8% of Pharmaceutical and Vaccines turnover.
- During 2014, GSK returned £4.1 billion to shareholders via dividends and share buy-backs.

10.3. GSK programs create business value to enhance company competitiveness:

GSK efforts and programs create business value for the company:(GSK Annual report, 2014b, p2)

- 1st 2014 Access to Medicine Index.
- 100% All countries have fully implemented new sales force compensation model.
- 1st Company to file for regulatory approval for malaria vaccine candidate.
- 84% Dow Jones Sustainability Index scores, putting us in top 2% of the pharmaceutical sector.

11. The new business model and GSK global reach :

GSK is a science-led global healthcare company that researches and develops innovative Pharmaceutical, Vaccines and Consumer Healthcare products:

11.1. Pharmaceuticals:

GSK Pharmaceuticals business develops and makes medicines to treat a broad range of acute and chronic diseases. Our portfolio is made up of innovative and established medicines and we have leading global positions in respiratory disease and HIV.GSK Pharmaceuticals business Total turnover is £15.5bn, and represents 67.3% of Group turnover (Table 6).

Table6: Sales by therapy area

GSK Annual report, responsible business supplement, 2014, p7.

Sales by therapy area	£m
Respiratory	6,181
Oncology	1,202
Cardiovascular, metabolic and urology	965
Immuno-inflammation	214
Other pharmaceuticals	2,407
ViiV Healthcare (HIV)	1,498
Established Products	3,011

11.2. Vaccines:

GSK Vaccines business is one of the largest in the world. We have a broad portfolio of over 30 paediatric, adolescent, adult and travel vaccines. In 2014, we distributed approximately 800 million doses in 170 countries.

GSK Vaccines business Total turnover is £3.2bn which represents 13.9% of Group turnover (Table 7).

Table 7: Sales by product line

Sales by product line	£m
Infanrix/Pediarix	828
Boostrix	317
Cervarix	118
Fluarix and FluLaval	215
Hepatitis	558
Rotarix	376
Synflorix	398
Other	382

GSK Annual report, responsible business supplement, 2014,p8.

11.3. Consumer Healthcare:

Our Consumer Healthcare business is one of the largest in the world, driven by science and values. We develop and market products in four categories – Wellness, Oral health, Nutrition and Skin health and our brands are available in over 100 countries. GSK Consumer Healthcare Total turnover is£4.3bn which represents 18.8% of Group turnover (Table 8).

Table 8 : Sales by category

Sales by category	£m
Wellness	1,596
Oral health	1,797
Nutrition	633
Skin health	310

GSK Annual report, responsible business supplement, 2014,p8.

Conclusion:

Creating shared value is not social responsibility, philanthropy, or even sustainability, but is a new way to achieve economic success, and that it gives rise to the next major transformation of business thinking.

CSV is a rather novel concept that argues the societal progress is at the heart of a company's economic success, and tending to society's issues holds ample opportunities for improved competitiveness and value creation of the organization.

The new business model Shared value provide a big opportunity for business corporations to make more profit and achieve growth, in the same time solving a social problems and create value for society.

Nevertheless, pharmaceutical and medical device companies have an extraordinary opportunity to help reduce global suffering and ill-health by building a competitive advantage in the low- and middle-income countries that will underpin future industry growth. Firms that engage in this area can become engines of progress for the global health field. They can be engaged partners rather than neutral suppliers.

GSK have already start to change the way of doing business and apply the concept of shared value in pharmaceutical sector, shared value allowed GSK to reduce cost, makes more profit, and solve a social problems. We hope this article serves to illustrate the scale of that opportunity, and triggers discussion and innovation around ways to capitalize on it.

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Advanced Aspects on Sustainable Biometric Security Innovation

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Abstract:

It is important to know that absolute security does not exist, and the main goal of the security system is to reach an optimal approach that satisfies the customer requirements. Biometric systems automatically recognize individuals based on their physiological and behavioral characteristics. Image data security plays an important role in personal identification. They are needed in different fields like banking, organizations, passport control etc. We propose a framework for integrating the biometrics features with various models that improves the personal verification system. In the proposed framework, first the soft biometric trait such as weight is matched.

Keywords: Security Innovation, Biometric Techniques, Hybrid Security, Fusion Security.

1. Introduction

Biometrics deals with life measurement, in which it is associated with the utilization of physiological and behavioral characteristics to distinguish an individual. It's a new way to verify authenticity. Biometrics utilizes biological characteristics or behavioral features to recognize an individual. 1858 first systematic capture of hand images for identification purposes was recorded. In real a biometrics system is a pattern identification system that uses various patterns such as iris patterns, retina design and biological characteristics like fingerprints, facial geometry, voice recognition and hand recognition and so forth. Biometric recognition system provides possibility to verify one's identity simply by determining "who these people are" instead of "what these people possess or may be remembered". The very fact that makes it really interesting is that the various security codes like the security passwords and the PIN number could be interchanged among people but the physical traits cannot be. The principle use of biometric security is to change the existing password system. There are numerous pros and cons of Biometric system that must be considered [1,2].

2. Traditional Security

Traditional security system may face with many problems [3]:

- Based on passwords, or identification cards
- Can be lost easily.
- Can be forgotten easily.
- Can be stolen easily.
- Can be used by a thief or intruder to access data.

Problems may appear with current security systems [4]:

- Increasing use of IT technology that need more effort to protect data.
- Each person may have multiple accounts/passwords.
- It is difficult to remember so many passwords, so we need to create simple password using such as birthdays, wife, friends name, dog, cat ... etc.
- It is easy to crack passwords, because most passwords are simple and weak.
- For strong passwords, it is difficult to remember multiple such passwords and it is easy to forget them.

3. Advantages and Disadvantages of Biometrics

By basing a security system on the physiological features rather than a few keystrokes or a password, the possibilities of fraud are drastically reduced. The biometric industry is now emerging and is rapidly gaining acceptance from governments, companies and individuals. Already, there are many industries employing biometrics, including the U.S. Immigration and Naturalization Service, major western countries armies, international banks, governments and healthcare organizations. The European Union also moves towards creating standards for biometric passports which will be deployed in the near future, while Britain plans to issue new identity cards which include biometrics. There are many types of biometrics, but among the most common are scanning fingerprints, voices, faces, retinas or irises. Computer hardware and software programs have been developed to scan a thumb print. Face recognition is the measurement of certain characteristics, such as the distance between eyes. Retina scanning has the computer camera inspecting the pattern of veins in a human eye. And, finally, iris scanning takes retina scanning one step further by concentrating on the color pattern surrounding one's pupils. Key features of voice biometric that differentiate it from other types of biometric procedure are that it is non-invasive and that it can be performed remotely by telephone or via Internet. Approaches such as fingerprint analysis and retina scanning are much less acceptable to users. In addition, the cost and complexity of the systems required for fingerprint or retinal scanning far exceed that of the single microphone of a voice-based system that is, in any case, already provided in typical PC systems, the telephone and the mobile handsets. Voice biometric systems generally include classical pattern recognition components; that is data acquisition, pre-processing, feature extraction and classification. The main advantage that biometric can offer is security and convenience. Among the various types of biometric technologies available, voice recognition is one of the cheapest to implement. Iris scanning provides high security and is convenient in that it allows the users to keep their glasses on throughout the scan. A biometric system is not based on a standard true or false system but by utilizing a threshold of acceptance closeness to the user's characteristic different levels of physical security, authenticity, integrity and confidentiality can be established. While biometric authentication includes several advantages it does have some drawbacks as well. Even though difficult, but not impossible, fingerprints and pictures can be copied from anywhere and voice can be recorded. Another major drawback is the cost associated with these technologies with iris scanning as being more pricey [5,6].

4. Biometric Techniques

There are four operations stages of a uni-modal biometric recognition system as shown in figure (1) [7,8]:

- Biometric data acquisition.
- Data evaluation and feature extraction.

- Corresponding scores creation (analyzed data is then compared with what is actually saved in the database).
- Enrollment (first scan of a feature by a biometric reader, produce its digital representation and create a template, even a few in most of the systems).

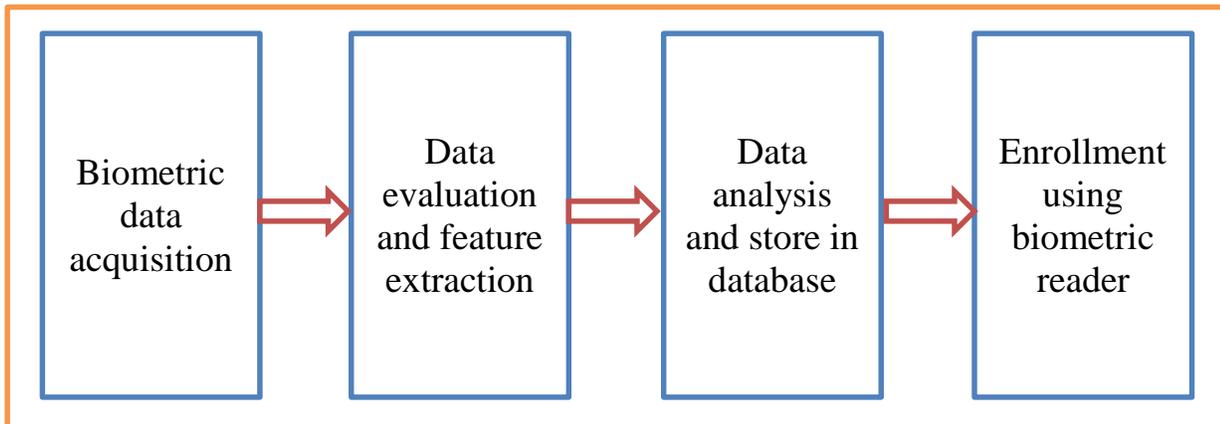


Figure (1) four operations stages of a uni-modal biometric recognition system

5. Biometric Traits and Applications

Using biometrics it is possible to establish an identity based on (who are you) rather than by (what you possess: ID card) or (what you remember: password). Biometric system make use of fingerprints, hand geometry, iris, retina, face, hand vein, facial thermograms, signature, voice print, gait. Palm print, etc. to establish person identity as shown in figure (2). While biometric systems have their limitations, they have an edge over traditional security methods in that it is significantly difficult to lose or steal or forge biometric traits, further they facilitate human recognition at a distance such as face and gait.

Biometric systems in civilian applications have many applications as shown in figure (3) [9,10]:

- a) A border passage system using iris recognition at London's Heathrow airport (news.bbc.co.uk).
- b) The INS Passenger Accelerated Service System (INSPASS) at JFK international airport (New York) uses hand geometry to authenticate travellers and significantly reduce their immigration inspection processing time (www.panynj.gov).
- c) Ben Gurion airport in Tel Aviv (Israel) uses Express Card entry kiosks fitted with hand geometry systems for security and immigration (www.airportnet.org).
- d) The FacePass system from Viisage is used in point-of-sale verification applications like ATMs, there-fore, obviating the need for PINs (www.viisage.com).
- e) Indivos' \Pay by Touch"service uses fingerprints to help customers speed up payments in restaurants and cafeterias. When an enrolled customer places her finger on the sensor, the system retrieves her financial account and updates it (www.kioskbusiness.com).
- f) The Identix TouchClock fingerprint system is used in time and attendance applications (www.cardsolutions.com).

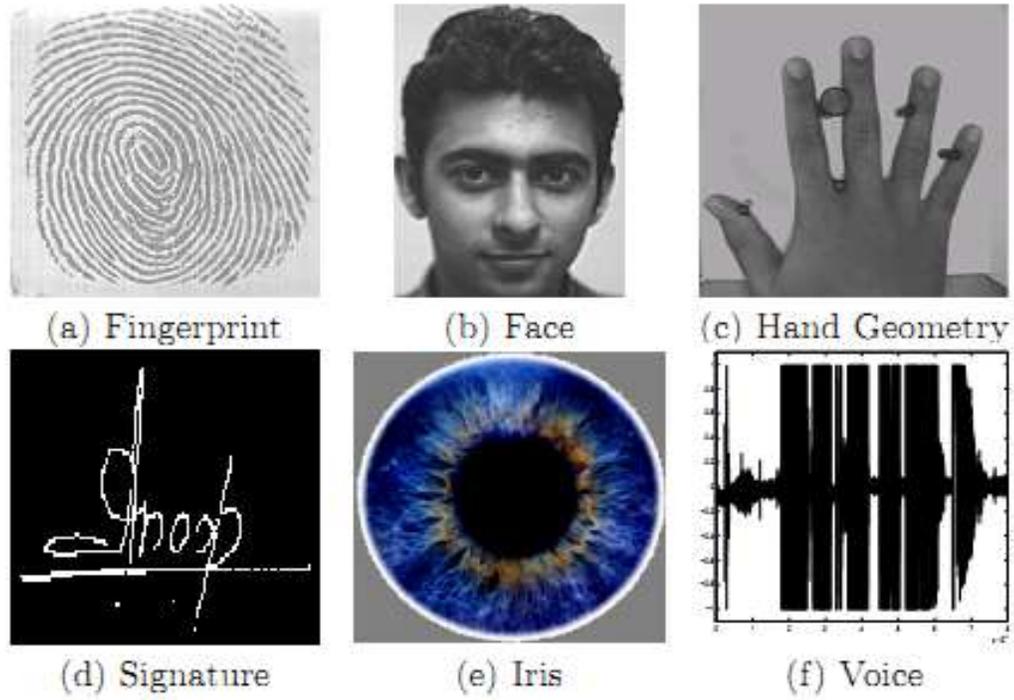


Figure (2) Biometric traits



Figure (3) Biometric system in civilian applications

6. Proposed Biometric Approach

Many biometric systems are implemented to perform various applications and most of them are concerned on biometric security. A biometric system is a pattern recognition system that operates by acquiring biometric data (physical biometric and behavioral biometric) from an individual, extracting a

feature set from the acquired data, and comparing this feature set against the template set in the database. Depending on the application context, a biometric system may operate either in verification level or identification level.

The proposed biometric approach is implemented with the following components as shown in figure (4) :

- **Data acquisition:** in which introduce the biometric data such as face image and fingerprint image.
- **Preprocessing:** in which these images are enhanced and resized to unify the size of images to pass to the next step.
- **Gray images:** in which converting the color images into gray images.
- **Feature extraction:** in which extract the needed features from images.
- **Fusion process:** in which integrate the features in different steps to extract new features used for the next step.
- **Decision making:** in which comparing the stored features with new enter features in order to generate the accurate decision.

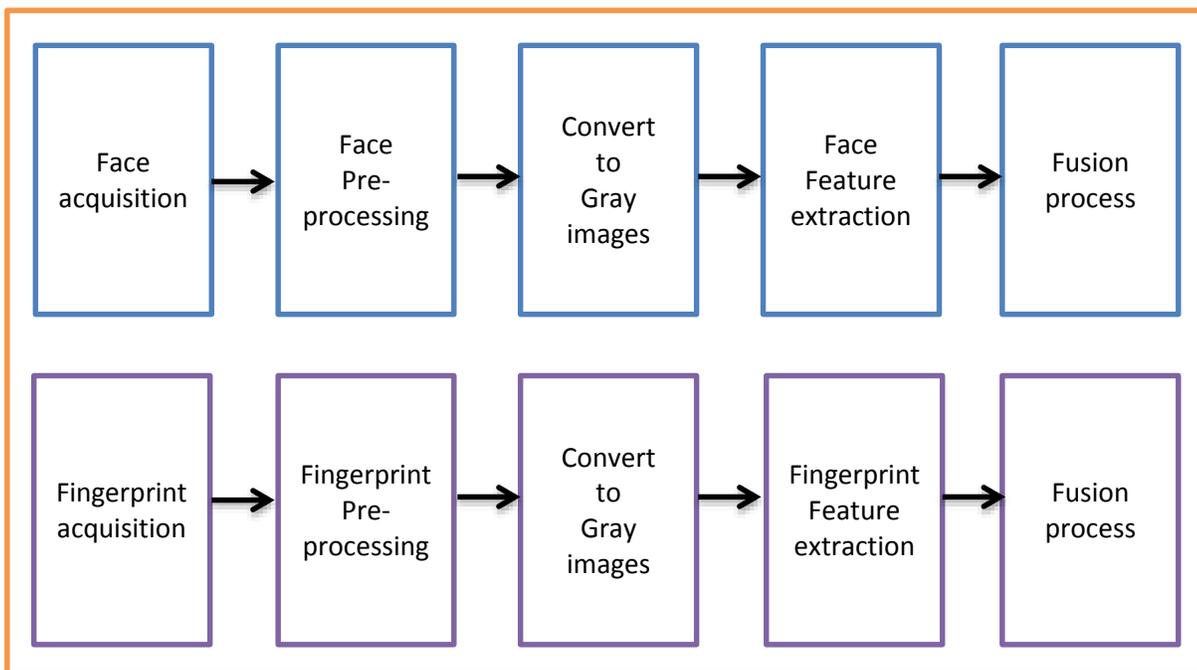


Figure (4) components of biometric approach

7. Implemented System and Results

To perform this system first we collect a number of biometric data using acquiring devices, these images are stored to be processed later. The implemented approach passes into many steps to generate the corresponding results.

7.1 Data Acquisition

This step including receives the face image and fingerprint image and converting these images into digital form as shown in figure (5).

Figure (4) components of biometric approach

7. Implemented System and Results

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7.1 Data Acquisition

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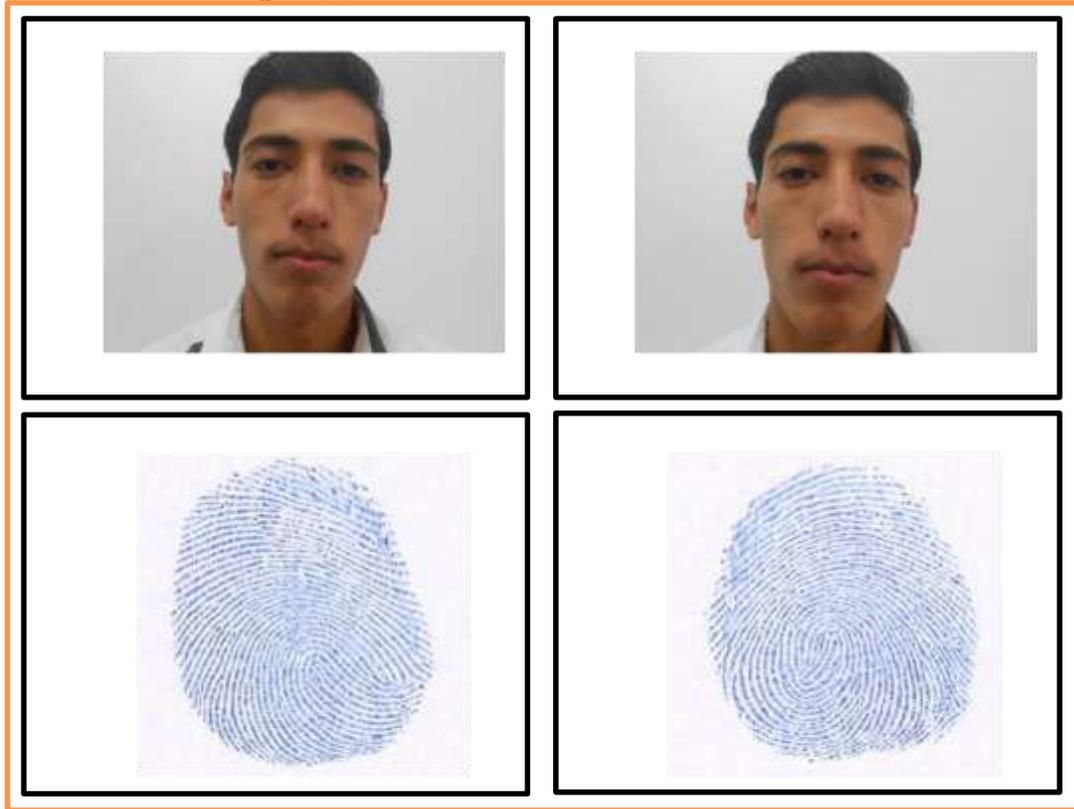


Figure (5) color face image and fingerprint image

7.2 Preprocessing

This step including two main processes, first process enhanced the acquired image with the prepared filter to generate the enhanced image for both face and fingerprint as shown in figure (6).

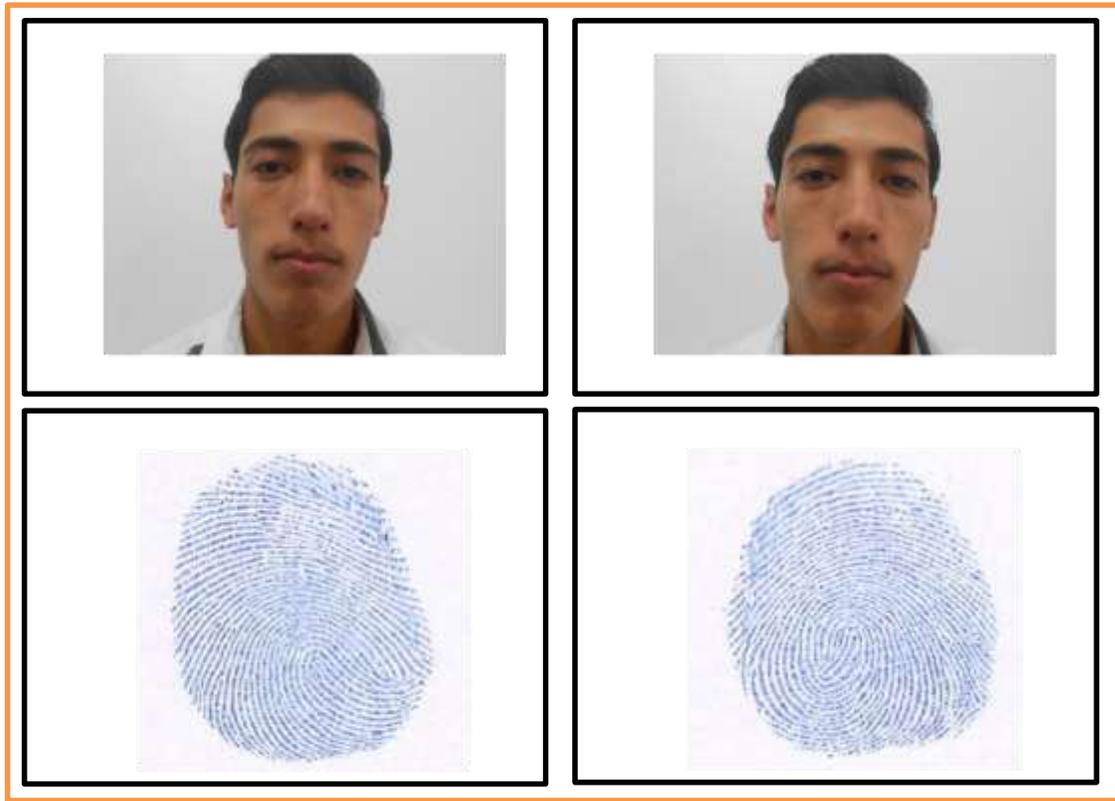


Figure (6) enhanced image for both face and fingerprint

7.3 Gray Images

This step including converting the enhanced color image into gray scale image for both face and fingerprint as shown in figure (7). The histogram of gray scale image for both face and fingerprint as shown in figure (8).

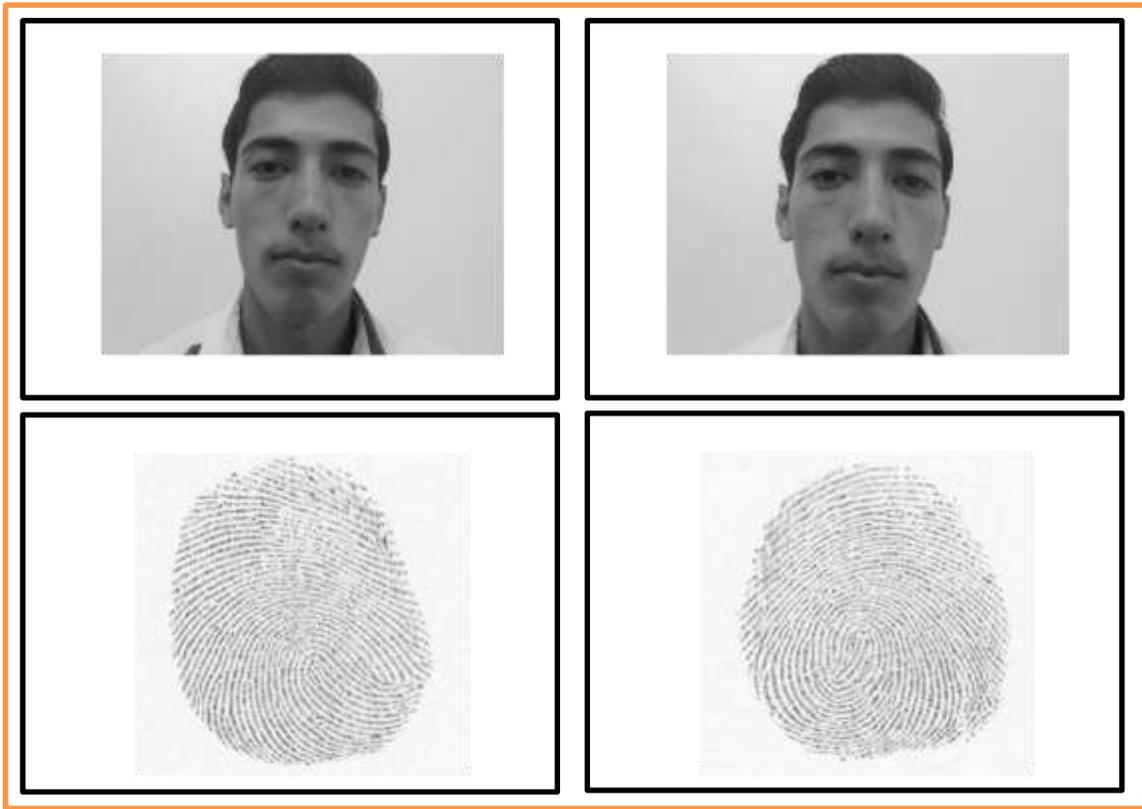


Figure (7) gray scale face image and fingerprint image

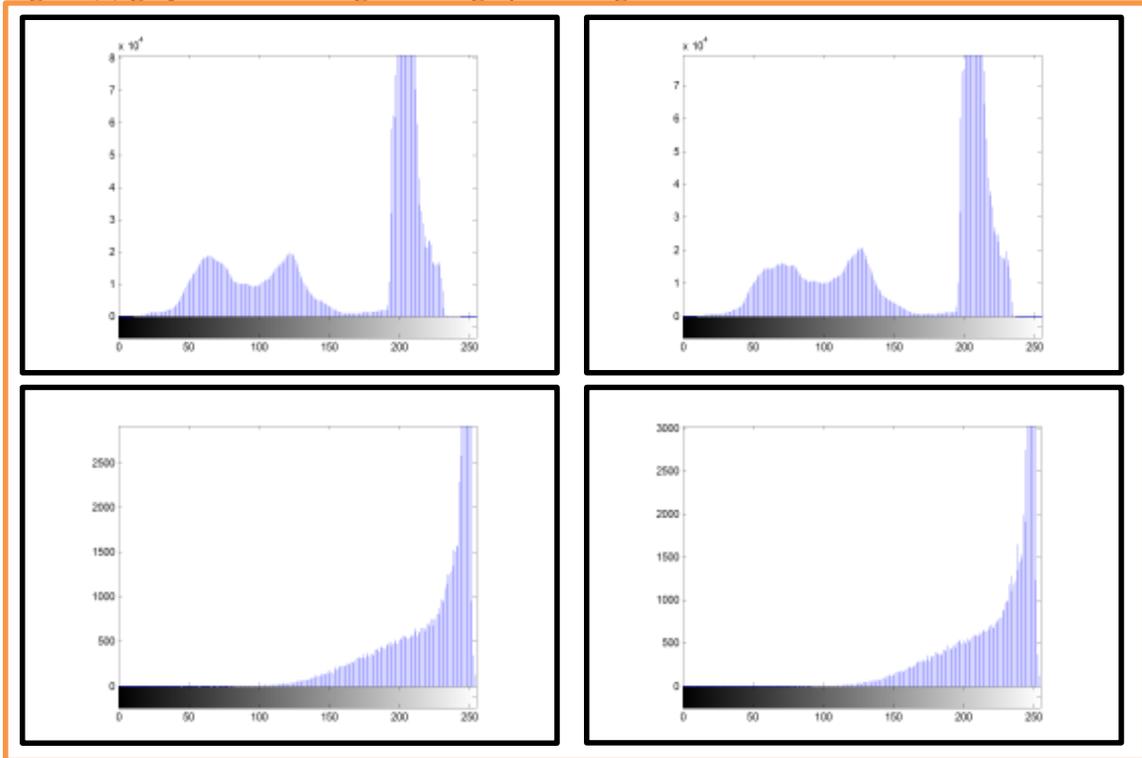


Figure (8) histogram of gray scale face image and fingerprint image

7.4 Feature Extraction

This step is so important step in which it generate the features that used in recognition. Two dimensional discrete wavelet transform (2D DWT) is used here to extract the needed features face image features is shown in figure (9) and fingerprint image features is shown in figure (10).

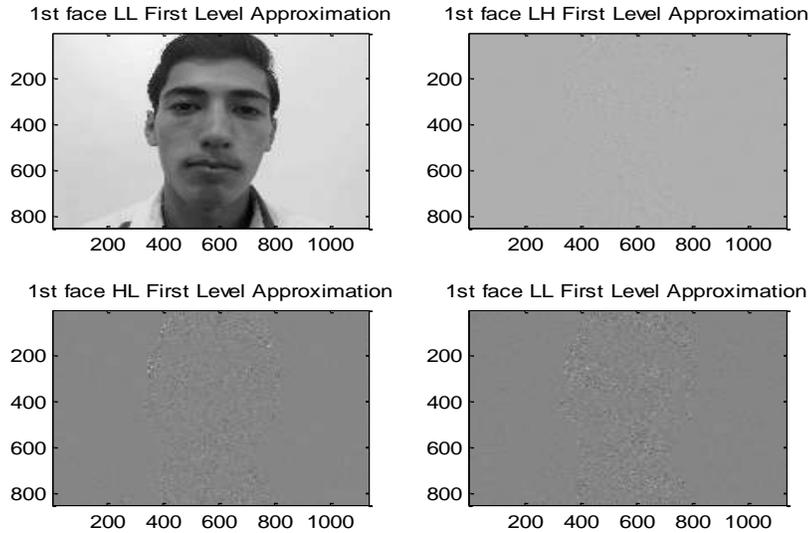


Figure (9) first level 2D DWT of face image

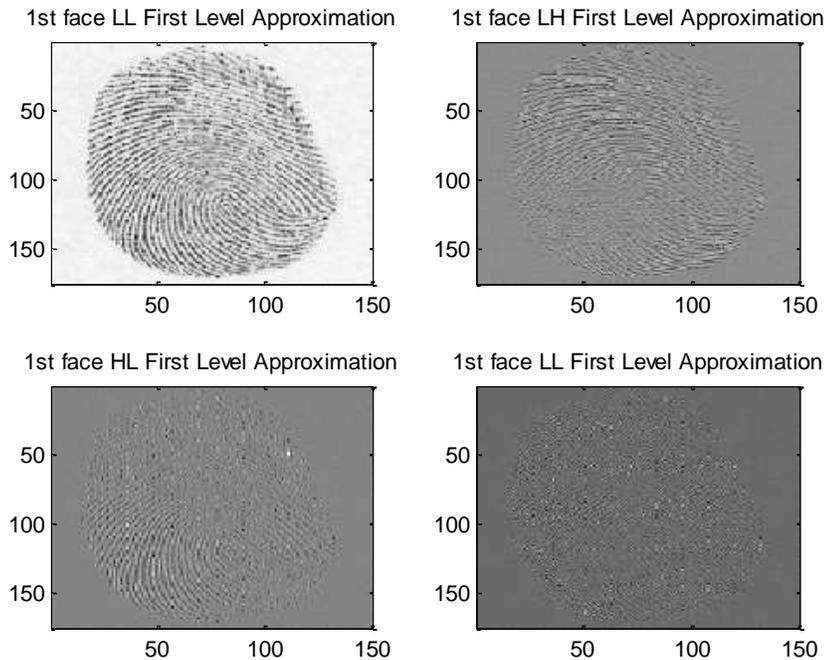


Figure (10) first level 2D DWT of fingerprint image

7.5 Fusion Process

Fusin process may apply via various levels and the most important level is to apply this process in feature extraction level. Figure (11) shows the fusion of the first level 2D DWT and figure (12) shows the fusion of the second level 2D DWT.

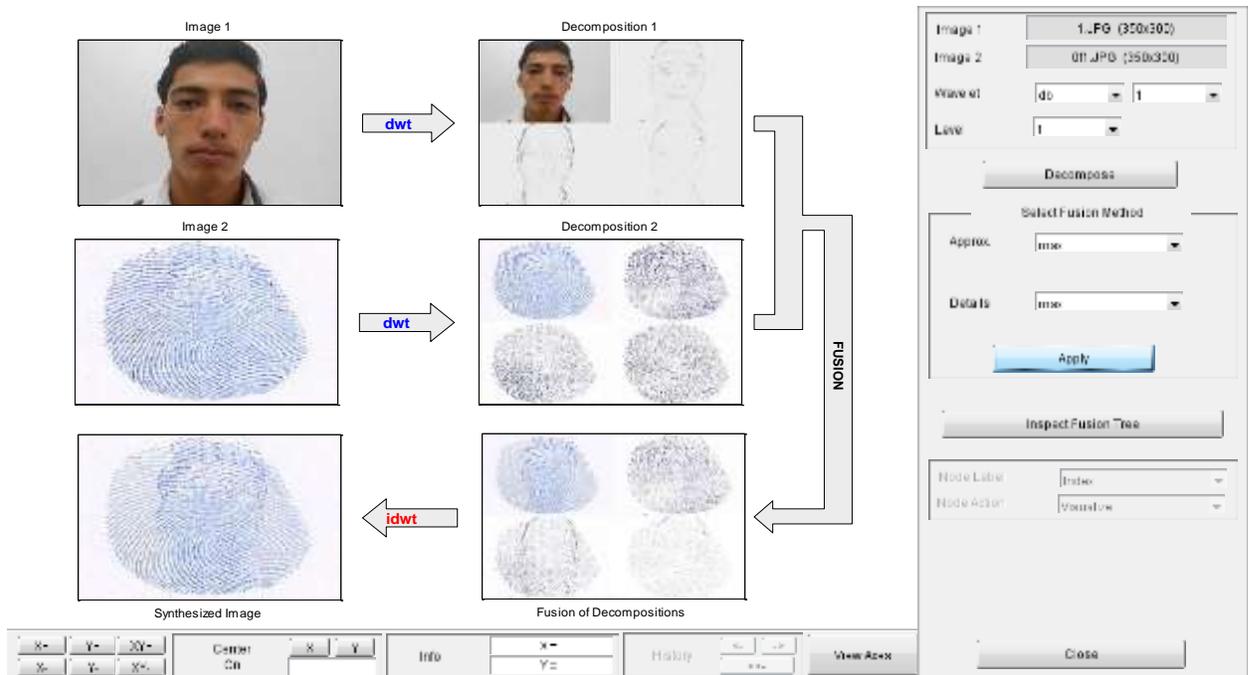


Figure (11) fusion of the first level 2D DWT

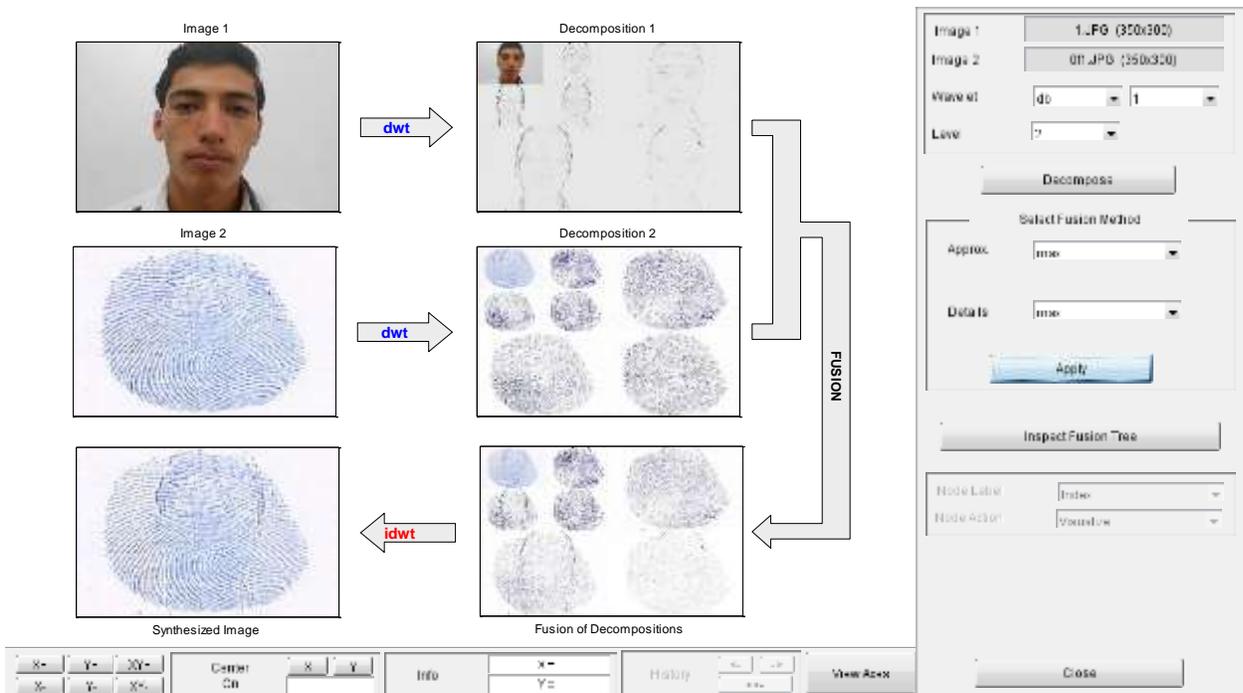


Figure (12) fusion of the second level 2D DWT

8. Future Biometric Trends in Security

Using biometric technology to recognize citizens and customers, coupled with streamlined processes and effective organizational design, will not only deliver strong identify management capabilities but also lead to better business outcomes and, ultimately, high performance. The application of biometrics in daily activities are expected to deeply transform our life: examples include the services offered in e-commerce, e-banking, registered travelers schemes, smart environments and ambient intelligence.

The future trends of biometric identification tasks may include various fields and applications some of these trends may be concentrated on:

- Analysis of internal structure of body parts.
- Analysis of Body shape recognition.
- Analysis of face vibrations during speaking.
- Analysis of other electrical and magnetic fields created by human body.
- Movement of hands, eyes, lips or any part of the body.
- Recognizing expressions of the person.
- Recognizing additional actions.
- Personal identification using odor.
- Personal identification using electromagnetic emission.

9. Conclusion

This paper presents an introduction on numerous biometric techniques undertaking the comparison examination regarding widely used biometric identifiers and also the identification strategies. As this is a new technology for most of the peoples since it has simply been implemented in public areas for short time period. There are numerous applications along with alternative solutions used in security techniques. It provides benefits that may improve our lives in such a way by increasing security and efficiency, decreasing scams and reducing password administrator cost. Despite the fact the biometrics security systems still have many issues like data privacy, physical privacy, and spiritual arguments etc.

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Using Structural Equation Modelling to Evaluate the Hotel Restaurants' Service Quality Dimensions, Satisfaction and Customer's Loyalty

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Abstract:

The aim of this research is to investigate the relationships among service quality, satisfaction, and customer loyalty in a hotel restaurant context. The sample consisted of 430 respondents who stayed at four and five star hotels in Jordan. A structured questionnaire, with a five-point Likert scale, was used. Confirmatory factor analysis (CFA) and structural equation modelling (SEM) were used to analyse the casual relationships between service quality, customer satisfaction, and customer loyalty and to evaluate the hypotheses regarding relationships among model constructs. All the hypotheses developed in the study were positively confirmed, reinforcing the theory and previous research on this field. The study also reveals interesting implications in service quality, satisfaction, and customer loyalty, useful to academics and practitioners. Managers will find this research helpful in better understanding these variables and their roles on their hotels. This study could not be generalized widely to other locations or countries.

Keywords: Service Quality, Customer Satisfaction, Hotel Restaurants, Customer Loyalty.

Introduction

Service quality has been the subject of substantial interest by both practitioners and scholars in recent years, spurred on by the original work by (A. Parasuraman, V. A. Zeithaml, & L. L. Berry, 1985). An important reason for the interest in service quality by practitioners results from the belief that this has a beneficial effect on bottom line performance for the firm. Nevertheless, practitioners frequently tend to use the terms service quality and customer satisfaction interchangeably. Among academics the satisfaction constructs is recognised as being distinct and has developed along fairly independent lines from service quality (Oliver, 1980). The concepts of hotel restaurants service quality; customer satisfaction and customer loyalty are associated to each other. Theoretically, the expectancy (disconfirmation) paradigm in process theory can provide the foundation for this study, with service quality as an antecedent construct and customer loyalty as an outcome variable of customer satisfaction. A better sympathetic of the effects of service quality and customer satisfaction on customer loyalty can help academics in the growth of a model of hotel restaurants. It can also provide practitioners with indications as to where best to devote marketing notice and service corporate resources. This study seeks to contribute to the development of conceptual framework that integrates customer loyalty, service quality and customer satisfaction. It reviews the literature on these three constructs and outlines the expected relationship in a research model. Appropriate measures are identified and research are carried out among four and five star hotels restaurants' customers and tourists in Jordan to test the hypothesis relationship. Service loyalty, with its final effect on repurchasing by customers, is possibly one of the most important constructs in hospitality industry. Certainly, loyal

customers that indulge in repeat purchases are the bed rock of any hotels. One of the more clear questions relates to the demographic characteristics of how these can be used for segmentation purposes (Frank, 1967). Though, work that integrates the role of service loyalty within the context of other service marketing variables like hotel restaurants service quality and customer satisfaction has received less attention.

Service quality

Many researchers in the hospitality industry perceived service quality as a critical issue. Valarie. A. Zeithaml (1988) defined service quality as the customer judgement about the overall excellence of a product. Reeves and Bednar (1994) provided several definitions of quality. They branded quality in terms of excellence, value, conformance to specifications and meeting or exceeding customers' expectations of service rendered. For Mudie and Cottam (2010) service quality meant service providers must adhere to a set of unwritten rules in "conformance to requirements" set by the customers. Juran (1989) distinct quality as fitness for use it means that the product meets the customer's needs and is free of deficiencies. Spencer (1994) equated quality as the act of satisfying or delighting the customer with the necessary service. In the same light, other researchers suggested that quality needs maybe defined by the customers (Grönroos, 1984; A. Parasuraman, V. A. Zeithaml, & L. Berry, L., 1988a; Reeves & Bednar, 1995). As such service quality is based upon customer's needs and wants for a certain degree of quality (Haemoon. Oh, 2000; Sparks, Butcher, & Pan, 2007).

In the 1990s, customer's perception of quality has gained primary focus in service quality studies (Kwortnik & Han, 2011; Haemoon. Oh, 2000; Wall & Berry, 2007). Subsequently, quality as the customer's perception of service excellence become a popular definition among many scholars in the field of service quality study (Parasuraman, Berry, & Zeithaml, 1990; A. Parasuraman, V. A. Zeithaml, & L. L. Berry, 1988b). And another well-known definition is relative superiority of performance (Bitner & Hubbert, 1994; Gronroos, 1982). There are also others who included attitude in the definition of service quality (Cronin & Taylor, 1992; Parasuraman et al., 1988b). Bitner and Hubbert (1994) have slightly differing view when they define service quality as the customers' overall impression of the relative inferiority of the organization and its services. A. Parasuraman, V. Zeithaml, A., and L. Berry, L. (1985) add on the definition by stating that service quality is a degree and direction of discrepancy between customers' service perceptions and expectations. Valarie. A. Zeithaml (1988) definite perceived quality as how the customers assesses the overall fineness and superiority of the product or services provided and can also described in two different types of approaches, namely expectation performance and performance model. Valarie A Zeithaml, Parasuraman, and Berry (1990) outlined the discrepancy between customers' expectations or desire and their perceptions as a definition of quality. These definitions of service quality are based on a comparison of the service quality perceptions before using the service and the actual performance after using the service (Gronroos, 1982; A. Parasuraman et al., 1985; Parasuraman et al., 1988b).

Definitions of service quality further attested that the dimensions of service quality is the difference between what customers expect from a service and their perceptions of how the service is performed (Grönroos, 1984; Lehtinen & Lehtinen, 1982; A. Parasuraman et al., 1985). Service quality is precise as the amount of deviation between customers' perceptions of service performance from the normative expectation of that particular service. Afterward, the definition of service quality was fine tuned as "the overall evaluation of a specific service firm that results from comparing the firm's performance with the customer's general expectations of how firms in the hotel industry should perform (A. Parasuraman et al., 1985). While, Waller (1996 p.152) defined the quality as " the totality of features and characteristics of the product or service that bear on its ability to meet a given needs".

Customer Satisfaction

The importance of customer satisfaction has long been recognized, both in hospitality research and in the broader research environment (J. D. Barsky & Labagh, 1992; Cadotte, 1979; Ma, Qu, Wilson, & Eastman, 2013; Skogland & Siguaw, 2004; Sulek & Hensley, 2004; Yüksel & Rimmington, 1998). Satisfying customers is a fundamental component of the marketing concept (J. Barsky & Nash, 2003; Enz, 2004). It is the link to business performance as an antecedent of repeat purchase behaviour that has encouraged the research interest in customer satisfaction (J. D. Barsky & Labagh, 1992; Haemoun Oh & Parks, 1997; Wirtz, 1993). For the customers, there is the tendency to link perceived service quality with satisfaction, where perceived service quality is a global judgment or attitude, relating to dominance of the service, whereas satisfaction refers to a specific transaction with regard to the perceived service quality (Namkung & Jang, 2010; Haemoun. Oh, 2000; Parasuraman et al., 1988a). As noted by Oliver (1993), the word “satisfaction” is derived from the Latin *satis* (enough) and *facere* (to do or make). A related word is “satiating” which loosely means “enough” or “enough to excess”. These terms illustrate the point that satisfaction implies a filling or fulfilment. Thus, consumer satisfaction can be viewed as the customer’s fulfilment response. Oliver and DeSarbo (1988) framework views satisfaction as a state of fulfilment related to reinforcement and arousal, low arousal fulfilment is described as “satisfaction as contentment”, which assumes only that the product or service performs satisfactorily in an ongoing, passive sense. V. A. Zeithaml, Bitner, and Gremler (2009) mentioned that satisfaction as the customer’s evaluation of a product or service in terms of whether that product or service has met the customer’s needs and expectations. Failure to meet needs and expectations is assumed to result in dissatisfaction with the product or service. Gerson (1993), stated that, “satisfaction is the customer’s perception that his or her expectations have been meet or surpassed”. Giese and Cote (2000) provide an overview of customer satisfaction, which can be influenced by three components related to the affective, focus and temporal response. The affective response deals with the intensity with which a particular customer reacts to a certain service or product delivery and the satisfaction varies between individuals. The next component depends on the customers’ focus or demand for an exacting product choice, purchase or consumption. As for the temporal response, customer satisfaction may vary according to the situation but this is usually limited in duration. Oliver (1981) summarizes current thinking on satisfaction in the following definition “[satisfaction is a] summary psychological state resulting when the emotion surrounding disconfirmed expectations is coupled with the consumer’s prior feelings about the consumption experience” (p. 27).

From the perspective of the cognitive component, the customer’s evaluation of the perceived performance in terms of its adequacy in comparison to some kind of expectation standards is taken into consideration (Oliver, 1980; Wirtz, 1993). Liljander and Strandvik (1997) outlined satisfaction as an emotional component, which comprises various emotions, including happiness, sadness, dissatisfaction, surprise and disappointment. In addition, Cronin and Taylor (1992) and Patterson, Johnson, and Spreng (1996) discovered that the impact of customer satisfaction on repurchase intention in a range of services is significant. From a similar perspective, Venetis and Ghauri (2004) concluded that client satisfaction is indisputably the key factor that influences the loyalty of current clients in any professional service, whereas Crosby, Evans, and Cowles (1990) suggested that trust and satisfaction may strongly influence future sales opportunities in personal selling situations.

In this light, Finkelman and Goland (1990) explained that there is a need for companies to have a comprehensive understanding of customers’ expectations at every stage of forming their experiences. Companies are also required to expand the procedures of establishing and supporting the system of rewarding and evaluation to satisfy customers. The same scholars divided the elements of customers into the product, the sale, the after-sale process, location, overnight stay and culture. The after-sale process includes the interest of customers and the treatment of complaints which should be fulfilled, and customers should be acquainted with the whole process. The main reason for the after-sale process is to make the customer aware that the hotel is showing interest in their purchase and especially to illustrate the amount of respect accorded to them.

Incidentally, customer satisfaction is the result of a customer’s perception of value received in a transaction or relationship, where value equals perceived service quality relative to customer acquisition cost and price (Babajide, 2011). In the same view, many other studies are concerned with the significant

relationship between customer satisfaction and customer perceptions (Babajide, 2011; Gupta, McLaughlin, & Gomez, 2007; Kang & James, 2004; Swimberghe & Wooldridge, 2014). Therefore, customer satisfaction has been observed in this research to be acting as a mediating variable in the link between hotel restaurants' service quality perceptions and customer loyalty. Kotler and Keller (2011) referred to satisfaction as a personal feeling of happiness or disappointment with the result from the comparison between realized performance and the person's expectations. Practitioners and writers tend to use the terms "satisfaction" and "service quality" interchangeably (V. A. Zeithaml et al., 2009), but researchers have attempted to be more specific about the meaning and measurement of the two concepts, resulting in considerable debate (Parasuraman, Zeithaml, & Berry, 1994). Consensus is that the two concepts are fundamentally different in terms of their underlying causes and outcomes (Brady & Cronin Jr, 2001; Oliver, 1993).

Although they have certain things in common, satisfaction is generally viewed as a broader concept, whereas service quality focuses specifically on dimensions of service. Based on this view, perceived service quality is a component of customer satisfaction (V. A. Zeithaml et al., 2009). Service quality is a focused evaluation that reflects the customer's perception of reliability, assurance, responsiveness, empathy and tangibles (Parasuraman et al., 1988b). Satisfaction, on the other hand, is more inclusive and it is influenced by perceptions of service quality, product quality and price, as well as situational factors and personal factors.

Customer Loyalty

Over the past thirty years, loyalty has been debated by academics, with the core issue being the dimensionality and measurement of the construct. Loyalty appears to be a complex multi-dimensional construct (Dick & Basu, 1994; Ha, 1998; Javalgi & Moberg, 1997). Yet during this period, views on loyalty have oscillated between uni-dimensional and two-dimensional views. Early research pursued either an attitudinal (Guest, 1944) or a behavioural approach (Cunningham, 1956) and this is still prevalent today. However, in the 1990s, research emerged which attempts to integrate both the attitudinal and behavioural dimensions of loyalty into two distinct but important constructs (Baldinger & Rubinson, 1996; Dick & Basu, 1994). Loyalty is thus defined as the relationship between an individual's attitudinal predisposition towards an object and the repeat patronage of that object.

Szmigin and Carrigan (2001) defined customer loyalty as the consumer's commitment towards a product, brand, marketer, or services above and beyond that for the competitors in the market place, and usually the commitment results in repeat purchase. Therefore, a loyal customer of a particular hotel is one who will choose to continue staying with the same service provider and is more likely to try new products introduced by the hotel and to recommend the hotel's services to other customers (Bowen & Chen, 2001). Linton (1993) defined customer loyalty as one of the most important issues facing businesses today. Teich (1997) claimed that loyalty is developed over a period of time from a consistent record of meeting, and sometimes even exceeding, customer expectations. From the cost point of view, Levesque and McDougall (1993); McDougall and Levesque (2000) emphasise that loyal customers are beneficial to service providers because they "often cost less to service, spend more as their time with the firm lengthens, and provide a good source for new business". Mittal and Lassar (1998) state that loyal customers also lead to lower marketing costs, more efficient operations and higher profits.

Kotler, Bowen, and Makens (1999) argue that it costs five times more to attract and catches a new customer as compared to the cost of keeping a current customer happy, as much effort and cost are required to persuade satisfied customers to switch over from their current service providers. He supported his argument with facts that illustrated that companies can enhance profit from twenty-five percent to eighty-five percent by reducing customer defections by five percent as this result can be achieved through delivering high customer satisfaction. Gremler and Brown (1996) distinct service loyalty as the extent to which a customer displays repeat purchasing behaviour from a service provider, acquires a positive attitudinal disposition toward the provider, and deliberately uses the same provider every time they need to use the same service. From another perspective, Caruana (2002) defined service loyalty as a collective

affective response of varying intensity, with a time specific point of determination and limited duration, directed toward focal aspects of product acquisition and/or service consumption. Bloemer and Kasper (1995) argued that true loyalty is when the same customer actually buys the same brand time and again. In this context, true loyalty encompasses a non-random, behavioural response with results from an evaluation process that results in commitment. According to Valarie A Zeithaml, Berry, and Parasuraman (1996), loyalty is a multi-dimensional construct that includes both positive and negative responses.

In line with this, a number of empirical studies have demonstrated that some customers stayed with an organization even if they were dissatisfied because they perceived that they had no other choice (Holmlund & Kock, 1996; Mittal & Lassar, 1998; Valarie A Zeithaml et al., 1996). From this, it can be deduced that a satisfied customer is not always a loyal customer, since a loyal customer may at times be dissatisfied with certain services provided. While we are on the subject Colgate, Stewart, and Kinsella (1996) argued that it is not necessary for customer defection to be the inverse of loyalty. Levesque and McDougall (1993) supported this argument by explaining that sometimes there may be shortcomings with the service provided, but about half of the customers would still continue using the same service. A few scholars have explained these phenomena by claiming that those customers choose to remain loyal due to high switching costs; they perceived that alternatives are no better and are limited by location issues, time or money constraints, habit or behaviour opposing change (Bitner, Booms, & Tetreault, 1990). Although satisfaction may not be the overall cause of customer loyalty, a dis-satisfied customer would definitely look for alternatives in future. With the present situation whereby customer are becoming more and more demanding, in future satisfaction may become the absolute cause of customer loyalty (Hayes, 2008).

Research Design

The study is designed to use quantitative research methods. A quantitative approach is helped to explain present circumstances, or examine relationship among the variables (Creswell, 2013; Firestone, 1987; Scandura & Williams, 2000; Yin, 2013). The reason of using survey research design is to answer research questions and test the hypothesis of this research (Burns, 1997; De Vaus, 2002; Trochim & Donnelly, 2001). The design examines the relationship among hotel restaurants' service quality dimensions, customer satisfaction and customer loyalty. The findings, through using this research design, will further validate the impact of each independent variable on overall loyalty. For the purpose of this research, a survey questionnaire was employed.

Population and Sampling Framework

A population represents all the individual elements, items or objects whose characteristics are being studied. The population that is being studied is also called the target population (Mann, 2007). The specific target population for this research was customers who stayed at four and five star hotels in Amman, Irbid, Madaba, Dead Sea, Petra and Aqapa, Jordan. According to MOTA (2013), there were reported 61 four and five star architecturally designed hotels in these destinations. In 2013, there were approximately 3,056,228 hotel rooms in Jordan with an average occupancy rate of 43.8% (MOTA, 2013). The unit analysis of the study was individual hotel customer, and the population consists of four and five star hotel customers from either local or international. The reasons for choosing these tourist destination hotels were a) geographical area would be thoroughly evaluated, rather than choosing samples across the whole country, b) Jordan is a primary spot for tourists' destination and gateway to Middle East countries, c) the association with Amman, Irbid, Madaba, Dead Sea, Petra and Aqapa environment could also ease the data collection process.

FINDINGS

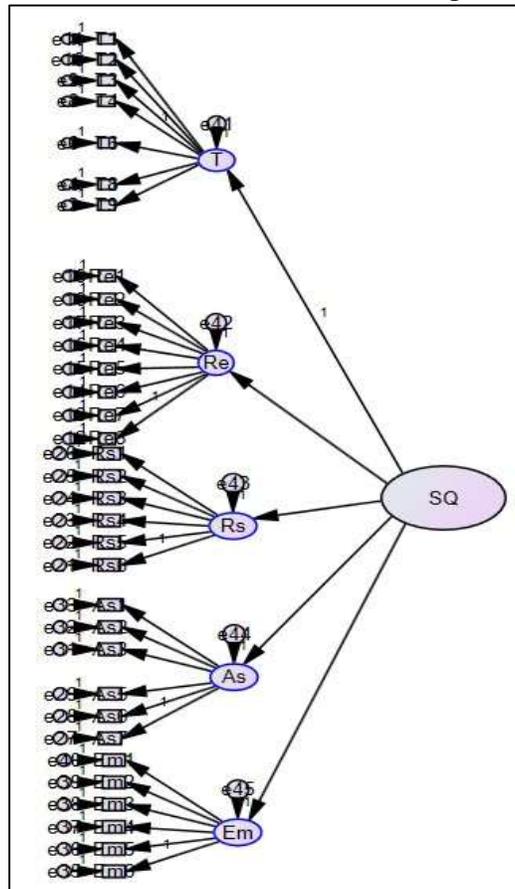
In this study service quality is a second-order construct which is made up of five first order constructs including tangibles, empathy, assurance, reliability and responsiveness. As shown in Table 1, 11 items were

used to measure tangibles, 8 items were used to measure reliability, whereas empathy, assurance and responsiveness are measured using 7 items each.

The overall results of the CFA indicate that the initial measurement model needed to be re-specified. The chi-square/df was significant (CMIN/DF= 3.563). The GFI is .703, CFI=.843, and RMSEA =.077. Therefore, further detailed examination is carried out by looking at the standardised residual covariance of each item and modification indices. Results show that seven items (T5, T7, T10, T11, Em7, Rs7 and As4) have unacceptably high values, thus the decision was to remove these items. After iteratively removing these redundant items, results indicate that this model fits the data adequately. The chi-square/df was significant (CMIN/DF= 3.036). The GFI is .703, CFI=.901, and RMSEA =.069.

Table 1 Model Fit for Service Quality Construct				
	CMIN/DF	CFI	GFI	RMSEA
All items	3.563	0.843	0.703	0.077
After Deleting T7, T11, Em7 and As4	3.256	0.879	0.769	0.072
Additionally after deleting Rs7, T10 and T5	3.036	0.901	0.899	0.069

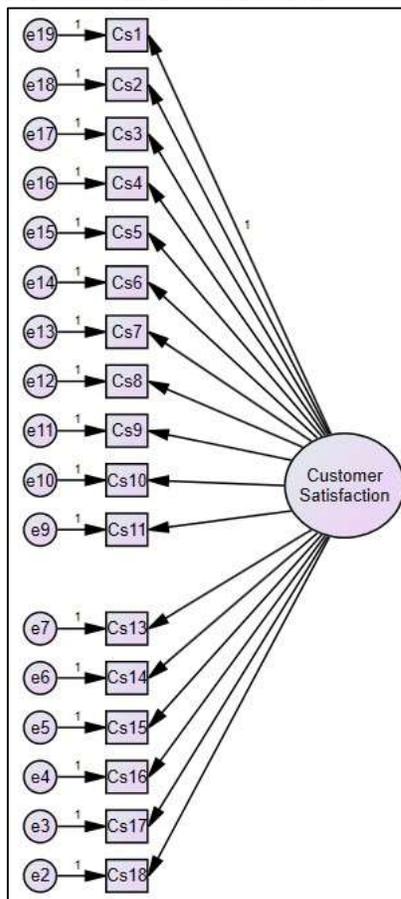
Figure 1: Measurement Model for Service Quality Dimensions



Nineteen items were used to measure the one-factor model of customer satisfaction. The overall results of the CFA indicate that the initial measurement model needed to be re-specified. The chi-square/df was significant (CMIN/DF= 5.622). The GFI is .815, CFI=.886, and RMSEA =.104. Therefore, further detailed examination is carried out by looking at the standardised residual covariance of each item and modification indices. Results show that two items (CS12 and CS19) have unacceptably high values, thus the decision was to remove these items. After iteratively removing these redundant items, results indicate that this model fits the data adequately. The chi-square/df was significant (CMIN/DF= 3.619). The GFI is .898, CFI=.951, and RMSEA =.078. (Table 2 and Figure 2).

	CMIN/DF	CFI	GFI	RMSEA
All items	5.622	0.886	0.815	0.104
After Deleting CS12, CS19	3.619	0.951	0.898	0.078

Figure 2: Measurement Model for Customer Satisfaction



Following table 3 presents summary of all the deleted items.

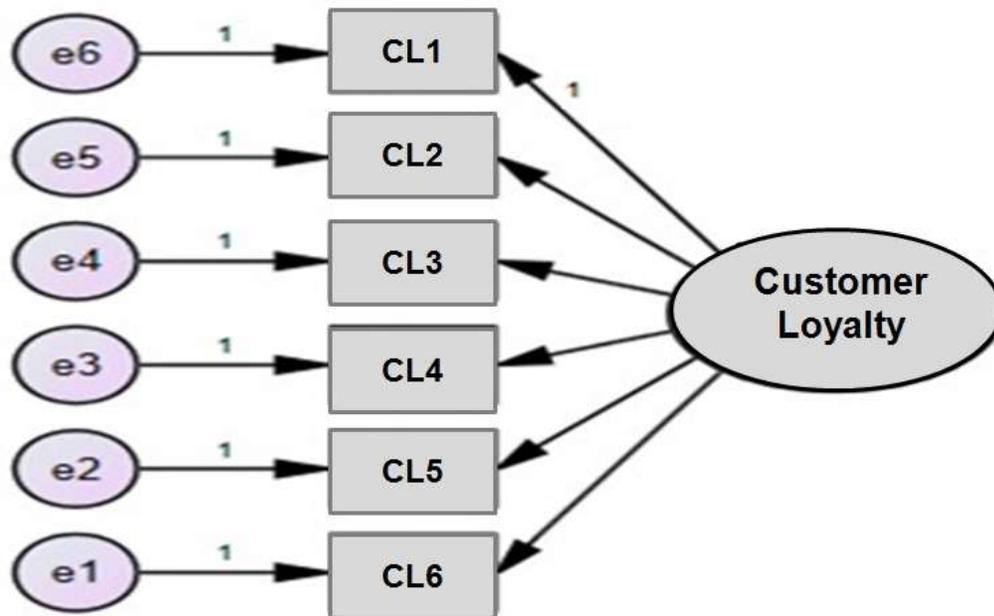
Constructs	Dimensions	Initial No. of Items	Deleted No. Of Items in Individual Measurement	Deleted Items in Individual Measurement
Service Quality	Tangibles	11	4	T5, T7, T10, T11

Reliability	8	0	
Responsiveness	7	1	Rs7
Assurance	7	1	As4
Empathy	7	1	Em7
Customer Satisfaction	19	2	CS12, CS9
Customer Loyalty	6	0	
Total	65	9	

Six items were used to measure the one-factor model of customer Loyalty. The overall results of the CFA indicate that the initial measurement model did not need to be re-specified, so none of the items were deleted. The chi-square/df was significant (CMIN/DF= 0.080). The GFI is .957, CFI=.972, and RMSEA =.080. (Table 3 and Figure 3).

	CMIN/DF	CFI	GFI	RMSEA
All items	4.845	0.972	0.957	0.080

Figure 3: Measurement Model for Customer Loyalty



Reliability and Validity of the Constructs

Following the establishment of the uni-dimensionality step and before testing the hypotheses in the structural model, the reliability and validity of the underlying constructs were assessed (Wulf, Odekerken-Schröder, & Iacobucci, 2001). For this purpose, the constructs discussed in step one were assessed for

reliability using construct reliability (CR), and average variance extracted (AVE), and for validity using construct, convergent and discriminant.

Reliability of the measures in this study was first assessed using confirmatory factor analysis (CFA). In using confirmatory factor analysis, CR and AVE were calculated from model estimates using the CR formula and AVE formula given by (Fornell & Larcker, 1981). (Bagozzi & Yi, 1988) recommended that CR should be equal to or greater than .60, and AVE should be equal to or greater than .50. Based on these assessments, measures used within this study were within the acceptable levels supporting the reliability of the constructs (see Table 5).

Table 5: Standardized Confirmatory Factor Loadings

Variables	Items	Factor Loadings	C.R	AVE
Tangibles	T1	0.675	0.508	0.846
	T2	0.666		
	T3	0.701		
	T6	0.700		
	T8	0.686		
	T9	0.72		
Reliability	Re1	0.768	0.584	0.907
	Re2	0.786		
	Re3	0.791		
	Re4	0.834		
	Re5	0.76		
	Re6	0.718		
	Re7	0.682		
	Re8	0.685		
Responsiveness	Rs1	0.748	0.604	0.901
	Rs2	0.829		
	Rs3	0.773		
	Rs4	0.747		
	Rs5	0.81		
	Rs6	0.752		
Assurance	As1	0.826	0.638	0.913
	As2	0.767		
	As3	0.769		
	As5	0.817		
	As6	0.817		
	As7	0.793		
	Empathy	Em1			0.683	0.538	0.874
Em2		0.673		
Em3		0.763		

	Em4	0.755		
	Em5	0.717		
	Em6	<u>0.801</u>		
	Service quality		0.583	0.891
	CI1	0.799		
	CI2	0.871		
Customer Loyalty	Cp3	0.857	0.65	0.918
	CI4	0.798		
	CI5	0.752		
	CI6	0.754		
	Cs1	0.826		
	Cs2	0.73		
	Cs3	0.713		
	Cs4	0.771		
	Cs5	0.797		
	Cs6	0.833		
	Cs7	0.807		
	Cs8	0.754		
Customer Satisfaction	Cs9	0.823	0.592	0.984
	Cs10	0.807		
	Cs11	0.794		
	Cs13	0.756		
	Cs14	0.722		
	Cs15	0.72		
	Cs16	0.779		
	Cs17	0.787		
	Cs18	0.703		

P < 0.05

As for validity, confirmatory factor analysis has also been used to assess construct, convergent and discriminant validity. Empirically, construct validity exists when the measure is a good representation of the variable the researcher intends to measure. As (Bagozzi, 1980) argued, construct validity is a necessary prerequisite for theory testing. In this study, results obtained from goodness-of-fit indices confirmed construct validity (Hsieh & Hiang, 2004). As for convergent validity, evidence has been found in which all factor loadings for items measuring the same construct are statistically significant (J. C. Anderson & Gerbing, 1988; Holmes-Smith, Coote, & Cunningham, 2006). As indicated in Table 5, all factors included high loadings (greater than .50) and were statistically significant (P<0.05). The results of AVE presented in Table 5 provide an additional support for convergent validity. Finally, discriminant validity was assessed using two methods. First, taking (Hooper, Coughlan, & Mullen, 2008) suggestions that the estimated correlations between factors should not be higher than .85, each measurement model was subject to this assessment. That is, redundant items that caused high correlations among factors were deleted, revealing evidence of discriminant validity (see measurement models tested in previous sections). Discriminant validity of the constructs was also checked. The bold values in Table 6 shows the AVE Values of each construct, whereas the other values are the squared correlation coefficients between constructs. The results

in Table 6 show that the AVE values were greater than the squared correlation coefficients between each pairs of constructs. Overall, these results showed the strong evidence for the discriminant validity of the measures (Hair, Black, Babin, Anderson, & Tatham, 2006).

	SQ	CP	CS
Service Quality	0.925		
Customer Satisfaction	0.917	0.743	0.773
Customer Loyalty	0.916	0.806	

Structural Model (Testing of the Hypotheses)

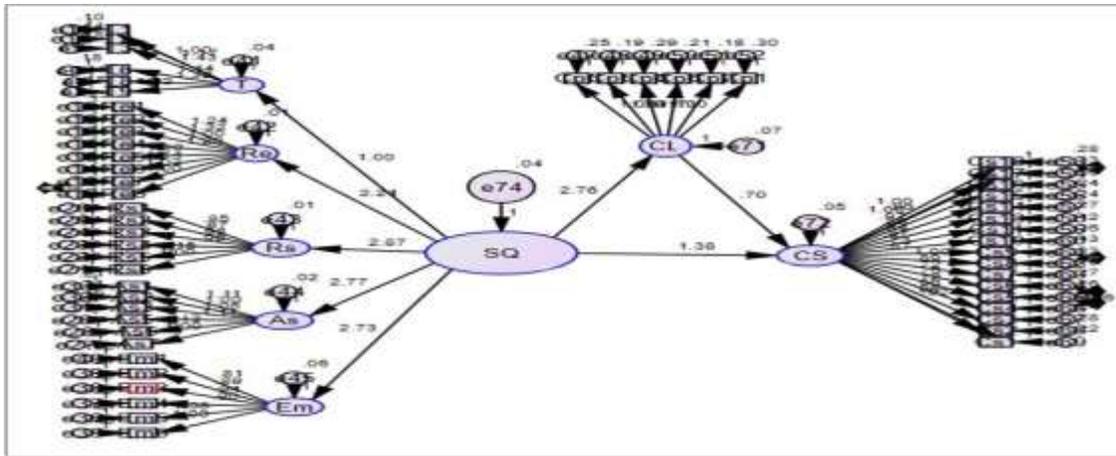
Once all constructs in the measurement model (stage one) were validated and satisfactory fit achieved (Hair et al., 2006; Holmes-Smith et al., 2006). As structural model can then be tested and presented as a second and main stage of the analysis. The structural model has been defined as “the portion of the model that specifies how the latent variables are related to each other” (Albright & Park, 2009). The structural model aims to specify which latent constructs directly or indirectly influence the values of other latent constructs in the model (Byrne & Johnson-Laird, 1989).

The hypotheses were related to the relationships between service quality, customer Loyalty, and customer satisfaction. This hypothesised model was tested using SEM and the path diagram is presented in Figure 4. Exogenous construct is service quality having no-single headed arrow pointing toward it. Endogenous constructs (customer Loyalty, customer and customer satisfaction) have at least one single-headed arrow leading to them. Straight arrows (or single-headed arrow) indicate causal relationships or paths, whilst the absence of arrows linking constructs implies that no causal relationship has been hypothesized. In this case, service quality develops customer perceptions and their frequency of dining in the hotel restaurants and these three variables all together influence customer satisfaction.

Hypothesized path				Standardized Coefficients	t	P	Decision
H1	SQ	->	CS	1.380	5.337	***	Supported
H2	SQ	->	CL	2.757	11.901	***	Supported
H3	CS	->	CL	.699	8.391	***	Supported

According to table 7 three hypotheses H1, H2, H3, were statistically significant and in the hypothesized direction. The standardized estimate for these hypotheses were all significant ($\beta = 1.38, 2.757, 0.807,$ and 0.699 respectively). Thus, these hypotheses were supported. Moreover, the model demonstrates that one of nine paths were not statistically significant ($P < 0.05$). Figure 4 summarizes the results obtained for each hypothesized path.

Figure 4: Hypothesized Structural Model



CONCLUSION

This study was conducted to find the relationship of service quality, customer satisfaction and customer's loyalty in four and five star hotel restaurants. Research indicates that service quality, and customer satisfactions are the important factors that can increase the loyalty of a customer. The results show that the service quality of hotel restaurants is a direct path and is a factor that significantly affects the customer satisfaction. The finding supports H1 and the result are consistent with the findings of (Johnson, Andreassen, Lervik, & Cha, 2001). For hypothesis 2, the results indicate that the service quality of hotel restaurants store is a direct path and is a factor that significantly affects the customer loyalty. Therefore, this hypothesis is supported, and the result is consistent with the findings of Johnson, (Johnson et al., 2001). For hypothesis 3, the affects results indicate that the customer satisfaction is a direct path and is a factor that significantly the customer loyalty. Therefore, this hypothesis is supported, and the result is consistent with the findings of (E. W. Anderson & Sullivan, 1993). Based on the research results, the service quality of hotel restaurants significantly affects customer satisfaction and customer loyalty, and customer satisfaction has strong impact on customer loyalty. Besides, the service quality dimensions significantly affect customer satisfaction and customer loyalty, and customer satisfaction has strong impact on customer loyalty for the sample. Therefore, firms have to specifically focus on these factors in order to build a long-term and mutually profitability relationship with a customer and create loyalty as competitive advantages in the market.

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Arabia versus Persia: Is this what the Arab Spring ended with?

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Abstract:

The sectarian violence in the Middle East has changed the face of the Arab Uprisings and has extended violence between Sunni and Shiite Muslims to a wider scale. The current investigation explores economic and social implications of the Sunni-Shiite Muslim tension and competition to control the Middle East. The study aims to examine the influence of demographic and socio-physiological variables on feelings of animosity Arabs express toward Iran and purchasing its products. The research design is quantitative. Data were collected from 108 Arab Sunni Muslim Jordanians who live in the capital of Jordan, Amman and the northern Irbid city over a period of 4 weeks, June, 2014. The results showed that younger Jordanians and Jordanians who express high level of internationalism hold less feelings of animosity against Iran than their other counterparts. Also, it was found that Jordanians' feelings of animosity against Iran has been translated into unwillingness to purchase Iranian products. Limitations of this research overall are related to employing a convenience sample and the relatively small sample size. Feelings of animosity Arab express toward Iran are not alarmingly high, nonetheless, such negative feelings should not be ignored by neither Iranian global marketers nor by Arab local marketers. To the best of the author's knowledge, there is a dearth of studies that explored the social and business implications of the current Arab Spring events.

Keywords: Animosity; ethnic conflict; Arabs, internationalism; group threat; Arab Spring; Iran; Sunni; Shiite.

1 Introduction

International economic, political, social and military disputes make it much more complex for marketers to go global. In fact, current global context, which includes civil wars, regime change, and military conflicts, presents a real challenge for international business (Nes et al., 2012). Globalization, competitiveness and technology have increased the varieties of products available in global markets, and thus, led more individuals all over the world to be more familiar with more foreign products and brands (Nijssen and Douglas, 2004). In addition to the diversity in culture, dynamic business environment adds to the complexity of going global (Wang and Heitmeyer, 2006). Researchers have paid good attention to how political actions, diplomatic crises, armed conflicts may impact demand for products sourced from offending countries (Nes et al., 2012). Global marketing managers from offending countries should carefully position their products with respect to local consumers' expectations (Parker et al., 2011).

Understanding consumers' buying behavior in times of financial crisis, political conflicts, military events and social unrest is vital to global marketers to develop effective marketing strategies during such tough times (Good and Huddleston, 1995). Despite the Arab Spring Uprisings have started as movements for more equity, democracy, transparency, and better quality of life, things have not ended up in the same domain. Ethnic, sectarian, historical and economic

dispute between Saudi Arabia and Iran have changed the face of the Arab Spring to a more of sectarian war between Sunni-Shiite Muslims. The sectarian conflict between the two regional powers can be seen clearly in Syria, Bahrain, Iraq, and Yemen. Future uncertainty caused by the Arab Spring events adds to the young generation frustration in Arab countries including Jordan. Indeed, the Arab Spring harmed the economies of Middle East countries and that resulted in more poverty, unemployment, and insecurity within the whole Middle East (Al Ganideh and Good, 2015). The Arab Spring started as a young-people revolution for more dignity, freedom, democracy, and transparency in the whole Arab world (Ali, 2014). According to Helfont and Helfont (2012) the Arab Uprising reshaped and transformed international relations among the Middle East countries. In the beginning, the Arab Spring represents an attempt by young Arabs to improve their social and political systems by replacing dictatorships with democratic regimes. Nonetheless, sectarian dispute between Arab Sunni countries and Shaite Iran dominated the events of the Arab Spring (Guzansky and Berti, 2014).

Combining religion and politics is an issue that provokes continued debates in new Arab political systems (Ali, 2014). Rivalry between Saudi Arabia and Iran has motivated both countries to expand their regional influence and to establish regional domination (Guzansky and Berti, 2014). Long standing and historical ethnic, sectarian and religious conflicts between Arabs and Persians, influenced their views towards each other as it can be understood from various press reports.

Iran felt threatened by the growing power of Sunni Islamic parties and militias in traditional Arab Sunni powers such as Egypt, Syria, Libya and Tunisia (Helfont and Helfont, 2012). Through the current events of the Arab Uprising Iran seeks “to expand its regional influence and to establish regional hegemony, relies on both its historic partner, Hezbollah, as well as on the Alawite regime in Syria to support its foreign policy and (resistance) agenda” (Guzansky and Berti, 2014, p.137). Yet, the absence of a good model for Arab countries regarding how to develop a successful relationship between politics and religion in Arab Spring countries has made combining the two a very complex job for new democracies (Ali, 2014). Nonetheless, there is a dearth in academic research when it comes to studying economic and social consequences of the current Arab Spring events on Arabs and Persians. The current study aims to explore the economic and social implications of the Arab/Sunni –Persian/Shiite tension which has become recently one of the main Arab Spring features. More specifically, this paper examines feeling of animosity (if any) Sunni Arabs might hold toward Iran and whether such feelings of animosity will be translated into unwillingness to purchase products sourced from Iran. Furthermore, the study aims to examine the influence of demographics (age, gender, and income) and socio-physiological variables (nationalism, patriotism, and internationalism) on feelings of animosity (if any) Sunni Arabs hold toward Iran.

2 Theoretical Background

2.1 Arabs and Persians in the Shadow of the Arab Spring: Then and now

The Arab Spring events started in Tunisia in January 2011 shocked the globe, scared non-democratic countries all over the world, including the Middle East and North Africa countries, and reminded the globe with the revolutions of 1848 which looks, somehow, similar to the Arab Uprisings (Weyland, 2012). Arab Spring revolutions were fueled by extreme poverty and high unemployment between young educated people which led to tremendous economic injustice for young Arabs who felt little hope for social and economic mobility (Malik and Awadallah, 2013).

According to Costello et al. (2015), Arab uprising protests engulfed the Arab World due to the absence of economic, justice and political opportunities for young Arab generations. The economic failure for Arab Spring countries could be attributed to the weak trade relationships between the Arab countries, the high dependence on public sector, the absence of a vibrant private sector, the dangerous dearth of manufacturing, and the clear failure of both of the education system and the economic structure (Malik and Awadallah, 2013). The big gap between young Arabs' socioeconomic aspirations and real life, redistribution of income and wealth and high degree of authoritarianism of political economies push them out to streets to ask for regime change (Rougie, 2016). In addition, the sharp price increases in basic commodities and growing economic inequality also contributed to the Arab Spring (Costello et al., 2015). In fact, Arab Education systems do not match Arab economic needs which cause many young Arabs' chances to get jobs are minimal. Young Arabs people are not only unemployed, but also they are unemployable due to the failing of education systems (Malik and Awadallah, 2013). Many segments of the poor Arabs played central parts in Arab Uprisings and the natural connection between poor Arabs and religion (Islam) paved the way for Islamic parties to dominate the Arab Spring events (Bayat, 2015). Furthermore, Arab countries' system suffered a failing social contract between governments and governed" (Parasiliti, 2003, p.152).

Since, Iran's Islamic Revolution in 1979, Iran's connections with militant Muslim organizations were used "as evidence of its interfering in their internal affairs and of fomenting instability. This in turn has enabled them to justify a policy of pressuring Iran and of isolating it diplomatically" (Hunter, 1988, p.730). Despite Islamic unity was one of the main principles of the Iranian Islamic revolution ethnicity, sectarianism and Arab-Persian competition motivated Islamic Republic opponents to manipulate Iran's image all over the World, including Islamic countries (Hunter, 1988). Recently, according to Chomsky (2006), Iran's interference in Iraq and in East of Saudi Arabia triggers problems between the Islamic Republic and the Arab Countries, including Saudi Arabia. Also, ambitions to control most of the world oil was not something that the U.S.A government fancies. Iran is the only Islamic Shiite country where the majority of Iranians adhere to Twelver Shiism, thus, Shiism is the official country's religion (Hunter, 1988). The strong appeal by Iranians to Shiites' symbols has been used as a propaganda of Sunni Arab countries toward Iran (Hunter, 1988). The historical alliance between the Lebanese Twelver Shiites and Syrian Alawis regime has not only contributed to the rise of the political and military power of the Shiite community but also to the decline of the Sunni-Shiite relationship and the increase of the Sectarian dispute between the Arabs and Iran (AbuKhalil, 1990). Iraq-Iran war contributed to the Arab-Iranian dispute particularly as Saddam Hussein presented himself and his country during the eight year war as the defenders of the Arab nation (Parasiliti, 2003).

There is a dearth of research about the influence of sectarianism on politics within the Middle East and North Africa countries, in the shadow of the Arab spring, where sectarianism seems to shape the current Arab Spring events particularly with the escalating disputes between Sunni Arab countries led by Saudi Arabia and Iran. The two regional power radical differences regarding the Arab Spring events in Syria, Yemen, Bahrain, and Iraq dominate the Arab Spring Uprisings. The relationship between sectarianism and American politics gained good attention from political science and religious studies who debated about the decline in sectarianism in societies (i.e. Evans, 2006; Bruce, 2000; Hunter, 1991; Steensland et al., 2000; O'Toole, 1976). According to Evans (2006) "Theory in the sociology of religion suggests that a prerequisite for cooperative coalitions among religious groups on political matters is a decline in sectarianism" p.195.

2.2 Ethnic conflicts

According to, Hewitt (1977), “ethnic group is one whose members differ from members of other groups with regard to one or more ascriptive characteristics (race, language, or religion) and whose members typically feel solidarity with other members of their group and different from members of other groups ” p. 151. Ethnicity is a cultural phenomenon which can be defined as a collective identity and solidarity whereby individuals perceive themselves as a one group sharing same physical features such as skin, color, and racial characteristics (Amanolahi, 2005). Religion and language are of the most important factors that shape ethnic identity (Amanolahi, 2005). Despite multiculturalism existed for thousands of years, pre-modern societies’ conflicts were not viewed as mainly ethnic (Riggs, 1998). Through the history, rivalry between rulers and tribes were understood in non-ethnic terms and even slavery was not related to ethnic identity and slaves mainly called more humane treatment (Riggs, 1998).

Ethnic violence is defined as violence between groups drawn from different ethnic communities or violence over any issue that affects the situation of one ethnic community relative to the other (Hewitt, 1977). Earlier, Bates (1993) connected ethnic conflicts to competing over scarce resources and concluded favoritism of own ethnic group when it comes to resources’ allocation. According to Sadowski (1998), most of ethnic conflicts are related to either to religious or tribal rivalries and such conflicts are much more savage and genocide that traditional wars (Sadowski, 1998). Esteban and Ray (2011) developed a religious/ethnic model where social intolerance and discrimination against out-group could be the response for ethnic activism and violence. Ethnic conflicts are less likely to occur in developed and more economically globalized countries (Sadowski, 1998). Fanaticism increase ethnic violence and makes it harder to be eliminated (Sadowski, 1998).

Generally, there is a strong linkage between political competition and ethnic identification as ethnic identities could be used as a tool to access to political power (Eifert et al., 2010). Rival ethnicities can compete politically, economically or militarily to achieve their own interests (Caselli and Coleman, 2013). Patrimonialism and political familism lead could explain many of ethnic and religious conflicts all over the world including Arab countries where Patrimonialism and political familism are blamed for the backwardness of most Arab countries and their lacks of democracy and human rights (Joseph, 2011). Religious and ethnic minorities have suffered from systematic discrimination in Middle East countries such as Iran and Sudan (Lybarger, 2007).

Many scholars studied the recent global ethnic conflicts in Rwanda, Sri Lanka, Lebanon, Bosnia and Kosovo to understand what led to such horrifying ethnic conflicts which took millions of people's lives (i.e. Hewitt, 1977; Maynes, 1993; Riggs, 1998; Khosla, 1999; Swee, 2014; Sadowski, 1998). Martin (1999) linked ethnic conflicts to countries that share long border and to areas where poverty is high and resources are scarce. Earlier, Hewitt (1977) indicated that despite conflict between different ethnic groups occurs in many societies, its brutality differs between societies, such as Lebanon where ethnic conflict had taken lives and in other societies, such as Switzerland where conflict diminished with years”. According to Swee (2014), Bosnia was a very ethnically diverse former Yugoslav republic and interethnic relations, over years, between Bosniaks, Serbs and Croats were harmonious under the Yugoslav regime which enforced its people to be only nationally-centered. Nonetheless, ethnic violence spread all over the country during the Bosnian War in 1992 where about 100,000 people had been killed (Swee, 2014). According to Caselli and Coleman (2013) ethnicity’s salience differs based on both time and place. For example, ethnicity’s salience is not constant over the time as communities give priority to ethnic identities from time to time and sometimes ethnicity is given no importance at all (Caselli and Coleman,

2013). High level of ethnic diversity increases the risk of civil war while ethnic diversity decreases the risk of ethnic conflict, and interestingly the risk of ethnic conflict is low when societies are either very homogenous or very diverse (Tangerås and Lagerlöf, 2009). Ethnic conflicts have not increased post to the cold war period neither as a result due to the global power intervention and, contrary to expectations, over one-half ethnic conflicts happened due to regional power interventions (Khosla, 1999). Against to this notion, Riggs (1998) maintained international interventions increased ethnic conflicts which have become a global concern, and claims that multiculturalism and current modernization might decrease inter-group tension, civil wars, ethnic nationalism, and genocide proved not true (Riggs, 1998).

The connection between ethnic feelings and the concept of ethnocentrism is solid as ethnocentrism is conceived as a sociological concept and a philosophy that clarifies the relationships between in-group and out-group (Adorno et al., 1950; Hammond and Axelrod, 2006; Shimp, 2004; Sumner, 1906). Earlier in 1906, Sumner conceptualized ethnocentrism as "View of things in which one's own group is the center of everything, and all others are scaled and rated with reference to it; each group nourishes its own pride and vanity, boasts itself superior, exalts its own divinities, and looks with contempt on outsiders" (1906,p.13). The concept of ethnocentrism entails strong in-group sentiments besides strong out-group sentiments as out groups are perceived as inferior and in-groups are perceived as superior (Chang and Ritter, 1976; Navarrete and Fessler, 2006; Shimp, 1984).

Hutchinson and Smith (1996) p.5 indicated that "Ethnocentrism is often used in social psychology on an individual or interpersonal level as a synonym for disdain of the stranger. But it can also have a collective historical referent, as the sense of uniqueness, centrality, and virtue of an ethnic in its relations with other ethnicities".

Ethnocentric tendencies leads individuals to conceive their own ethnic group as the center of the universe, and it entails wide range of anti-group behaviors towards other ethnicities (Levine and Campbell, 1972). Adorno et al. (1950) argued that ethnocentrism is an ideological system distinguished between in-groups (individuals belong to and identify with) and out-groups (antithetical to the in-groups where individuals do not express sense of belonging to) whereby individuals blindly reject out-groups' individuals, cultures and values. Levine and Campbell (1972) understood the concept of ethnocentrism as a parallel concept to egocentrism ideology as it scales one's own group cultural values to other groups' cultural values and ideologies. The concept of ethnocentrism could give a good understanding of how animosities might arise between different nations and ethnicities.

2.3 Animosity

Animosity is a strong emotion coming up due to previous or ongoing military, political, or economic events (Ang et al., 2004; Klein et al., 1998; Lee et al., 2003). Feelings of animosity towards other nations can be as an outcome of a territorial dispute such as India-Pakistan dispute over Kashmir area (Riefler and Diamantopoulos, 2007); previous military event or war such as China-Japan dispute as a result of The Second Sino-Japanese War (Klein et al., 1998); diplomatic dispute such as Australia-France dispute as a result of 1995–96 French nuclear tests (Ettenson and Klein, 2005); feelings of economic animosity which grow as a results of feelings of economic dominance or control such as Asian countries and the U.S.A during the 1997 Asian financial crisis (Ang et al., 2004). Religious animosity, results from lack of respect and understanding of other people's beliefs, feelings of animosity between different Lebanese groups is a good example for such type of animosity (Kisirwani, 1980). Ethnic animosity results from holding negative feelings

towards other ethnicities and the Greek-Turks ethnic conflict is a good example in this case (Nakos and Hajidimitriou, 2007). Feelings of animosity can exist even within the same country, and such feelings could be a result of long standing local ethnic dispute (the case of former Yugoslavia), local religious clash (the case of Muslims and Christians in Lebanon), linguistic based-dispute (the case of Belgium), dispute over independence (the case of Catalonia-Spain), feelings of animosity toward immigrants (German nationalist and immigrants) (i.e. Connolly, 2013; Kisirwani, 1980; Moufakkir, 2014; Pilet, 2005; Nakos and Hajidimitriou, 2007; Dauncey and Morrey, 2008; Peñaloza, 1995). Feelings of animosity can be either a stable or situational animosity whereas stable animosity is related to emotions arising towards an “enemy” country due to historical long-standing conflict, and situational animosity refers to feelings of animosity which results due to a current circumstance. Nonetheless, animosity toward a particular offender country cannot easily be eliminated (Fong et al., 2013). Reputation and trust have a central role in decreasing individuals’ negative emotions, such as animosity, toward offending countries (Jiménez and San Martín, 2010).

Researchers in sociology, business and political science applied the concept of animosity to consumer behavior to better understand why individuals buy or do not products sourced from an “enemy” country (Moufakkir, 2014). Animosity towards a current or former enemy influences willingness to buy products sourced from that country (Klein et al., 1998; Parker et al., 2011). Research studied extensively the relationship between animosity and willingness to purchase products sourced from an offending country (Klein et al., 1998; Nijssen and Dauglas, 2004; Ang et al., 2004; Ettenson and Klein, 2005). A number of researchers confirmed the relationship between feelings of animosity and product ownership (i.e. Klein et al., 1998; Klein, 2002; Bahae, and Pisani, 2009; Nes et al., 2012; Shoham et al., 2006). Demographics were found to predict feelings of animosity (Al Ganideh and Elahee, 2014; Al Ganideh, 2008; Bahae and Pisani, 2009). Feelings of animosity influences consumers purchase decisions independently of product judgments (Klein, 2002; Klein et al., 1998). Individuals with high animosity feelings toward a specific country may realize that its products are high quality products. Generally, consumers do not denigrate the quality of products of the country they do not like and animosity influences consumers purchase decisions independently of product judgments (Klein, 2002; Klein et al., 1998).

Indeed, the U.S.A and Japan have dominated the animosity literature as offender countries. Animosity researchers focused mainly on exploring feelings of animosity toward the two countries due to their past military and economic controversial history. The U.S.A has been examined as an offender country in many studies (i.e. Ishii, 2009; Parker et al., 2011; Little et al., 2009; Bahae and Pisani, 2009; Nes et al., 2012; Al Ganideh and Elahee, 2014). Many researchers have explored animosity toward Japan (i.e. Klein et al., 1998; Shin, 2001; Klein, 2002; Ang et al., 2004; Leong et al., 2008). Germany has been employed as an offender country by a number of researchers (i.e. Nijssen and Dauglas, 2004). France also has been used as an offender country (i.e. Ettenson and Klein, 2005; Chan et al., 2010). Events such as World War II, Asian economic crisis, historical ethnic events have dominated animosity literature as events that arise animosity (i.e. Klein et al., 1998; Shin, 2001; Klein, 2002; Nijssen and Dauglas, 2004; Ang et al., 2004; Smith and Qianpin, 2010; Ang et al., 2004; Kesic et al., 2005; Leong et al., 2008).

Nationalism, patriotism and internationalism were found to have a direct effect on animosity, which in turn predicts purchase behavior and willingness to buy products sourced from aggressor country (Shoham et al., 2006; Ishii, 2009; Guido et al., 2010). Nationalism is commitment and readiness to sacrifice for the nation bolstered by animosity toward other ethnic groups (Druckman,

1994). Generally, nationalists score high on love of country and also score high on hostility towards foreigners and other nations (Kosterman and Feshbach, 1989). Nationalistic individuals express more aggressive feelings toward other ethnic groups and countries than are less nationalistic individuals (Druckman, 1994). “Nationalism stresses the cultural similarity of its adherents and, by implication, it draws boundaries vis-à-vis others, who thereby become outsiders” (Eriksen, 1996, p.30). Nationalism has significant effects on attitudes towards other countries and towards purchasing local and global products (Rawwas et al., 1996). Nationalism offers a form of representation the joining of state, territoriality and culture (Friedland, 2001, p.138). Individuals differ in their level of national attitude (Dekker et al., 2003). Nationalism focuses on national superiority and on downward comparisons to other nations (Lee et al., 2003). Patriotism refers to “Loyalty to the civic group to which one belongs by birth or the other group bond. It is a sentiment of fellowship and cooperation in all hopes, works, and suffering of the group” (Sumner, 1906, p.15). Patriotism is a solid commitment and ready determination to sacrifice for the nation (Druckman, 1994). Patriotism is related to level of love and pride in one’s nation and the degree of attachment and commitment to one’s own country (Lee et al., 2003). High patriotic feelings influence individuals’ economic behavior and motivate them to buy only products made in their countries and to avoid purchasing foreign products (Balabanis et al., 2001). Internationalism reflects “Interest in gaining knowledge about international affairs and other countries and nations” (Sampson and Smith, 1957, p.99). In fact, internationalism refers to “emotional support for international sharing and welfare, and empathy for the people of other countries” (Lee et al., 2003, p.492). Internationalism entails preference for international support, cooperation and unity (Karasawa, 2002). Overall, internationalists may score low in hostility (Kosterman and Feshbach, 1989).

This study contributes to knowledge by exploring the Arabs’ feelings of animosity towards Iran in the shadow of the Arab Spring. In addition, it explores which segments of Arabs express higher animosity towards Iran and how feelings of animosity Arab express towards Iran differs based on their nationalistic or internationalist feelings.

3 Methodology

Jordan is a suitable context for the current investigation as the country, compared to other Arab countries, enjoyed good stability (Helfont and Helfont, 2012). Jordan is an excellent representative of other Arab countries in terms of ethnicity as almost all Jordanians are Arabs and Sunni Muslims. The current investigation aims to study one of central aspects regarding the Arab Spring current events; Arab-Iranian relationships from the perspective of normal Arab people.

3.1 Measures

Data were collected from Jordanian nationals from the two largest cities in the country, namely Amman (the capital of the country) and Irbid (the largest northern city) over a period of 4 weeks, June, 2014. Surveys were collected from shopping malls from the two cities. A female facilitator (senior undergraduate business student) advised shoppers at food courts at these malls if they would like to participate in the study. Data were collected from subjects who agreed to participate. The total number of usable surveys was 108 out of 121 collected surveys. The used measures for the current study were translated into Arabic language by two researchers (PhD holders) who are fluent in English and Arabic in focus group style meetings. Indeed, the researchers discussed and translated the items one by one. The final version of the survey is the one that the researchers

agreed on. The subjects were asked questions regarding to their gender, age, income, education, and geographic location.

Feeling of Animosity

To measure Jordanians' feelings of animosity toward Iran, four items (5-point Likert scale) were used (i.e. I feel angry toward Iran). The scale developed originally by Klein et al. (1998).

Willingness to purchase products

Four items (5-point Likert scale) used and modified by Klein et al. (1998) originally from Wood and Darling 1993) (i.e, I would feel guilty if I bought an Iranian product). The higher the score, the more unwilling the subject was to purchase products from a country.

Nationalism

Five items (5-point Likert scale) adopted from Kosterman and Feshbach (1989) were used to measure Jordanians' level of nationalism (i.e. the first duty of every young Jordanian is to honour the national Jordanian history and heritage).

Patriotism

Jordanians' patriotism level was measure using five items (5-point Likert scale) developed originally by Kosterman and Feshbach (1989). (i.e. I love my country).

Internationalism

To measure Jordanians' internationalism, subjects were asked to answer five items (5-point Likert scale) adopted from Kosterman and Feshbach (1989) (i.e. the alleviation of poverty in other countries is their problem, not ours).

3.2 Participants

Approximately 65.7% of the subjects were males. Regarding the age of respondents, about 60% of them were between 18 and 25 years of age, 13.0% of the subjects were between the age of 26 and 35, and 14.8% were between the age of 36 and 46. Only 5% of the subjects were above the age of 46. The majority of the respondents (53.7%) were residents of Amman city, while 40.7% of them were residents of northern Irbid city. About 85% of the subjects hold a bachelor degree and almost 10% had a high school certificate. The results showed that 12.0% of the subjects had household monthly incomes less than 350 JD (US\$ 490), 42.6 % of them had household monthly income between 350-800 JD (US\$ 490-1120), 16.7% household incomes of subjects were between 800-1200 JD (US\$1120-1680), and only 16.7% incomes of them were more than 1200JD (US\$ 1680).

4 Data analysis and conclusions

This study examines feeling of hostility (if any) Sunni Arab Jordanians hold toward Iran. In addition, it explores the influence that feelings of animosity (if any) might have on Jordanians' willingness to purchase products made in Iran. Moreover, the study aims to examine the influence of demographics (gender, age, income) and socio-physiological variables (nationalism, patriotism and internationalism) on feelings of animosity Jordanians hold toward Iran. Table 1 shows the correlation of the used measures in the study. It is clear that Cronbach's alphas for the five scales were above 0.68 which suggested a reasonably good reliability and consistent with previously reported coefficients about these scales.

Table 1

Correlation matrix of the used measures

Measure	α	1	2	3	4	5
1. Animosity towards Iran	0.96	1.00				
2. Willingness to purchase Iranian Products	0.84	0.76**	1.00			
3. Nationalism	0.68	0.07	0.03	1.00		
4. Patriotism	0.93	0.17	0.14	0.58**	1.00	
5. Internationalism	0.88	-0.24*	-0.23*	0.29**	0.29**	1.00

Notes. * $P < 0.05$ (2-tailed). ** $P < 0.01$ level (2-tailed)

Table 2 shows that almost half of Jordanians express negative feeling toward Iran and will not forgive it for its role in the Arab Spring current events. Approximately 40% of subjects do not like to see Iran wins in sports competition and feel angry towards their Muslim neighboring country. Less than third of Jordanians avoid purchasing Iranian products and will never buy a product made in Iran.

Table 2

Jordanians' animosity toward Iran and willingness to purchase Iranian products

Item	Mean	SD	Agree	Neutral	Disagree
I dislike Iran	3.45	1.37	48.2%	27.8%	22.3%
I do not like to see Iranian teams winning in sports competition	3.30	1.38	37.9%	37.0%	23.1%
I feel angry toward the Iranians	3.42	1.32	40.8%	38.0%	19.4%
I will never forgive Iran for its role in the Arab Spring	3.58	1.31	49.1%	32.4%	16.7%
I would feel guilty if I bought an Iranian product	3.06	1.31	29.7%	38.0%	29.6%
When possible, I avoid buying Iranian products	3.09	1.35	30.5%	36.1%	30.5%
Whenever available, I would prefer to buy products made in Iran	3.46	1.20	15.7%	38.0%	44.4%
I would never buy an Iranian product	2.92	1.30	26.0%	36.1%	36.1%

A hierarchal regression technique was conducted to explore the joint influence of Jordanians' nationalism, patriotism, and internationalism levels on their feelings of animosity toward Iran over and above that accounted for by the demographic variables namely, age, gender and income. In this used statistical technique, predictors were entered in two blocks with demographics entered first to provide a baseline for the model and then nationalism, patriotism, and internationalism were entered in the second block. The two models proved to be statistically significant based on the results of ANOVA test. The results (Table 3) show that demographic variables explain 12.4% of Jordanians' animosity toward Iran and the addition of nationalism, patriotism, and internationalism increases R^2 by 11.6%. Internationalism has the strongest statistical significant influence on Jordanians' feelings of animosity toward Iran with $\beta = -0.34$. Jordanians' with high internationalism feelings showed less feelings of animosity toward Iran. Age was the second strongest predictor for animosity Jordanians hold toward Iran with $\beta = 0.28$. The older Jordanians, the more feelings of animosity showed toward Iran. Income, gender, nationalism, and patriotism do not influence statistically feelings of animosity Jordanians express toward Iran.

Table 3

Regression on feelings of animosity toward Iran

Predictors	β	Sig.
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Age	0.28	0.01**
Gender	-0.10	0.33
Income	-0.18	0.06
Nationalism	0.11	0.33
Patriotism	0.07	0.52
Internationalism	-0.34	0.00**

Model 1(Demographics): $F=4.25$, $p=0.007$ where *, and ** represent statistical significance at 0.05, and 0.01 respectively. $R^2 = 0.124$, $\Delta R^2=0.095$. Model 2 (Demographics, nationalism, patriotism, and internationalism): $F=4.57$, $p=0.000$ where *, and ** represent statistical significance at 0.05, and 0.01 respectively.

Regarding the influence of Jordanians' feelings of animosity toward Iran on their (un)willingness to purchase products sourced from Iran, the results showed that animosity toward Iran has statistical significant influence on (un)willingness to purchase its products with $F=143.00$ and $p=0.000$. Feelings of animosity explains 58% of Jordanians' (un)willingness to purchase Iranian products with $\beta= 0.68$; $\text{sig}=0.000$.

Overall, this study agrees previous animosity literature that feelings of animosity influence willingness to purchase products from an "offender" or "enemy" country. Indeed, the results of the study agree the results of pioneer study conducted by Klein et al. (1998) who found that consumers' feelings of animosity toward offender country influence negatively their willingness to purchase products sourced from that country. In the same regard, the results confirm the results of Parker et al. (2011) who proved feelings of animosity have direct influence on individuals' willingness to purchase products made in an "aggressor" country. Also, the results agree previous studies regarding the positive correlation between feelings of animosity and willingness to purchase products sourced from an aggressor country (i.e. Bahae and Pisani, 2009; Nes et al., 2012). Nonetheless, the results disagree the conclusion of Al Ganideh and Elahee (2014) who found no influence of Anti-Americanism on Jordanians' willingness to purchase products made in the U.S.A.

The current results agree with Shoham et al. (2006) that internationalism has significant influence on willingness to purchase products from an "offending" country and disagreed with what the researchers found regarding the influence of nationalism on feelings of animosity. Also, the result agrees with Kosterman and Feshbach (1989) who concluded that internationalists score low in hostility. The results of this study conclude that patriotism has no influence on feelings of animosity Jordanians' express toward Iran. This result disagrees what Ishii (2009) found that patriotism is positively correlated with animosity.

The current study found that older Jordanians express higher level of animosity toward Iran than their younger counterparts. This result disagrees the findings of Nijssen and Dauglas (2004) who concluded that in Netherlands, one of the most internationally oriented countries all over the world, young individuals express highest level of hostility toward Germany and its products knowing that Netherlanders suffered much for the duration of the Second World War. Moreover, this study disagrees with Bahae and Pisani (2009) finding that age is significantly and negatively correlated with consumer animosity. The result also disagrees Furia and Lucas (2008) who indicated that young Arabs are more hostile to the West than older generations. Alternatively, the current result agrees with Parker et al. (2011) who concluded that young Chinese expressed the lowest animosity towards the U.S.A. The current study disagrees Bahae and Pisani (2009) who concluded that women are significantly more likely to hold higher consumer animosity levels than men. Nonetheless, the result agrees Bahae and Pisani (2009) that income classes are not significantly related to consumer animosity.

Feelings of animosity Jordanians express toward Iran should not be ignored by neither Iranian global marketers nor by Arab local marketers. Nonetheless, international Iranian marketers who target Arab countries should realize that Arab Spring implications might influence negatively the chances of selling their products in Arab markets. On the other hand, Arab marketers who compete with Iranians should build on this issue and highlight the Iranian country-of-origin of their competitors and their products. It is vital for Iranian international marketers who target Arab countries to be aware of the importance of modification their marketing and communications strategies in way that decrease the influence of animosity Jordanians expressed toward Iran. A possible approach to overcome feelings of animosity Arab consumers showed toward Iran could be by focusing more on internationalism connections to their products and not to highlight its Iranian country-of-origin. Moreover, any promotional campaign should produce a better outcome by targeting young consumers as they showed less feelings of animosity toward Iran than their older counterparts did. Using marketing communications that focus on national Jordanian or Arabian or Islamic symbols might encourage locals to be more positive towards products sourced from Iran. Indeed, advertising can be used to boost or reduce the influence of consumer animosity has on willingness to purchase products originating from an offender country. International Iranian marketers are much recommended to develop marketing communications that suit consumer sentiments in Jordan. The main focus of Iranian marketing managers should be driven away from their product's country-of-origin and should focus more on product quality and features.

Overall, the results of this research may not be generalizable to all individuals in Jordan and other Arab countries due to employing a convenience sample and the relatively small sample size. Future research needs to be extended to other categories in Jordanian society and other Arab countries, particularly to rich Arab Gulf States. One interesting thing will be the duplication of this research objectives from Iraqi perspective. Iraq seems to be a suitable context for exploring the main notion of this research. Examining feelings of animosity (if any) in Iraq's three main areas (Kurdistan- north of Iraq; Sunni provinces north and center of the country; and the Shiite provinces in the south and center in Iraq) will be interesting and will provide researchers and politicians by important information about how Arabs, Kurds, Sunni, and Shiite perceive Iran and its policies.

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The Role of Macroeconomic Stability in Enhancing Jordan's Economic Competitiveness

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Abstract:

The main hypothesis examined in this paper that exogenous shocks including financial crisis and regional stability have negatively affected macroeconomic stability in Jordan and worsened the competitiveness and doing business indicators. The analysis indicated that macroeconomic indicators during the period 2000-2009 were stable and improving. This was reflected in the improvement of most of competitiveness indicators monitored by specialized international reports. However, when the Jordanian economy was hit by sever exogenous shocks the Jordanian economy competitiveness declined and worsened.

I- Introduction:

Jordan is a small open economy, located in the heart of Arab world. Jordan economy is a market – Oriented economy, with abundant skilled human resource, and limited natural resources. The economy is high vulnerable to external shocks and demented on workers remittances and foreign did.

During the past ten years, Jordan has faced three major external shocks. The first one was the high increase in international oil& food prices during 2007&2008, and the second external shock, was the global financial & economic crises of late 2008. The Arab spring events of 2010 were the third major external shock hit Jordan over the past Five years. Conflict in neighboring Iraq & Syria was affecting Jordan through distortion to trade toutes, failing tourism receipt, weak investment, and large influxes of refugees.

As a result of that, Jordan has managed to stabilize its economy in the face of the above- mentioned external shocks. By the end of 2012, Jordan has entered into a \$2 billion stand-by agreement with the IMF. The main objectives of the agreement are to correct fiscal & external imbalances and thereby restore confidence in Jordan economy, and enhancing its competitiveness. This is because macroeconomic stability is important for business promoting and important also for the overall competitiveness of the economy ⁽¹⁾.

The purpose of this paper is to study the role of macroeconomic stability in Enhancing Jordan's Economics competitiveness. The main hypothesis to be examined in this paper is that " external shocks have negative impact on macroeconomic stability in Jordan and worsened the competitiveness and doing business." Therefore, when Jordan adopted the stand by Management (513A) with the IMF, macroeconomic stability achieved,there by overall competitiveness and doing business indicators improved.

II. An overview of Jordan's Recent Economic Situation:

Despite the unfavorable external environment during the first decade of this century, the ambitious and rigorous reform programs had placed the Jordanian economy on the path of strong and outward-oriented growth. Real GDP had been steadily growing, recording a growth rate of ...% on average during 2000-2009, such growth performance was outstanding by regional and international standards, especially in view of the recent exogenous shock formed by the surge in international oil prices.

Foreign direct investment (FDI) and other private capital inflows continued to pour into Jordan, tangible positive results in terms of export expansion, stock market capitalization, as well as monetary and fiscal stability. As for the budget position and after implementing a stringent fiscal adjustment package, Jordan's fiscal situation was back on track despite the repercussions of the still high international oil prices. These positive achievements came only after Jordan has undertaken numerous reform measures in all sectors of the economy, including public finance, trade liberalization, investment deregulation, financial and banking sector, as well as good governance and institutional and legislative reforms.

Jordan has been hit by a series of severe shocks over the past few years. Conflicts in neighboring Syria and Iraq have created considerable economic and social pressures; the authorities estimate that Jordan is hosting 1.2 million Syrians (over one fifth of Jordan's non-refugee population), the majority of which are refugees. At the same time, low-cost gas imports from Egypt have gradually come to a near complete halt, requiring more expensive fuel imports, which led to large losses by the electricity company NEPCO⁴. (IMF Staff Report 2015)

A worsened regional environment and uncertainty are hurting output and jobs. Growth dropped to 2 percent y-o-y in 2015Q1, reflecting largely the flared up tensions in the region taking a toll on exports and tourism. Inflation remains low. Headline CPI inflation rebounded to very low rates, reflecting primarily a partial recovery in transportation costs from higher oil prices and an acceleration in food prices.

There is a slight uptick in private sector credit growth. Corporate credit growth picked up in the first quarter and some firms are said to have sought credit from abroad 400% aided by lower oil prices, the current account deficit continues to narrow. Energy imports fell by one third in first quarter of 2015 and remittance inflows increased. This offset the decline in merchandise exports and tourism receipts.

The budget over-performed by end of Program period. Revenue collection improved and the decline in expenditures induces the overall balance from JD 1.8 billion in 2012 to almost 0.5 million in 2014. The agreement made with Shell for LNG delivery, will substantially reduce NEPCO's losses starting 2015.

Monetary policy was loosened further. The Central Bank of Jordan (CBJ) lowered interest rates by 25 basis points (bps) in early July (the second cut this year after a 25-bps reduction in February).

Macroeconomic environment was stabilized after the finalization of the Stand-by Arrangement with IMF, however, public debt is still high stood at almost 90% of GDP and constitute a major challenge.

III. Overall Competitiveness of Jordan:

The Global competitiveness report of the world bank forum defines competitiveness as of the International economic organizations that issued competitiveness reports define competitiveness as the set of institutions, policies, and factors that determine the level of productivity of a country. The level of productivity, in turn, sets the level of prosperity that can be reached by an economy. The productivity level also determines the rates of return obtained by investments in an economy, which in turn are the fundamental drivers of its growth rates. In other words, a more competitive economy is one that is likely to grow faster over time.

The last decade has seen remarkable changes in Jordan's economy, socio-economic makeup and competitiveness. While Jordan has made great strides in its economic growth and competitiveness, there is room for improvement, as the following report will detail. In summary, Jordan has

suffered minor setbacks, in terms of competitiveness. Specifically, in such areas as government spending and business capability, the nation's rankings have dropped over recent years. The nation has made significant improvement in minimizing inflation and making the establishment of firms easier.

We will try to prove below that competitiveness and doing Business in Jordan deteriorated in aftermath of the financial crises and the Arab Spring.

a) Jordan's Competitiveness Indicators

Jordan is the 64 most competitive nation in the world out of 144 countries ranked in the 2015-2016 edition of the Global Competitiveness Report published by the World Economic Forum (WEF), where Jordan maintained the same level as in the previous year, as well as Jordan came in the seventh rank according to the Arab world after Qatar, UAE, Saudi Arabia, Kuwait, Bahrain and Oman.

This report based on three key indicators (Basic Requirements, Efficiency enhancers and Innovation and sophistication factors). These indicators are grouped in 12 pillars; these are in turn organized into 3 sub indexes.

The following table shows the rank of Jordan according to Global Competitiveness Index (GCI) 2015-2016 and 2014-2015:

Table 1: Global Competitiveness Index (GCI) 2015-2016/2014-2015		
Key Indicators	2015-2016 (Rank out of 140)	2014-2015 (Rank out of 144)
Basic Requirements	75	73
1 st Pillar: Institutions	36	37
2 nd Pillar: Infrastructure	70	131
3 ^d Pillar: Macroeconomic Environment	130	71
4 th Pillar: Health and Primary Education	54	47
Efficiency Enhancers	67	70
5 th Pillar: Higher Education and Training	50	48
6 th Pillar: Goods Market Efficiency	39	40
7 th Pillar: Labor Market Efficiency	93	94
8 th Pillar: Financial Market Development	71	66
9 th Pillar: Technological Readiness	76	73
10 th Pillar: Market Size	76	88
Innovation and Sophistication	40	42
11 th Pillar: Business Sophistication	40	42
12 th Pillar: Innovation	40	41
<i>Source: GCI 2015-2016 & 2014-2015</i>		

b) Jordan Doing Business Indicators

A diagnosis of economy including ranking on the ease of doing business, is an essential tool for policy makers. Also useful is to know how it ranks relative to comparator economies and relative to the regional average. Jordan has been ranked 113th out of 189 countries in the World Bank's 2016 Ease of Doing Business report, which was released lately. The World Bank said the Jordan's economy had dropped by six places from its ranking last year, when it stood at 107.

According to this report, the World Bank said that in regard to the "10 pillars", Jordan did not make any improvements and in fact retreated in seven topics, while maintaining its same position in three pillars.

In the category of "starting a business", the Kingdom's economy moved down from 83 to 88; in "dealing with construction permits", it remained unchanged at 103. Concerning "getting electricity", the Kingdom regressed from 55 to 56 and in "registering property", it dropped from 96 to 98, while the "getting credit" criterion remained unchanged at 185.

In regards to "protecting minority investors", the Kingdom regressed from 162 to 163, and regarding "paying taxes" from 46 to 52, while "trading across borders" saw a 1-point decrease, from 49 to 50.

As regards "enforcing contracts", Jordan's rank dropped from 122 to 126 and in relation to "resolving insolvency", it remained at 146. Economies are ranked from 1 to 189 on their Ease of Doing Business, with rank 1 being the highest "ease".

A high Ease of Doing Business ranking means the country's regulatory environment is more conducive to starting and operating a local firm.

Rankings are determined by sorting the aggregate distance to frontier scores on 10 topics, each consisting of several indicators, and giving equal weight to each topic. According to the Doing Business report.

The most problematic for doing business in Jordan are:

- Access to financing.
- Inadequately educated labor force.
- Tax rates.
- Restrictive labor regulations.
- Inefficient government bureaucracy.
- Complexity of tax regulations
- Government instability/coups.
- Insufficient capacity to innovate.
- Corruption.

Indicator Rank	DB 2016	DB 2015	Change
Overall Rank	113	107	-6
Starting a business	88	83	-5
Dealing with Construction Permits	103	103	0
Getting Electricity	56	55	-1
Registering Property	98	96	-2
Getting Credit	185	185	0
Protecting Minority Investors	163	162	-1
Paying Taxes	52	46	-6
Trading Across Borders	50	49	-1
Enforcing Contracts	126	122	-4
Resolving Insolvency	146	146	0

Source: *Doing Business* database.

(V)Effect of macroeconomic stability in Jordan competitiveness

The main hypothesis we will try to prove below that exogenous shocks including financial crisis and regional stability has worsened Jordan competitiveness and doing business.

Table 3: Jordan major macroeconomic indicators(2000-2014)

Indicators	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Economic Indicators															
Real GDP %	4.5	5.3	5.8	4.1	8.6	8.1	8.1	8.2	7.2	5.5	2.3	2.6	2.7	2.8	3.1
Inflation (CPI)%	0.6	1.8	1.9	2.3	2.6	3.5	6.3	4.7	13.9	-0.7	5	4.4	4.8	5.6	2.8
Financail indicators															
Overall balance as percent of GDP/including Grants %	3.4	3.5	3.8	2.7	2.7	5.3	4.2	5.1	2.2	8.9	5.6	6.8	8.3	5.5	2.3
Net public debt /GDP %	99.8	96.2	98.4	98.2	88.8	84	68.8	67.6	54.8	57.1	61.1	65.4	75.5	80.1	80.8
Total Revenues /GDP %	33.1	32.9	31.4	36.2	36.6	34.3	32.5	32.7	32.7	26.7	24.9	26.4	23.0	24.1	28.6
Tax Revenues/GDP%	16.0	15.7	14.7	15.0	17.7	19.8	20.0	20.4	17.7	17.0	15.9	15.0	15.3	15.3	15.9
Total Expenditures /GDP %	36.5	36.4	35.3	38.9	39.3	39.6	36.6	37.8	34.8	35.7	30.4	33.2	31.3	29.7	30.9
External sector															
Current Account/GDP %	0.3	4.5	5.2	11.8	0.3	18	11.5	16.8	9.3	5.2	7.1	10.2	15.2	10.3	6.8
Trade Palance /GDP	25.7	22.4	18.1	19.6	29.6	39.8	33.6	37.7	32.6	26.3	25.7	30.6	34.1	34.7	32.9
Oficial Reserves /GDP	46.1	40.5	51.4	65.6	59.6	53.2	57.2	56.6	49.7	64.3	65.2	51.4	30.2	50.3	55.3
Banking & money sector															
Foreign currency deposits (Million JD)	8,225	8,721	9,368	9,969	11,564	13,119	14,592	15,988	18,103	20,298	22,505	24,378	24,970	27,593	30,261
Growth deposits		6.0%	7.4%	6.4%	16.0%	13.4%	11.2%	9.6%	13.2%	12.1%	10.9%	8.3%	2.4%	10.5%	9.7%
Total credit facilities (Million JD)	5,359	5,757	5,808	5,925	6,877	8,619	10,396	11,900	13,415	13,609	14,688	16,105	18,062	19,178	19,517
Growth Facilities		7.4%	0.9%	2.0%	16.1%	25.3%	20.6%	14.5%	12.7%	1.4%	7.9%	9.6%	12.2%	6.2%	1.8%
Overnight Deposits Window Rate	5.75	3.875	2.875	2.125	2.805	4.629	6.495	5.147	4.649	2.645	2.15	2.917	4.309	3.785	2.94
Interst Rate on treasury Bills (12 month)	N/A	N/A	N/A	N/A	N/A	6.51	6.468	6.182	N/A	3.78	3.087	3.776	6.75	4.28	3.45
The Global competitiveness ranking	47	45	34	34	35	42	52	49	48	50	65	71	64	68	64
DoingBusiness- Ranking	N/A	N/A	N/A	N/A	74	74	73	74	80	94	104	107	95	106	119

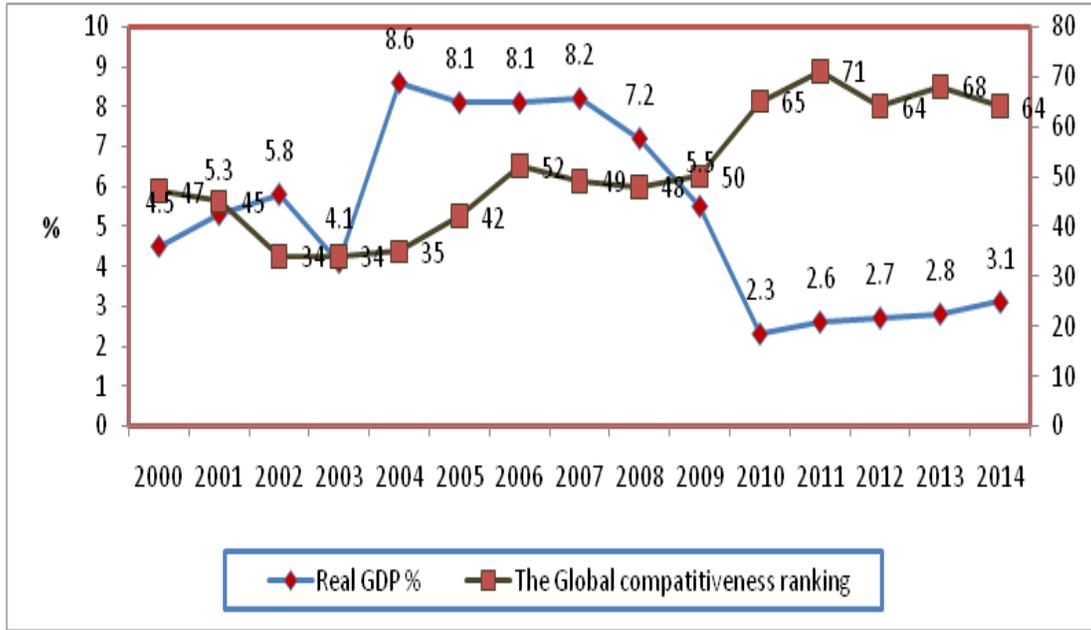
Source: C.B.J monthly statistic Bulletin several Editions.
Mof monthly Finance Bulletin several Editions

(a)Economic Growth and GCI

Economic growth rate were at average of 6.5% during the period 2000-2009, then begins to decline to an average of 2.7% during 2010-2014. The slowdown of economy, in the first period as indicated below from 8.6% to 5.5%, was escorted by worsening in the competitiveness indicator (GCI) from 34 to 48.

How as the economy entered into a sharp slowdown during 2010-2014 competitiveness was worsening into much sever rank to reach 64 in 2014 compared to 50 in 2010. Here, one can argue that the economy lost some of its competitiveness due to several factors among those instability in the region and cut of gas supply from Egypt, which led to large losses by the electricity company NEPCO. Ultimately, this induces a high increase in public debt to finance NEPCO Losses.

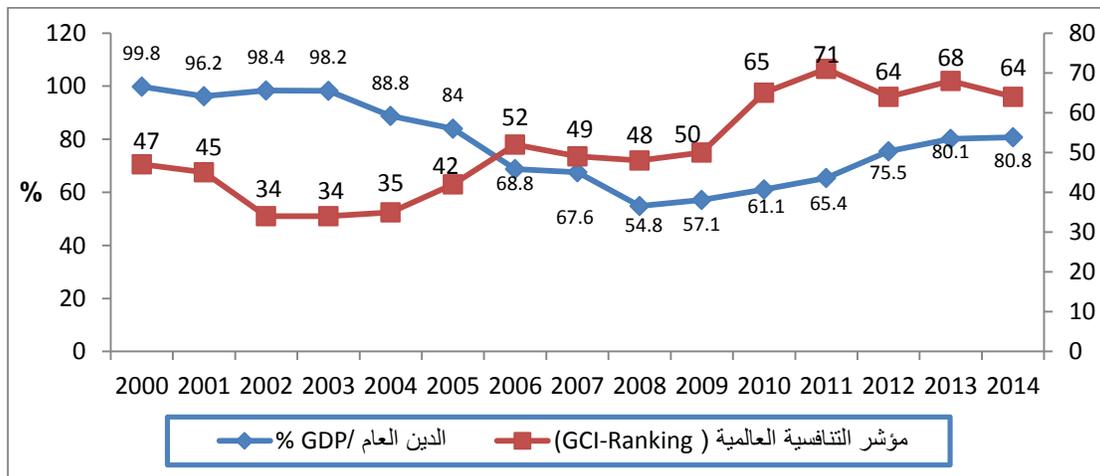
One may argue here when Jordan adopted the Strand by-Arrangement (SBA) program under the IMF macroeconomic environment improved to much stable environment, economic growth ascended little bit and in parallel the GCI rank increased from 68 in 2013 to 64 in 2014.



(b) Public Debt and GCI

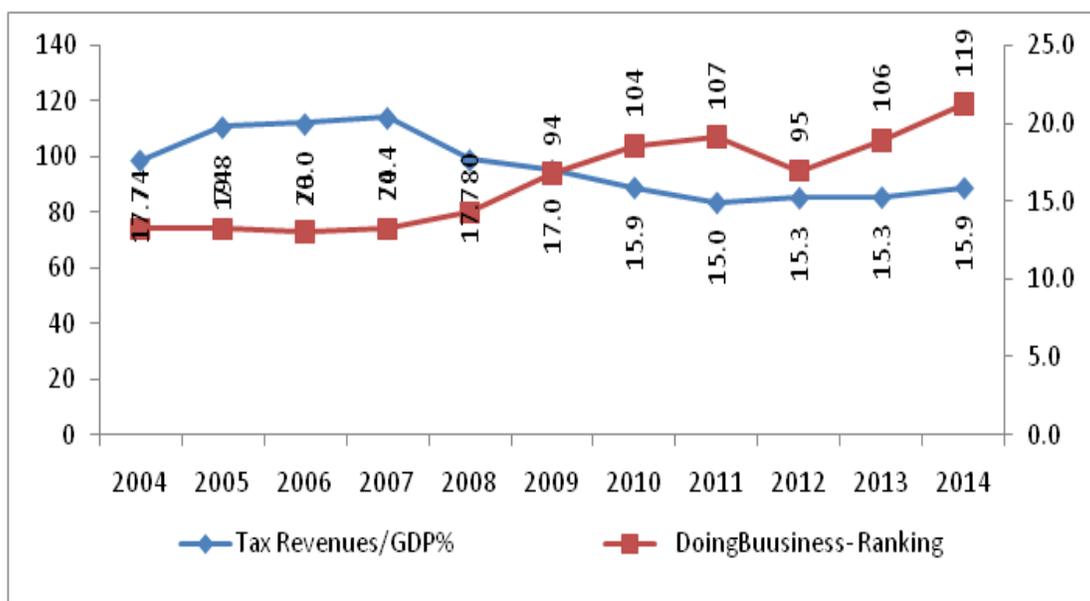
Similar argument can be made here too, during the period 2000-2009 when public debt to GDP has declined from 99.8% in 2000 to 68% in 2009 competitiveness improved from 47 GCI rank to almost 35 respectively. However, during 2010-2014 as public debt increased to 80% by 2014 the GCI rank worsened to 64 in 2014 from 50 in 2010.

However, during the period 2009-2014 the increase in public debt to 80.8% in 2014 was due to an exogenous shock caused by the cut of Egyptian gas, the government to borrow more by almost JD 4.5 billion to finance NEPCO losses, this shock cause the GCI indicators to deteriorate.



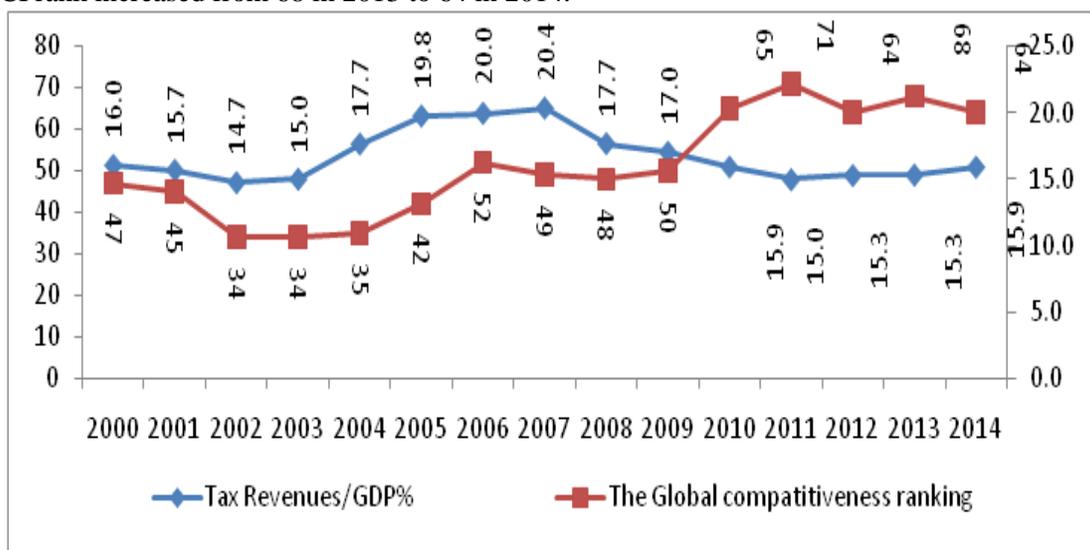
(c) Tax Revenues and Doing Business

Similar argument can be made to the relation public debt to GDP revenue and doing Business as indicated below



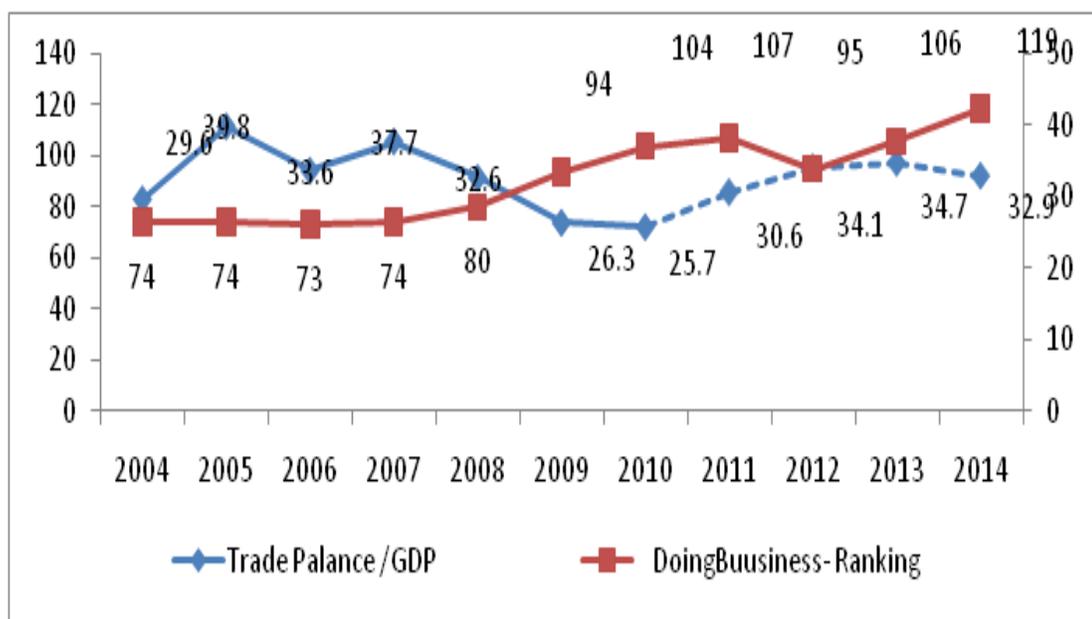
(d) Tax Revenues and GCI

Tax revenues declined from almost 20% of GDP in 2005 to 17% in 2009, this pattern was accompanied by worsening in the rank of GCI from 42 to 50 respectively. During the period 2010-2014 the tax revenues declined from 17% to almost 15% this decline in tax revenues usually caused by of slow economic activity as explained above was also accompanied by worsening in GCI rank to almost 68. One may argue here when Jordan adopted the Strand by-Arrangement (SBA) program under the IMF revenues picked up and the GCI rank increased from 68 in 2013 to 64 in 2014.



(V) External Sector and Doing Business

External Sector measured by Trade Balance to GDP during 2004-2009 indicated a stable relationship with doing business indicators, however during 2009-2014 trade balance increased from 26% to 35% doing business indicators worsened from 94 to 106.



Conclusion:

The analysis mentioned above indicated that macroeconomic indicators during the period 2000-2009 were stable and improving, this accompanied by a more competitive economy and most of the doing business indicators were improving. However, when the Jordanian economy was hit by severe exogenous shock including international financial crisis and the Arab Spring and the complete halt of the Egyptian Gas, the Jordanian economy competitiveness declined and worsened.

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PUBLIC DEBT INTEREST FREE BORROWING FROM THE CENTRAL BANK

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Abstract:

The high public debt can impact competitiveness and the future growth performance of an economy in the longer term. The stability of the macroeconomic environment is important for business and for the overall competitiveness of a country. Running fiscal deficits limits the government's future ability to react to business cycles. The government cannot provide services efficiently if it has to make high-interest payments on its past debts and firms cannot operate efficiently when inflation rates are out of hand. In sum, the economy cannot grow in a sustainable manner unless the macro environment is stable. In this article, we will discuss a system in which the State would have the right to obtain financing from its Central Bank. This theory is based on the fact that a State is deemed unable to default its debts; this is not applicable to another type of economic agent. We are going to see how States put themselves in a weak position that led them to be deep in debt today. Also, we will imagine how States could be quite free from their current public debt, especially with the example of the French public debt.

This article is about our monetary and financial system. The main objectives would be the end of expansion and recession periods, through a better economic stability; a fairer distribution of the income resulting from money creation; and the building of a more reliable global financial system. This article explores the possibility for a Central Bank to finance the State's investments at zero interest rate 0%, like was the case when they had this right. This study will show that this model is viable, and would allow the collectivity to pay back the public debt and lower the taxes at the same time.

1. INTRODUCTION

This article starts focusing on the monetary creation, which is the basis of our financial system. It talks about its control, which has been transferred from the States to the Central Banks and then to the Commercial Banks. It explores the reasons of this changes and the situation it created, particularly regarding the public debts that started at this time and which kept on growing ever since. We feel concerned about the public debt and have thought several times about how States end up so deep in debt. It is a major problem that most of the States in the world are facing today. This problem gets bigger and bigger every year, it happens that sometimes politicians talk about reducing it when elections are approaching, but in fact, this problem is never taken care of. But who is going to pay it back? And how did the States develop such an enormous debt?

For taking the monetary creation subject further and using it to analyze the financial system, and find in there solutions to its instability, a very interesting book, written by Nobel Prize 'Maurice Allais'⁵, titled "the financial crisis: for deep reform of the financial and monetary institutions", linking monetary creation and financial system. It was really helpful and led me to take this article one step further. Maurice Allais

⁵ French economist Maurice Allais, Nobel Prizewinner in Economic Science in 1988

believes that the way out of such crises is best achieved through structural reforms through, adjusting the rate of interest to 0% and revising the tax rate to about 2%.

Those reforms would take time to implement and would face many interests, but at the end, they would benefit the collectivity and it would especially aim at making our financial system more stable, before it collapses.

1.1. The Link Between Public Debt and Competitiveness

High public debt can impact competitiveness and the future growth performance of an economy in the longer term. In general, the impact of public debt on competitiveness depends to a large extent on how it is spent. The accrual of public debt can enhance competitiveness if it is used to finance investments that raise productivity, such as upgrading schools or supporting research. However, if debt is used to finance present consumption, it burdens the economy in the long run with little tangible benefit. Indeed, in addition to crowding out private investment, which may also reduce growth, higher debt implies that interest payments and debt service will take up a bigger share of the government budget, forcing a reduction in public spending in other areas.

Public spending cuts may have an adverse effect on competitiveness, especially if investments in growth-enhancing areas are affected. There is no doubt that reducing public investments for health, education, research and development (R&D), or the maintenance of infrastructure will erode competitiveness over the medium to longer term. R&D and education especially are among the areas that matter most for the competitiveness of advanced economies. Investments in these areas should therefore be preserved as much as possible. Given the importance of public investment in the competitiveness, enhancing areas such as education or innovation for future competitiveness, policymakers must measure very carefully the effects of reducing such investments, as this may endanger future growth and prosperity. This would have the unfortunate effect of converting short-term financial difficulties into longer-term competitiveness weaknesses. Policymakers should therefore focus on measures to enhance competitiveness that would strengthen their countries' growth potential and thus improve the budgetary situation. In peripheral European economies that have accumulated debt over the past years while their competitiveness has not improved, competitiveness enhancing reforms would support economic growth and thus create a virtuous cycle that could make high debt burdens more sustainable.

According to Hugh Dalton (1929) 'a distinction on public debt is often drawn between "reproductive debt" and "deadweight debt". The former is debt which is fully covered, or balanced, by the possession of assets of equal value; the latter is debt to which no existing assets correspond. Public debt, which is fully covered by public assets, is analogous to the capital of a company, and the creditors of the public authority are analogous to debenture holders in such a company. The interest due to them is normally obtained from the income-yielding power of the assets, or, in other words, is normally paid out of income derived by the public authority from the ownership of property or the conduct of enterprises. The interest on deadweight debt, on the other hand, must be obtained from some other source of public income, generally, that is to say, from taxation'.

1.2. Money Creation

We know that money creation is the basis of our financial system. The Commercial banks now control the economy, while the State has given away this economic regulation power. Banks can now create almost as much money as they want, as long as they make profit out of it, and they do. They don't care, and it is not their role, about economic stability and Social equity...

Two theories of Money Creation compete since the early of the nineteenth century:

-The currency principle: supported by David Ricardo⁶, this theory holds that the amount of currency in circulation must be regulated according to the desire of the banks to create, or not the money, where profit maximization plays the main role in money creation;

-The banking principle: this theory is contrary to freedom of monetary creation, and this is based on the needs of growth in the economy supported by Ludwig Von Mises⁷ (1912).

The monetary creation appeared when bankers who kept people's gold gave banknotes in certification of deposit, banknotes that were used to pay on markets. Then basing on the fact that chances for all the depositors to come at the same time asking for their gold was really low, they started issuing more banknotes than they had gold. The monetary creation was born, contingently, by chance.

In history, money has taken various forms through a process of dematerialization, objects, base metals, precious metals, paper, and finally electronics. However, these currencies have been living together before being preferred or abandoned. The most important was probably the gold that was used as bargaining chips long before becoming used as a convertible currency in order to ensure their stability. For example, in the early 20th century, a gram exchanged against 0.29 grams of gold and 7.32 grams a pound, which gave us a pound to 25.24 francs. Thus gold was the basis of the international financial system.

In 1914, France abandoned the gold for banknotes, but kept the convertibility of bank money in gold. In 1944, at Bretton Woods, the ounce (31 grams) is set to \$ 35. Then, even if central banks keep gold in their coffers, demonetization of gold at the international level is effective in 1976 when a reference to gold is removed in the IMF Articles of Agreement.

Today, gold represents nothing since money isn't convertible into gold anymore. Money has nothing to see with something material. It is created by banks and only depends on people's trust that other people are willing to accept banknotes in payment of merchandises or services. In our economies, commercial banks are the one allowed to issue money and Central Banks aren't, not even to finance their State's investment.

Did you know that when you borrow money from a bank, the bank issues the money, meaning it creates it from nothing, ex nihilo? If you're not familiar with our monetary system, it's normal. No one knows this fact, even if it the basis of our financial system. Lending money, for banks, doesn't mean "I lend you some money I have" but "I trust you to be able to pay me back". The bank actually creates the money when you need it. This is how the quantity of money we have on earth has been growing so much over the years.

Money is created by banks from nothing to be then lent to borrowers against interests. How can commercial banks create almost as much money as they want, and then lend something they didn't own in the first place charging interests? How the monetary creation power that at first belonged to States was, through successive steps, transferred from the States to the private bank?

Banknotes and coins are only a fraction of the existing currency; deposit money now represents over 90%. This is partly why, as the Central Banks are called "emission institute", their power of action is relatively low. They still play an independent and effective role with the effect of their interest rate that has effect on the global economy.

Banks create money purely and simply, "ex nihilo", in other words, from scratch. They create the money by writing a simple book by entering their balance sheet assets and liabilities in the amount of credit.
Appropriations do deposits, and not vice versa.

⁶David Ricardo was a British political economist. He was one of the most influential of the classical economists, along with Thomas Malthus, Adam Smith, and James Mill. Born: April 18, 1772, London, United Kingdom. Died: September 11, 1823, Gatcombe Park, United Kingdom

⁷Ludwig Heinrich Edler von Mises was a theoretical Austrian School economist of the classical liberal school. Born: September 29, 1881. Died: October 10, 1973, New York City, New York, United States

Thus, when a credit is granted by an institution with the power to create money, that money will be accepted as payment in the same way that a currency would represent a deposit of gold. Maurice Allais, Nobel laureate in economics, reminds us in his book; Today's world wide crisis: For deep reforms of financial and monetary institutions: "Basically, the credit mechanism leads to a creation of means of payments scratch [from scratch], because the holder of a deposit with a bank considers it a cash available, while at the same time, the bank has lent the greater part of this deposit, which re-filed or not a bank, is considered an available cash by its recipient".

At each credit transaction, there is duplication. In total, the credit mechanism leads to a creation of money out of nothing by mere book entries."

As a result of this process, banks have really slim cover for the money they create. Most of the money they create only corresponds to debt, and banks would be only able to give to their customer more than 20% of their money back. But of course, the system assumes that not everybody is going to ask for his money at the same time. The following scheme represents the portion of the money circulating that is more or less covered by money banks actually own.

2. THE BANK OF FRANCE

Since the advent of the euro and the establishment of the European Central Bank, the Bank of France was deprived of any real power over monetary policy. But it was long the heart of the French monetary system, sometimes saving, sometimes dispartaged. Here is a brief history of this institution.

Under Napoleon, with Canteleu and perregaux, proposed to make what later became the bank of France, a genuine issue of Institute, funded by the public, but independent of it. In April 1803 it received the exclusive privilege of issuing banknotes.

In return for this favor it must come to the aid of various governments for their funding. This will be first to finance wars and to meet expenses of any kind.

From 1911, the treaties had the Treasury as the standing creditor, the Institute emission is induced to finance the First World War and its consequences: it became the military arm of the State for distribution of credit and monetary stability.

The bank of France will become a creditor of the State, but will eventually oppose the demands of more and more insistent advances of governments. The influence of government becomes final with the nationalization of July 1936 which transformed the Bank of France in a State monopoly, so that even if continues to behave like an ordinary school, it grants credits based on the economic needs of the nation.

Then, on 30 January 1973, involving the reform of the statutes of the State Treasury which is Article 25 which blocks any possibility of advance of the Bank of France to the Treasury: " the Treasury cannot be a presenter of its own *affects* the discount of the France". It's the end of the period when the public debt was free. Then this idea will be reinforced in 1992 when the Maastricht Treaty in Article 104 (cited below).

Treaty of Maastricht

Article 104.1

No ECB and central banks of member States , grant overdrafts or any other type of credit institutions or organs of the Community, central governments, regional authorities, local or other authorities public law, or public undertakings of Member States the purchase directly from them by the ECB or national central banks of debt instrument is also prohibited.

The Euro was introduced in Europe in January 1999. Nevertheless, banknotes and coins denominated in Euro became effectively present in the market starting January 2002. This was considered as a big revolution in the world of money. What happened is that several countries decided to let go of their domestic currency in order to adopt a single currency, the Euro. Consequently, the monetary policy among these countries has been unified under the governance of the European Central Bank (ECB) and the national central bank of each member state.

2.1. How the public debt in France came about?

According to Salim Lamrani⁸ (2012), France till 1973 did not have a debt problem and the national budget was balanced. The state could borrow directly from the Bank of France to finance the building of schools, road infrastructure, ports, airlines, hospitals and cultural centers, something that it was possible to do without being required to pay an excessive and inflated interest rate. Thus, the government rarely found itself in debt. Nonetheless, on January 3, 1973, the government of President George Pompidou -- Pompidou was himself a former general director of the Rothschild Bank -- influenced by the financial sector, adopted Law no.73/7 focusing on the Bank of France. It was nicknamed the "Rothschild law" because of the intense lobbying by the banking sector which favored its adoption. Formulated by Olivier Wormser, Governor of the Bank of France, and Valéry Giscard d'Estaing, then Minister of the Economy and Finance, it stipulates in Article 25, that "the State can no longer demand discounted loans from the Bank of France."

As a result, the French state is now prohibited from financing the public treasury through zero interest loans 0% from the Bank of France. Instead, it must seek loans on the open financial markets. Therefore, the state is forced to borrow from and pay interest to private financial institutions, when until 1973; it could create the money it used to balance its budget through the Central Bank. With this quasi-monopoly, commercial banks now have been granted the power to create money through credit, whereas previously this had been the exclusive prerogative of the Central Bank, that is to say of the state itself. As a result, commercial banks are getting rich off the backs of taxpayers.

Furthermore, thanks to the fractional reserve banking system, private banks can lend up to six times more than the amount they actually have in reserve. Thus, for every euro they possess, they can loan six euros through the system of money creation through credit. As though this were not enough, they can also borrow as much money as needed from the Central Bank at a rate of 0 percent to 18 percent, as we see in the case of Greece. Today, money creation through credit accounts for 90 percent of all money in circulation in the euro zone.

This situation has been denounced by the French economist and Nobel laureate, Maurice Allais, who wished to see money creation reserved to the state and the Central Bank.

"All money creation must be the prerogative of the state and the state alone: Any money creation other than that of the basic state-created currency should be prohibited in a way that eliminates the so-called 'rights' that have arisen around private bank creation of money. In essence, the ex nihilo money creation practiced by the private banks is similar -- I do not hesitate to say this because it is important that people understand what is at stake here -- to the manufacture of currency by counterfeiters, who are justly punished by law. In practice both lead to the same result. The only difference is that those who benefit are not the same."

Today, French debt has grown to over 1,700 billion euros. Between 1980 and 2010, the French taxpayer paid more than 1400 billion euros to private banks in interest on the debt alone. Without the 1973 law, the Maastricht Treaty and the Lisbon Treaty, the French debt would be hardly 300 billion euros.

France pays 50 billion euros in interest annually, making this the largest item in the national budget, coming even before education. With that kind of money, the government would be able to build 500,000 public housing units or create 1.5 million jobs in the public sector (education, health, culture, leisure), each with a net monthly salary of 1,500 euros. In this way, French taxpayers are robbed of over 1 billion euros weekly, money that accrues to the benefit of the private banks. Clearly, the state has given the richest group of people in the country the fantastic privilege of enriching themselves at taxpayers' expense. And it has asked for nothing in return, and has not made the slightest effort to do so.

Moreover, this system allows the financial world to subject the political class to its interests and dictate economic policy through the rating agencies, which are in turn financed by private banks. Indeed, if a

⁸ Salim Lamrani (2012), Doctor, Paris Sorbonne, Paris IV University, Lecturer, University of La Reunion. Translated from the French by Larry R. Obeig.

government adopts a policy contrary to the interests of the financial market, these agencies lower the rating scores awarded to states, something that has the immediate effect of increasing interest rates.

Meanwhile, when the state and the European Central Bank bailout ailing private banks, they do so with interest rates lower than those same financial institutions charge the state. In reality they are conducting de facto nationalizations without receiving the slightest benefit, for example, being granted decision-making authority within the banks administrative councils.

The credit system established in France in 1973, and since ratified by the treaties of Maastricht and Lisbon, has but a single goal: **to enrich private banks off the backs of taxpayers.** It is unfortunate that a debate on the origins of public debt is not occurring in the media or in Parliament itself, even though resolving the debt problem would require nothing more than restoring the exclusive right of money creation to the Central Bank.

2.2. How are Private Banks Getting Rich off the Backs of the Citizens

The Financial crisis of 2008 had its impact on the Eurozone and resulted in very large current account deficits and massive public debts. This rendered financial institutions very risky and resulted in a lack of confidence among investors. What's more, it implied a reduction in potential output and an increase in unemployment rates. The restriction in credit availability and the increase in interest rates made it hard for countries with very high debt burden to finance their debt payments. Increasing exports was a possibility for peripheral countries to be able to repay their debt. However, this was not possible due to price competitiveness. Furthermore, the reduction in income and austerity measures made the situation even more difficult because of recession. Tension is rising across the Eurozone and the prospect of member states, leaving the Euro is highly probable.

According to Salim Lamrani (2012), all European countries find themselves confronted with debt problems that impact sustainable public finances. The crisis has not spared France, the world's fifth largest economic power, something that makes private banks quite happy.

No European nation has been spared the problem of public debt, even if the severity of the crisis varies from one capital to another. On the one hand, there are the "good students," such as Bulgaria, Romania, the Czech Republic, Poland, Slovakia, and the Baltic and Scandinavian states, all of which enjoy a debt lower than 60 percent of their GDP. On the other hand, there are the four "dunces" whose public debt surpasses 100 percent of their GDP: Ireland (108 percent), Portugal (108 percent), Italy (120 percent), and Greece (180 percent). Between the two extremes are found the rest of the European Union countries, such as France (86 percent), whose debt oscillates between 60 percent and 100 percent of GDP. High public debt levels generally bring about higher interest rates across the economy, which in turn raise the cost of finance for businesses, crowding out the private investment that is so crucial for growth. Moreover, as public debt levels rise, governments are under pressure to raise taxes, which can further suppress business activity.

Still, it is common knowledge that the austerity policies promoted by the European Union, the European Central Bank and the International Monetary Fund that are currently being applied across the Old world, are economically inefficient. In fact, they result in the opposite of what was intended. Rather than restarting growth, they reduced expenditures; depressed salaries and retirement benefits; dismantling public services, including education and health care; destroying the work code and social benefits, in addition to the catastrophic social and human consequences that this causes, inevitably lead to a reduction in consumption. Inevitably, companies cut production and wages and lay off workers. As a logical consequence, the resources that flow from the state are cut back, while the entities dependent upon the state explode, creating a vicious cycle, for which Greece is the poster boy. Because of this, several European countries now find themselves in recession.

3. MONETARY CREATION POWER

Now, who should have the control over the monetary creation power? Why can't States be financed by their Central Bank? What are the issues? We will see in a first time that the interdiction to the Central Banks to finance States is responsible for the French public debt and try to imagine an alternative system. This is why we will enlarge the question to who should have the control over the monetary creation power and why?

From a couple of decades, the economic and finance world is going on a deregulation trend. This deregulation is based on the idea that markets are the best solution to maximize resources allocation and therefore the States should not interfere with the market or the less the better. It is in this global idea that the monetary creation power has been entirely given to commercial banks and taken from Central Banks and States' control.

This is how from 1973 in France the State had to borrow the money it needed from commercial banks instead of being able to borrow it from the *Banque de France*, like it was possible before. This means when it borrows money, the State now has to pay interests to the banks since commercial banks have to protect themselves against inflation plus they have to be profitable and so to fix interests rates over the inflation rate.

Today, in modern economies, central banks cannot finance government deficits to zero, or at least to a limited rate of inflation, as was the case that there are few decades in France and elsewhere worldwide.

When tradable treasury bonds were created in 1985, it was to modernize the management of public debt. These vouchers are now open to all stakeholders. This has resulted, more or less directly, a sharp increase in public debt from 20% in 1980 to 64% in 2007. The State was the largest issuer of securities monetary and financial liabilities in recent years.

Certainly, today, all States are in debt in a manner somewhat similar to that of France. In addition, in November 2005, the rating agency Standard & Poor's said that the quality of the French public debt deteriorated, while remaining at AAA rated (highest rating on a scale of existing). The OAT (fungible Treasury bonds) with a yield above 4% are more than ever the licensee in a context of crisis in which investors and investors looking for attractive returns, but above all safe.

The weight of these interests in the annual State budget is something very heavy. In France, it corresponds, for example, to the whole of the income tax. The payment of interest on debt is the second-largest expense in the State budget, after that of National Education. He therefore created a huge crowding and simply due to interest payments. Imagine what could be the public finances without the burden of this debt!

This economy of debt begins to pose problems and show its limits more or less. We say that fiscal policy is sustainable if it does not lead to an accumulation of "excessive" debt that is to say at a level of debt, no major changes, could not be covered by future budget surpluses. The financing of this debt excludes the use of a "Ponzi scheme" where the State would issue indefinitely new loans to pay interest and principal payments due. The borrowing capacity of the State is limited in quantity.

4. MODERN ECONOMIES

In a globalized economy, it is hardly conceivable that States will still have the power to create money they need because it contradicts the principles of free competition. Indeed, States would be too tempted to use these indirect free credits to help their businesses. Moreover, the Maastricht Treaty prohibiting central banks to finance the States is indicative of the fact that economies are subject to Community rules can use each ticket as it wishes.

Also, according to Dominique Plihon in his book "Money and its mechanisms", one of the main reasons that prompted the French public authorities to modernize the capital markets is the need to finance public deficits in good condition. Indeed, when the Bank of France had the power to refuse granting of credits to the State, it could have the effect of reducing stimulus plans by providing insufficient funding,

for example. The State now borrowing on the markets is sure to have the money it needs when it needs it, even build up a debt that will be reimbursed during better days.

So are the ideas that have led governments in a context of deregulation, to shift the power of money creation in the private side. The most worrying is the increasing debt of States exponentially, and likely eventually to undermine market confidence in the solvency of the States. This would result in an increase in interest rates Treasury bills, adding to a little more weight in the interests of the State budget, and to a more distant perspective, the denial of economic agents to finance that debt. However, solutions exist, as we shall see in the next section.

To sum up, this decision has been taken for the following reasons:

- The State can now borrow all the money it needs for its investments and operation without having to ask the *Banque de France* and have its action dependent on this institute's willingness or not loan the money;
- The *Banque de France* was indirectly controlled by politics and the agenda may push them to ask for more money than they really need. This can lead to an excessive creation of money, leading to inflation and so to the currency's loss of value. It is mechanical. Indeed, the monetary management has to be led on a long term basis and politics trend to think too short;
- Finally, having to borrow money with interest would be an incentive for governments to have balanced budget since having an increasing debt would not be maintainable on a long term orientation.

4.1. Money control and Public financing

We know that money creation is the basis of our financial system. In this section, after stating how important the power of money creation is, we will discuss the hypo book of a system in which the State would have the right to obtain financing from its Central Bank. This theory is based on the fact that a State is deemed unable to fault its debts. It is not applicable to another type of economic agent.

We are going to see how States put themselves in a weak position that led them to be deep in debt today. Also, we will imagine how States could be quite free from their current public debt, especially with the example of the French public debt.

"Give me control over the currency issue of a nation, and I shall not worry about those who make its laws". Mayer Amschel Rothschild, Rothschild banking dynasty founder, 1743-1812

This quotation comes from the founder of the dynasty of Rothschild, one of the most famous families in the business world. More recently, so what happened to the world crisis whose magnitude was forgotten since the 30s, banks cut loans to companies and individuals for fear of future insolvency of these economic agents. What happened on the side of government? It was obliged to guarantee a hare of personal deposits to prevent bankruptcies, and to inject money into the economy out of its pocket. The economy depends on the willingness of banks to take risks and the State is powerless to the whims and desires of banks to grant credits or not.

Who benefits?

"Then we must proclaim a fundamental right of man is to be effectively protected against unfair operation, if not dishonest, the market economy is currently allowed or even encouraged by inappropriate legislation". Maurice Allais, [Today's world wide crisis](#).

Consequences: What would be a budget without the interests?

After seeing the catastrophic situation of the French public debt since the abandonment of the power of money creation to commercial banks, what would be the French State without the weight of this debt and to what extent it might be possible to return to funding from the State Bank of France to zero. To begin, what would have been even balances the annual budgets of the State from 1980 to 2006 without the burden of debt interest:

Year	Actual accumulated debt in Euro	Interest paid estimate in Euro	Interest free accumulated debt in Euro
1979	229,15		229,15
1980	224,71	29,6	195,14
1981	236,61	36,2	170,82
1982	279,65	40,5	173,36
1983	298,06	39,4	152,41
1984	328,76	39,3	143,8
1985	351,22	37,2	129,07
1986	374,58	30,6	121,8
1987	409,62	37	119,86
1988	429,53	38	101,75
1989	456,33	38,9	89,62
1990	481,59	46,6	68,32
1991	494,23	44,2	36,8
1992	551,74	45	49,33
1993	626,33	40,6	83,28
1994	682,25	48,1	91,11
1995	781,2	55,5	143,52
1996	823,51	51,2	125,64
1997	854,14	47,2	109,05
1998	888,8	41,1	102,58
1999	904,03	42	75,76
2000	913,48	49,5	35,69
2001	926,35	46,5	2,09
2002	973,04	46,8	1,97
2003	1051,19	42,3	37,81
2004	1105,69	44,9	47,45
2005	1156,61	39,1	59,23
2006	1142,2	44,4	0,45

The table shows an encrypted manner, though there can be only an estimate, that the deficits are due only at the interest burden of debt. So when we hear that the State can no longer fund the operation of hospitals, the pension system and health, or investments such as construction of social housing, it is of course no question of tackling the problem from this angle. What would people do then if they were told that their salaries could be increased through lower payroll taxes, if only there was not the burden of debt on the shoulders of the State, and especially that it is technically possible to wipe out that debt?

Central Bank, founding texts of the European Union as the Treaty of Lisbon or Maastricht as well as ECB attest this ban in a very formal way. A point where, it will be hard to come back, 60% of the debt is held by foreign investors, the money thus outside the French circuit is probably neither imposed nor reinvested in France. All this is problematic as its borrowed money comes from money created ex nihilo by commercial banks. The borrowing by the State could be conceived at the time or money was representative of a certain quantity of gold that could become scarce in nature. But now it is totally paperless, it does not have the same rationale.

4.2. What if States can be funded by Central Bank?

We've seen so far that the States have given the monetary creation power to the commercial banks, forbidding itself to be financed by its central bank. This resulted as the creation of a massive public debt.

Now, we will propose an alternative system to the system in place now that could solve the problem of debt without the risk of creating a large imbalance somewhere.

Basic principles

- We assume monetary creation is removed from private banks.
- The State is an economic agent whose solvency is considered indisputable.
- Currency is in essence a collective, whose total privatization can therefore be considered illegitimate.
- Only investment expenses are concerned, operating expenditure should be financed by the tax.

4.3. Central Bank allowed financing the State

Again, the State is an economic agent whose solvency is considered to be infallible. State loans are qualified assets without risk that is to say that the State is supposed never lacking in debt. Also, State bonds rates them even qualified for rate of return without risk.

From this observation, in this system, the State would be entitled to be funded by its Central Bank **interest-free**, just as it did forty years ago. The State may thus find a budget balanced without changing its tax policy. We remain in the approach to zero-rated funding strictly reserved for public investment, by admitting that the risk of non-repayment is null.

On the other hand, we have to face the risk of excessive use of this power of monetary creation. As we saw earlier, inflation is the main threat to this configuration of power. Also, the establishment of its needs will therefore have to be more or less in line with the anticipation of future growth of GDP and other economic expectations such that it balances budgets.

Deadlines would be imposed in order that these credits are a promise to pay in a distant future, and a maximum debt ratio would be allowed to State. If deadlines are not met, the State could even have its borrowing possibilities frozen.

4.4. A necessarily independent Central Bank

To manage State investment funding, an organization's main objective would be the guarantor of monetary stability, e.g. a Central Bank. It would be strictly independent of the Government, that is to say, that the Government would have no direct or indirect means of action on it.

To do this, the leaders of this bank would access the function by election or appointment any other medium imaginable for any independent policies, trade unions, captains or other persons having direct interests with the Central Bank. They would later have a long and non-renewable term in order to minimize the influences of the voting or decision makers (masses or specific individuals) always.

This does not mean that Central Bank shall have the power to decide what will be done to create money, making it responsible for fiscal and monetary policy, and depriving the power to govern the economy elected Government. The Central Bank will only decide quantities it can grant to Governments based on their sustainable growth needs and their future ability to refund money.

5. THE USE OF THE CENTRAL BANK

This theory would be based upon the following ideas: a State can't fail to pay back its debts; the money is something collective and it can't be totally privatized; only investments' financing are considered. Besides, we are not talking of taking the monetary creation power back from banks.

The State would be able to borrow the money it needs in order to invest in whatever needs to be done. Those investments and the money generated to pay it back would be planned in advance over a certain period of time. In case of late payments, loans could be frozen until previous have been paid back to prevent any massive debt creation. The State would be loaned the money from an independent Central Bank.

Independent from the politics powers in order not to influence its action from the politics' electoral agenda. If the Central Bank would be able to accept or not the loans requests from the government, it would not be able to discuss what the government would do with it, in order to leave them the power of directing the economy, what they are actually elected for. The Central Bank would have for only worries the State's ability to respects pay back plans, and the currency stability. Since we are today using the Euros, those decisions need to be taken from a global Central Bank like the BCE (Banque Centrale Européenne), which would allow loans for each State individually.

Those financing would allow States to get back good budgets balances and on a long term to pay back the public debt. States would save a lot of money that people would get back paying less taxes. The only losing parties would be private investors that would lose the goods and risk free return on investment of public obligations.

It would give back the States the economic power they lost. It would give them back a capacity of action that used to be huge, but which has been reduced over time. This power reduced, the State is weak when it needs to regulate the economy. And wherever the State has its control reduced, others forms of power appear, and, when this happens by accident, it is rarely for the best.

5.1. Consequences and learning

As we just saw, today, the world economy is based on a comprehensive system of credits that is to say from promises to pay in the future, drawing from each other, that might be in the form of a pyramid of debts. For immediate, almost all experts see hardly any other solution, if required by commercial banks, the institutes emission pressures and the IMF, that the creation of new means of payment to face of depreciation and interest of their debts, even by weighing even this burden for the future payment.

Let's go back to the subprime crisis and this incredibly early prediction by Thomas Jefferson:

« I believe that banking institutions are more dangerous to our liberties than standing armies. If the American people ever allow private banks to control the issue of their currency, first by inflation, then by deflation, the banks and corporations that will grow up around [the banks] will deprive the people of all property until their children wake-up homeless on the continent their fathers conquered. The monetary creation power should be taken from the banks and restored to the people, to whom it properly belongs. »

Thomas Jefferson, 1743 – 1826, The Writings of Thomas Jefferson, Memorial Edition.

After taking a look at what happened, we can have second thoughts about this quotation. How the world could have been so blind to the pervert effects of the uncontrolled credit mechanism while a man warned us centuries ago, with a disconcerting accuracy?

For the past decades, a wave of deregulation has blown over the financial world, involving the disappearance of any obstacle to the free movement of goods, services and capital. According to this theory, the disappearance of all obstacles to these movements would be both necessary and sufficient for optimal allocation of resources throughout the world condition. Every country and every social group would see their situation improved. Market was seen as likely to lead to a stable balance, completely effective, that could operate on a global scale. In all circumstances, it was appropriate to submit to this discipline.

Supporters of this theory, this new fundamentalism, had become too dogmatic as supporters of communism before its final collapse with the fall of the Berlin wall in 1989. This liberal orientation has been reinforced by the communism doctrine collapse. Since an omnipotent State wasn't the solution, an omnipotent market was at the time the best system for everyone. For them, the application of this globalist doctrine was needed in all countries, and if difficulties presented in this application, they could be only temporary and transitional. The total opening towards the outside was a necessary condition, and evidence was given by the extremely rapid progress of emerging countries of the world. For developed countries, the removal of tariff barriers or other was a condition of their growth, as it showed conclusively the undoubted success of the Asian Tigers, and repeated yet; the West had to follow their example for unprecedented growth and full employment.

Such was fundamentally the doctrine of global and uncontrolled economy which had imposed itself upon the world and which had been considered as opening a new golden age at the dawn of the 21st Century. This doctrine established the undisputed creed of all the big international organizations these last two decades, including but not limited to the World Bank, the International Monetary Fund, the World Trade Organization, the Organization for Economic Cooperation and Development, or the Organization of Brussels.

Two major factors have played a decisive role in this global crisis of unprecedented magnitude after the crisis of 1929:

1. Potential instability in the financial and monetary system global;
2. Globalization of the economy both in monetary terms and in real terms.

Here is the learning to understand out of it

1. With the monetary creation control, private banks are responsible for inflation and deflation which means expansion period and crisis following it; they accept crisis. They are not responsible for economic stability while they bear the tools to ensure it.
2. Banks don't bear the responsibility of economic stability. They are interested in profit. But the credits (loans mortgages) they grant are responsible of the economic periods.
3. The credit system is naturally instable. To be healthy, it has to be controlled
4. The monetary creation power cannot be given to private banks and needs to be controlled by the collectivity, meaning the State, meaning a Central Bank.

In fact, what had to happen is reached. World economy, which was devoid of any real regulatory system and was developed in an anarchic framework, could not only lead sooner or later to major difficulties.

Indeed, at the basis of contemporary crisis is the uncontrolled loan of credits by private banks allowing expansion as long as investors trust the future, which can last a while. During this time, economic agents contract huge debts (like mortgages or other company's investments) that are profitable only if the situation keeps up. When doubts about the future start showing up, people who had taken engagement or invested too much money can't get a return on their investment or simply pay back their loans. Banking institutions need to be reformed also because they are instable. They finance long term investments with money they have on a short term basis from their savers.

As a result, we assist today to the collapse of the global free trade doctrine, which was gradually imposed by the existing system. The free market was considered as the invisible power for optimal allocation of resources throughout the world. In fact, what had to happen? The global world economy, which was devoid of any real control, which was developed in an anarchic framework, could only reach, sooner or later, to major difficulties.

"Indeed, the new order world, or the so-called world order has collapsed and could only collapse. Evidence of the facts eventually outweighs the doctrinal incantations."

Mr. Allais, today's worldwide crisis

What have we seen so far? Money is something immaterial and can be created at will. The question of money creation is purely political. In major developed countries, the States have then contracting enormous debts.

Commercial banks have the power to create the money at will, whenever they judge it good for them. They are somehow responsible for economic stability, without officially bearing this responsibility. The financial world is built over a pyramid of debts, making economic agents inter-dependents. This financial system, which has developed in an anarchic manner, has led to several crises against which States have been powerless.

6.2. The world in a tight situation

More recently, Maurice Allais saw in 1999, in *The Global crisis today* as "inappropriate" the current structure of money supply. He believes the current system is unstable and risky, liabilities and claims are not necessarily the same horizon and the risk of massive liquidity withdrawals by savers is always possible. Thus, according to Allais, "The entire global economy today is based on gigantic pyramids of debt, building upon each other in a delicate balance." He calls for a system where money creation is not the rule, in a framework of fixed exchange rate regime.

In major developed countries, the States have given up the control of the money to the private sphere. This had for effect to force them to borrow money from the commercial banks, paying them interest, which lead States contracting huge debts. The paying back of the public debts is still a question. This led the States to be deeply in debt, which make it hard for them to borrow money when it is necessary. For example, to avoid banks to go bankrupt.

In the meantime, the financial world has been deregulated over the decades. Commercial banks and investors has been let free to create complex financial products, speculate on inflation, trade in hedge funds and so on. The anarchy in which the world has grown led it to happen fragile, unsure, and unstable. Economic agents are interdependent and the fall of one takes many down with it. And there's few the State can do about it because, as said earlier.

1. States are in deep debts and their borrowing capacity is weak
2. Private banks are the only one controlling the money creation
3. Commercial banks are therefore responsible of economic stability, without officially bearing the burden

Those three facts make today's world instable. There is a need for a change. When the crisis struck, everyone admitted it. Banks, newspapers, States, public opinion, economists... Despite their weak action power, all over the world, States saved the banks when the system was in danger. If they hadn't done so, the whole system may have collapsed, on a worldwide basis. No one wants it to happen. This would be a major disaster. Therefore, there is an urgent need for deeply reforming the financial system, to strengthen it. Otherwise, the next crisis may be the last.

We are now going to set up the bases of what should be the new system. We are going to look at the weaknesses of the current system, and try to make it safer, stronger, more reliable, and more ready to face crises. A system that would eliminate, or at least reduce, the amplitude of the expansion / crisis periods the economy has been growing around.

With an experience of at least two centuries, all kinds of disorders and the estate expansion and recession periods observed constantly, must be considered as two major factors that have amplified them significantly are creating money and purchasing by ex nihilo credit mechanism and financing of long-term funds borrowed short-term investments. However, it could easily be fixed to these two factors by overall reform which would otherwise terminate cyclical fluctuations, at least to considerably reduce the scale.

In fact, as we saw in the first part, the current system of credit, including historical origin was entirely contingent, and seems totally irrational, and this for five reasons:

1. Creating irresponsible money and buying power by commercial banks;
2. Financing long-term funds borrowed short-term investments;
3. High sensitivity of the cyclical credit mechanism;
4. Financial instability it creates;
5. And finally the impossibility of any effective system by the public credit control and Parliament, due to its extraordinary complexity.

This reform must be based on two very basic principles:

➡ **Monetary creation should be the State and the State only.** Any other than the currency basis by the Central Bank monetary creation must be impossible, so that disappear "false rights" currently resulting from the commercial banking currency creating.

➔ Any financing of a given asset must be **done according to the borrower capacity to pay back the loan at the time** of the loan, not speculating on long term predictions.

The mechanism of credit reform should thus make impossible both currency ex nihilo creation and borrowing short-term to fund long term loans, by not only allowing loans to haul more than borrowed funds deadlines. As we saw previously, enables banks to finance investments in the long term on the basis of loans of depositors in the short term, resulting in permanent and potential system instability.

Creation of Scriptural currency depends on a dual commitment, willingness to banks to lend, and the willingness of economic agents to borrow. In times of prosperity, this dual desire exists and the Scriptural currency increases. In times of recession, this dual desire disappears, and the Scriptural currency decreases. Indeed, without the creation of money and you can purchase scratch allows the credit system, never extraordinary increases in stock market courses there before major crises are possible. Thomas Jefferson wrote:

“Bank paper must be suppressed, and the circulating medium must be restored to the nation to whom it belongs. It is the only fund on which they can rely for loans; it is the only resource which can never fail them, and it is an abundant one for every necessary purpose. Treasury bills, bottomed on taxes, bearing or not bearing interest, as may be found necessary, thrown into circulation will take the place of so much gold and silver, which last, when crowded, will find an efflux into other countries, and thus keep the quantum of medium at its salutary level. Let banks continue if they please, but let them discount for cash alone or for treasury notes.”

Thomas Jefferson, 1743 – 1826, The Writings of Thomas Jefferson, Memorial Edition.

Thomas Jefferson, doesn't want to suppress the banks. They are in fact a need for economic expansion, supplying financings, loans, and means of payments. They enhance the economic growth. But the monetary creation must be controlled by a central bank, and according to the actual economic growth.

This double condition implies a profound change of banking and financial structures based on total banking activities dissociation as they find today and their allocation to three categories of separate and independent institutions:

1. **Deposit banks** ensuring only, for any operation of loan, cash receipts and payments, custody deposits of their customers, the costs invoiced to it, and cannot contain any discovered; customer accounts. The bank's fees would be source of the income the Bank would get.
2. **Lending banks** that would offer loans and mortgages at specific terms, and lending funds that they had to borrow on a longer terms, the total loan amount not exceeding the total borrowed funds;
3. **Business banks** that would find their funding borrowing directly from the private sphere or the lending banks, and investing the funds borrowed in the economy.

In principle, such a reform would make impossible monetary creation and ex nihilo by banking and borrowing short-term purchasing power to finance more long term loans. It would only shorter than those corresponding to the borrowed funds maturity loans. Lending banks and merchant banks use intermediaries between savers and borrowers. They would be subject to a mandatory requirement: borrow long-term to lend in the shorter term, contrary to what happens today.

In the current system, the three banks are one in most of the cases. This drives them dependent from one another. The money you save is used by the business section of the bank to invest. It also covers (on a fractional basis) the loans the bank grants. If one of them encounters difficulties, it can drag the other down. If the stock market in which the savers' money is invested goes down, the bank can go bankrupt and the person who just deposited his money loses it.

In the new order, those three activities would be separated. This strongly reduces the risk of systemic crisis. If the stock market goes down, it doesn't mean that people's savings are going to be in danger in case of the business bank goes bankrupt.

6. CONCLUSION

The monetary system as it stands today has appeared contingently, by accident. The principle of monetary creation ex nihilo has allowed the worldwide economy to grow faster, but in a more and more anarchic, or liberal, environment. Its control and benefits now belong to the private sphere, which is not only unfair, but also generator of crisis.

The commercial banks now control the economy, while the State has given away this economic regulation power. Banks can now create almost as much money as they want, as long as they make profit out of it, and they do. They don't care, and it is not their role, about economic stability and social equity.

The legal (and non-mechanical) obligation for the States to borrow the needed funds to finance its investments from the money markets has gained. Promoting liberalism, States deprived themselves from the capacity to be financed by its Central Bank. It has been the case in France since 1973. Ever since, States are deep in debt. It created the need for States to lower its investments and higher taxes to pay private investors. This had for main effect the paralyzes States' budget and capacity of action. The worst being that if the State had, during all these years, been able to be financed by its Central Bank, meaning without having to pay interest, countries would not be so deep in debt.

In addition to be unfairly controlled by the private sphere, the monetary creation system is generator of economic instability. Potentially unlimited quantities of currency that can be offered by commercial banks allow speculators to invest as much as they want, as long as they trust the future. This creates periods of fast economic growth that always ends up in crises when they are too fast. Crises that follow are attributable to uncontrolled and unreasoned investments by commercial banks.

For these two reasons at least, the monetary creation control must be given to a Central Bank. This independent entity would be granted the possibility to **finance the State's investment at no interest**. Profits made in interests by the money created would be used to repay the existing debt. This would give the public the power to 1) easily borrow money when the situation requires it 2) ensure the economic competitiveness, stability and growth. The increased control of the Central Bank over the supply of money evolution would keep it in congruence with the actual economic growth, thus preventing over monetary creation, resulting in crises.

7. RECOMMENDATION

After having analyzed the current global financial system weaknesses, we would advocate the following recommendation:

1. The power of monetary creation must be restored to the collectivity, which it belongs to. It must not be given to politics, but to an independent Central Bank that would have for role to control the supply of money and economic stability.
2. The banking industry has to be split up in three independent entities: deposit, lending and investment banking. This would protect depositor from bankruptcy and banks from massive withdrawal risks.
3. Stock markets need to quote stock prices on a daily basis, trading software need to be forbidden, and banks should not be able to speculate for themselves.

The main objectives would be the end of expansion and recession periods, through a better economic stability; a fairer distribution of the income resulting from money creation; and the building of a more reliable global financial system and improved competitiveness.

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Information Policy Interactions: Net Neutrality and Access to Information in US and India

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USA

Introduction

As the Internet gains an almost ubiquitous status in much of today's world, free and open access to the Internet has become an increasing concern. The World Summit on the Information Society (WSIS), convened in Geneva under the auspices of the United Nations in December 2003, reaffirmed the criticality of free and open access to information in its Declaration of Principles. The Declaration stated that such access is important to maintain and strengthen human rights, to enable sustainable development and to enhance the quality of life for all. The same year, a Columbia University Media Law professor, Tim Wu, coined the term Net Neutrality (Wu, 2003). The principle of net neutrality is that governments and Internet service providers (ISPs) should treat all data on the Internet equally, and not discriminate or charge differential prices to different users. The proponents of net neutrality aim to promote and advance the core principle of open access to the Internet. The argument is that access to information via the Internet is the critical factor that drives innovation, growth and sustainability in today's global economy. Indeed, access to the Internet is increasingly considered a basic right. Net neutrality is at its core a public policy and regulatory issue, and assumes that access to the Internet will be governed by policy and regulations. The issue of net neutrality has gained high import in many countries around the world, and net neutrality debates are becoming more prevalent at present.

This paper examines and compares the progress of net neutrality in the US and India. These two nations are very important and useful in the discussion on net neutrality. Both are large, and at times dysfunctional democracies. The US is a developed, mature economy with the highest GDP (IMF, 2015), whereas India is an emerging economy, with the highest GDP growth at present. The US and India have the third and second largest number of Internet users, respectively. Both countries have enshrined the freedom of expression in their Constitutions. Yet both have significant sections of their populations (albeit to a lesser degree in the US) that do not have optimum levels of access to the Internet. A study of the paths taken by the two with respect to net neutrality will thus offer useful information in understanding the core issues pertaining to net neutrality, historical differences in the approaches taken by the two, the positive and negative aspects of the approaches, and provide a basis for other nations to frame open access or net neutrality policies.

The paper begins by tracing the historical foundations of net neutrality, which is based on the principles of monopoly franchise and common carriage originating in England. Then the paper traces the gradual evolution of the common carriage concept into net neutrality in the US. The US has a long history with respect to the application of common carriage prior to the Internet era, and the more recent debates on net neutrality after the advent of the Internet. India, on the other hand, does not have that long a history with respect to the Internet as well as net neutrality. However, its stance with respect to this issue, as well as the policy interactions that are taking place at present are very useful and illustrative, especially to understand the issues of net neutrality in a developing nation. Net neutrality in India is therefore addressed next. Finally, the paper concludes with an analysis of the different approaches adopted and results achieved thus far by these two countries on the issue of net neutrality.

Methodology

Our objective is to explain transformations in net neutrality in US and India in terms of interactions among various players, civil society, private interests, and technological developments. We explore the interactions that have produced and continue to produce telecommunications policies that address the issue of equal and non-discriminatory access to information to all citizens. We study the history and evolution focusing on interactions among civil society, political and regulatory bodies, Internet service providers, content providers, transnational governance bodies and users. Therefore, our methodology consists of historiographic research, and interviews and published opinions of civil society players and representatives from the industry and academic communities. The historical discussion and governmental views have been excerpted from published policy papers, reports and judgments from court cases.

Historical Foundations of Net Neutrality

To understand the justifications and arguments for net neutrality, we need to start at the origins of the concept. The origins of net neutrality can be traced to a 1672 essay by Sir Matthew Hale, Chief Justice of the Kings Bench in the United Kingdom. In that essay, *De Portibus Maris*, he enunciated the concept of monopoly franchise (McAllister, 1930). The essay laid out his case for regulation of a monopoly by discussing the public and private uses of wharves (piers for mooring boats and ships). In those times, a river technically belonged to the king. A wharf owner was a private entity allowed to build a wharf on the river and operate businesses on it. According to Hale, this monopoly position of the wharf owner could not be used to restrict the wharf only to some customers. All citizens should have access to the wharf. Though privately constructed and owned, wharves are, in Hale's words, "affected with a publick [sic] interest" that makes them legitimate subjects of regulation (Hale, 1787).

In this case, the wharf owner became a "common carrier." Under the monopoly franchise concept, a carrier may be granted special rights, such as access rights, and in return, the carrier should not discriminate among users, or exclude certain users from the use of the carrier, and the carrier should not charge excessive fees due to its monopoly position (Jones, 1980; Riordan & Sappington, 1987). Thus, as early as the seventeenth and eighteenth century, certain regulations governed and facilitated equal access to certain common resources.

US and the Common Carrier

Early Telegraph Regulations

The US courts adopted this concept of common carrier as common law in deciding many cases over the last two hundred-plus years. But the ground work for regulating the common carriers in the US was laid in the years following the invention of the telegraph. The telegraph was invented by Samuel Morse in 1838. In 1843, the US Congress funded \$30,000 to construct a telegraph line from Washington, D.C., to Baltimore – a distance of 40 miles. Soon the deployment of the telegraph became widespread, and by 1860s the Western Union Telegraph Company became the market leader. Telegraph lines were laid alongside railway lines, with easements to public lands granted by the government. In addition to its commercial use, the telegraph proved its usefulness during the American Civil War from 1861-1865. Noticing this, US policy makers realized the need to regulate the telegraph, and passed legislation from 1845 to 1879. As early as 1848 the state of New York enacted comprehensive telegraph legislation. The regulatory aspects of the legislation were included in sections 11 and 12. They required service to all customers, including other telegraph companies, on a non-discriminatory basis (State of New York, 1848).

Telephone Regulations

The telephone was patented in 1876 by Alexander Graham Bell, and the Bell Telephone Company was started in 1877. Just as in the telegraph, telephone lines had to be constructed, on easements of public lands leased from the government. Bell later became the American Telephone and Telegraph Company and

occupied a dominating position in the industry. It started aggressively defending its business against competition from other independent telephone companies, and refused to sell them equipment or provide interconnections (Burch, 1985; John, 2010). Fearing that this would lead to unequal telephone access to the citizens, the US lawmakers once again enacted equal access laws. In almost all states, existing telegraph legislation was made applicable to telephone companies. Thus, while telephone companies were given access to use public thoroughfares and exercise the power of public domain, they were also subject to statutory responsibilities just like the telegraph companies.

Emergence of Regulatory Agencies

An Interstate Commerce Commission (ICC) was set up in 1887 which initially oversaw the railroad industry, but eventually was expanded to include bus services, telegraph and telephones. This was the emergence of a commission set up to regulate telecommunications. Along with many regulations, telephone companies could only merge upon ICC approval. But this last aspect (i.e. governing mergers) seems to indicate that the government was actually beginning to ease some of its own regulations and restrictions on telecommunications companies, and making allowances for mergers to take place under certain conditions.

Regulating Mass Communication - Radio

The radio was invented by Guglielmo Marconi in 1896, and the first radio broadcasts started in New York in 1907. The Radio Act was passed in 1912 by the US Congress which gave the Department of Commerce (DoC) authority to issue licenses to radio operators. The Act was further strengthened in 1927 with the creation of the Federal Radio Commission (FRC), and more provisions to ensure that the public interest was adequately served by a radio station. This is because just like the telegraph and telephone infrastructure, the 'public' at large own the radio spectrum but individuals could be licensed to use it. Important provisions of the Act were created to ensure that there was equality of transmission facilities, reception and service, and that freedom of expression was protected (Sterling & Kittross, 2002; Messere, 1997). Because the number of users seeking licenses exceeded the number of channels available, the Congress chose selection criteria based on the "public interest, convenience and/or necessity" (Messere, 1997).

However, despite all these Acts, the US government did not succeed in fully controlling the growth of monopolies in the telecommunications and mass communications sectors. By 1934, the telecom sector was run primarily by a few "natural monopolies" such as AT & T and Western Union. The US Congress sought to unify the regulating authorities by combining the ICC and the FRC through enacting the Communications Act of 1934, which created the Federal Communications Commission (FCC). The FCC was given broad latitude to establish "a rapid, efficient, nation-wide, and world-wide wire and radio communication service" (Messere, 2002).

Regulating Television

The television arrived in 1927, and radio companies started television broadcasts by 1928. By the 1950s, cable television was introduced. Regulating television and cable television also became the FCC's bailiwick. Initially, various television broadcasters were using different proprietary standards, requiring different television sets to view programs. In 1941 the FCC convened the National Television System Committee to arrive at broadcast standards. The FCC was also responsible for granting permission to air advertisements on various channels and granting broadcast licenses. When the telephone companies started offering cable television, the FCC was also concerned with making sure that existing telephone monopolies did not further enhance their positions through cable TV offerings. The FCC was also concerned that since the telephone companies controlled the distribution infrastructure (i.e. telephone poles and conduits), they could exert control over competing service providers. This led to court cases being filed by and against the FCC (McKenna, 1985).

60 years of the Communications Act and the FCC

The Communications Act was not revised until 1996. By then, technology had advanced exponentially. But during this long period, the FCC had to address several types of new issues. The original intent of regulations was based on the need to ensure that all citizens were served equally and without discrimination when public goods (e.g. public lands, radio spectrum, etc.) were allocated for use by private entities. But over time, there were competing interests: The FCC was required to ensure that there was adequate competition while at the same time ensuring adequate freedom for companies to innovate. There was also the issue of freedom of expression guaranteed by the First Amendment of the Constitution, and whether the FCC was enabling or stifling the freedom of expression of corporations through some of its regulatory actions. There were numerous court cases, leading to some momentous changes, such as the break-up of AT&T, cases relating to foreign attachments on telephone equipment provided by companies (i.e. Hush-a-phone (Auerbach, 2009)), extending telephone lines through wireless devices (i.e. Carterphone (McKenna, 1985)), etc. There is a vast body of work detailing the various court cases. Analysts have applauded as well as criticized the FCC's actions over this long period. A range of detailed analyses and viewpoints can be found in the 1985 Special Issue supplement commemorating the 50th Anniversary of the Communications Act of 1934, in the *Federal Communications Law Journal* (Federal Communications Law Journal, 1985).

Internet, Information Explosion and the Telecommunications Act of 1996

By 1996, new technologies such as satellite communications, computer networking and broadband networks were becoming more and more accessible and popular among the public. Inter-networking and the development of the World Wide Web in the early 1990s led to a spate of new companies being formed. E-Commerce started gaining traction. The telecommunications industry as a whole was enjoying tremendous growth. Congress decided to overhaul the Communications Act of 1934, which was seen as cumbersome and outmoded. The newly rewritten legislation was called the Telecommunications Act of 1996 and was passed on February 1, 1996. President Clinton signed the bill into law on February 8, 1996. The new law made several changes to existing regulations in radio and television broadcasting; cable television; telephone services; Internet and online computer services; and telecommunications equipment manufacturing.

The new Act placed more emphasis on enhancing competition in the industry as a way to spur the development of new services in broadcasting, cable, and telecommunications. It also reasserted the role of Congress as the main policymakers in telecommunications. The Act required the FCC to dismantle several of the oversight rules that were specified in the Communications Act of 1934. President Clinton stated that the new Act would “stimulate investment, promote competition, (and) provide open access for all citizens to the Information Superhighway (The Museum of Broadcast Communications, n.d.).”

Many public interest groups protested what they saw as a substantial weakening of FCC, and power gains by special interest groups and the industry. They argued that the weakening of regulations, especially with respect to media ownership and the public interest aspects, would enable a few media companies to completely control the market. This would in turn cause a digital divide, as many parts of the country would be deemed to be of low market value, from a revenue generation point of view. It would also lead to discrimination in the type and quality of services made available to the public at large.

Common Carriage evolves into Net Neutrality

Timothy Wu, a professor of media law at Columbia University is credited with coining the term Network Neutrality or Net Neutrality in 2003 (Wu, 2003). He defines the term in the web site www.timwu.org: “Network neutrality is best defined as a network design principle. The idea is that a maximally useful public information network aspires to treat all content, sites, and platforms equally (Wu, n.d.).” Ever since Tim Wu's enunciation of net neutrality, the concept has gained tremendous attention among legal scholars, activists, and academics. Many debates have ensued between Internet activists and corporate lobbyists, politicians and university professors, and between minority groups in rural locations

and large governmental agencies in urban settings. Net neutrality battles have also been fought in courts and in the media. It is also actively discussed at universities and in churches. Yet there has been no decisive victory for any one side yet, or even a resolution. The term remains vague, and is often misused or misinterpreted. Basically, it is important to note that net neutrality is in principle the same concept as the “common carrier” rules of earlier times – that a common carrier who has been given certain special access to public goods should be required to grant equal access to all citizens, without any discrimination.

So in the era of the Internet, the term “net neutrality” refers to the principle that Internet Service Providers (ISPs) should not block or slow down Internet traffic from competing content providers with a view to speed up their own content, or charge differential pricing based on the content or geographic location of the consumer. This is especially in view of the fact that the ISPs and cable operators have been granted special right-of-way access to public lands or other concessions by the government. According to Susan Crawford, a professor of Law in at Harvard Law School, and President Barack Obama's Special Assistant for Science, Technology, and Innovation Policy in 2009, the Internet “is like water, electricity, sewage systems: Something that each and all Americans need to succeed in the modern era (The Freedomist, 2009).”

Net Neutrality Battles and Unsolved Issues

These pro-net neutrality stances have been opposed by many in the telecommunications industry and by those who adhere to strict free-market philosophy and believe that regulating net neutrality will curb innovation and competition. They have filed lawsuits in opposition to a FCC 2005 “Broadband Policy Statement” which listed some consumer entitlements, such as access the Internet content of their choice [without restrictions], etc. The FCC stated that this was to “encourage broadband deployment and preserve and promote the open and interconnected nature of the public Internet (F.C.C., 2005).”

The anti-net neutrality camp has had some important victories. In 2005, incumbent ISPs successfully lobbied with the FCC to repeal their categorization as “common carriers,” as that categorization required them to grant bandwidth to new ISPs at discounted rates (Corley & Stephens, 2010). In another case, in 2008 the FCC barred Comcast from using certain peer-to-peer management techniques that would in effect slow down other traffic. But this action by the FCC was rejected by a Washington, D.C. appeals court in 2009.

Since 2005 several US legislators have tried to pass laws that would affect net neutrality. Many of these have been killed by Congress. Bills that have managed to pass, such as Texas Republican Joe Barton’s “Communications Opportunity, Promotion and Enhancement Bill of 2006” (COPE) have provisions that actually weaken net neutrality.

In 2008, the FCC issued an order prohibiting Comcast, a major ISP, from resorting to certain network management policies that throttled peer-to-peer data transmissions by customers. Comcast filed a legal appeal against the order, and in 2010 the US Court of Appeals – D.C. Circuit vacated the FCC order by holding that the FCC did not have any jurisdiction over Comcast, as Comcast was not deemed a common carrier. This was followed by another setback for the FCC in 2014. In 2010 the FCC issued a set of regulations called “FCC Open Internet Order” that aimed to formally establish net neutrality concepts. One of the orders was to ensure there was no blocking or unreasonable discrimination in providing Internet access. However, Verizon appealed against this order, and the US Court of Appeals - D. C. Circuit vacated the order in 2014 (US Court of Appeals - D.C. Circuit, 2014). These two cases are considered a major loss to net neutrality proponents and a victory to those opposed to the concept.

In November 2014, President Barak Obama entered the fray and made a speech urging the FCC to take up strong rules to protect net neutrality. As of this writing, the tussle between the proponents and opponents of net neutrality continue without any clear decision or result. However, if one were to go by the court rulings, the opponents have won clear victories. Thus what started as a policy to enforce and regulate “common carrier” communications providers so as to provide all citizens with equal access to information has now become an issue of pro- and anti- free markets, and whether such policies will constrain or enhance innovation.

In the following sections, we study the history and approach that India has taken in the quest to achieve net neutrality.

Net Neutrality and India

The Indian experience on net neutrality offers notable contrasts with that of the US discussed above. Firstly, India was under British colonial rule for almost two centuries, from 1757 to 1947. This colonial experience has deeply influenced and shaped India's telecommunications policies in pre- and post- colonial times. Secondly, post-independence policies have tended to have socialist leanings, with the state playing an important role in laying down policies. The focus has been towards national development and poverty reduction. As in the case of the US above, we start with a brief historical account of telecommunications policies and trace how those have evolved into net neutrality policies.

The Arrival of Telegraph and the Indian Telegraph Act of 1885

In 1848, James Andrew Broun Ramsay, Marquee of Dalhousie (1812 – 1860), also known as Lord Dalhousie, was appointed the governor - general of India by the East India Company. His mission was simple: to unify India, a land of numerous kingdoms, and control it. Under him, the first telegraph lines in India were laid in 1851 by the British government. These were mostly installed near Calcutta, which was then the headquarters of the British government in India. The British rulers were primarily interested in telecommunications as a law-and-order maintenance tool (Headrick, 1988). There was no question of public interest. The governing apparatus of the colonial rulers planned, constructed and controlled the telegraph systems.

The importance of the telegraph in asserting the authority of the British became apparent during the Indian Rebellion of 1857, when a group of Indian soldiers serving under the East India Company rebelled against the British, and rapidly captured large areas controlled by the British (Hibbert, 1980). Many accounts mention the use of the telegraph by the British to quickly relay information on the movements of the mutineers, and the uprising was eventually subdued. The British government passed the **Indian Telegraph Act in 1885**, whereby it retained “exclusive privilege of establishing, maintaining and working telegraphs (IndiaKanoon.org, n.d.).”

Arrival of the Telephone and Benign Neglect of the Telephone after Independence

Less than five years after the Bell Telephone Company was set up in the US, in 1881, a British firm, The Oriental Telephone Company, brought the first telephone service to India. A few other firms were also granted license to operate telephone services in urban centers until 1944 by the British government (Mann, n.d.). At the time of India's independence in 1947, these firms had set up 321 telephone exchanges, mostly in five Indian cities, 86,000 working lines and 338 long-distance public-call offices. The telephone density (teledensity⁹) was a very low 0.25 (Mody, 1995). Telephones also came under the Telegraph Act of 1885.

At the time of independence, the Indian government decided that its telegraph and telephone systems would be a government monopoly administered by its own civil service (Menon, 1999). Thus, at the time of independence, all foreign telecommunications companies were nationalized to create the Posts, Telephone and Telegraph (PTT) a state-run monopoly run by the Department of Communications. In doing this, the central government retained complete control of telecommunications, a legacy of British colonial rule.

After independence the Indian leaders embarked on a socialist model of development which imposed harsh restrictions on foreign imports. The focus was on complete self-reliance. Anything foreign was considered with suspicion. Under the PTT monopoly, telephones were not considered as an essential service. Rather, it was considered to be a luxury. New telephone lines were added only to cities and

⁹ Teledensity is the number of telephone connections for every hundred individuals living within an area.

metropolitan centers. The service and maintenance were poor. International connectivity was poor. A 2003 report of the International Telecommunications Union shows that in 2002, the PTT had a waiting list of over 1.6 million for telephone connections (Goodrick, 2003). During the years of the PTT monopoly, rural telecommunications infrastructure underwent a benign neglect. This was partly because of the enormous cost of developing infrastructure in rural India, and partly because of the rural populace's low level of economic development, which severely undercut such a population's ability to pay for telecommunications service. Thus vast sections of the Indian populace did not have any access to information even four decades after independence.

The situation became a vicious cycle. Lack of economic development reduced the ability of the populace to pay for communications services, and without revenues, and lackadaisical support from the government, the telecommunications sector went into a state of benign neglect. The situation began to change only in the early 1980s when the Indian leaders, faced with acute balance of payment issues, finally realized that the years of socialist economic policies were not working and that the Indian economy had to undergo liberalization. The economic liberalization policies started in the 1980s also ushered in liberalized telecommunications policies.

Tentative Steps Towards Corporatization: The DOT, MTNL and VSNL

The first steps to enhance access to information to the vast Indian public were taken in 1985, when the Department of Telecommunications was created, separate from posts and telegraphs. This was followed in 1986 by the creation of the Mahanagar Telephone Nigam Limited (MTNL), a public-sector "corporation" to run the telephone services in metropolitan areas such as Delhi and Mumbai. The Videsh Sanchar Nigam Limited is another public-sector corporation, was also created 1986 to run international telecommunications. But these corporations were still controlled, directly or indirectly, by the DoT.

Top-down Telecommunications Development

In 1994, the National Telecom Policy was announced. The expectations of the industry were however, dashed, as much of the nation's telecom developmental work was left under control of the DOT. Private industry was relegated to take up supplementary work of telecom development. The DOT imposed strict conditions on private enterprises getting into the telecom sector with a view to ensuring a balanced telecommunications growth, especially growth in rural areas (Bagchi, 2000). While this was not such a good deal for private telecom companies, it is clear that the government wanted more role in ensuring rural development through more access to information. This is almost similar to the early US attempts to regulate telecom, except that in India, the private sector's role was not much apparent at this time. Some of the conditions in the National Telecom Policy 1994 included (from Bagchi, 2000):

- The private entity had to be a joint company formed with the participation of an Indian company
- Licensees must give at least 10 per cent of all lines to rural areas
- The licensee's network must cover all the districts in the area within 24 month
- Prices charged by the DoT (where it was the competitor) would be ceiling for the prices that private sector firms could charge; of course, they had the freedom to charge a lower rate

While such regulations had national development in mind, they did not in any way enhance innovation driven by market competition. The situation was almost diametrically opposite that of the US approach. The unrealistic policies discouraged several private enterprises from entering the telecommunications market, and as a result, rural telecommunications access suffered the most.

In an attempt to remedy the situation in 1997, the Telecommunications Regulatory Authority of India (TRAI) was set up as an independent arbitrary authority to manage and influence the telecommunications industry. TRAI was granted the power to regulate and oversee all telecommunications matters, and thus enjoyed power over the DoT, which was until then the telecommunications policy-maker.

The New Telecom Policy of 1999 and Gradual Liberalization

In 1999, a new Telecom Policy was announced. The aim was to start afresh, as prior policy changes had not brought forth the liberalization or the increase in teledensity as expected, especially in rural areas. The objectives of the new National Telecom Policy (1999) were, as noted by Bagchi (2000):

- Provision of universal service to all uncovered areas, including rural areas
- Create a modern telecom infrastructure taking into account the convergence of IT, media, telecom
- Transform telecom sector to a competitive environment providing equal opportunities and level playing field for all players

The policy also set several landmarks and targets to be achieved in the next ten years, such as (Bagchi, 2000):

- Telephone on demand by the year 2002
- Teledensity of 7 by 2005 and 15 by 2010
- Telecom coverage of all villages by 2002
- Increase rural teledensity from 0.5 to 4 by 2010
- Internet access to all district headquarters by October 2000
- Internet access to all villages by 2002

The new policy certainly attracted more private sector interest. However, the private sector was moving rapidly towards wireless telecom. This trend started in 1991, when the DOT started issuing licenses to private companies offering wired and wireless services. The private companies, no doubt realizing the enormous infrastructure that would be required to bring wired connections to rural India, chose to focus more on wireless telecom. Thus, the old paradigm of land-line telecom rapidly began to be leap-frogged. Numerous private companies started to get into the telecom sector as a result.

In 2000, the government realized that TRAI had to be reconstituted, with more powers and independence. By this time, deregulation of Indian telecommunications was really beginning to happen. Wireless service providers have begun to proliferate in the Indian telecommunications arena. National teledensity rates started to increase rapidly, as can be seen from the chart (Figure 1) below.

As can be noted from Figure 1, by March 2015, India's rural teledensity was an impressive 48.37, and overall teledensity was 79.38. However, as the figures show, much of the improvement has come from wireless penetration rather than wired penetration. This was possible only because private companies were allowed to operate in the telecom sector starting in the early 1990s. It is arguable that if private companies were not allowed into the telecom sector, the government-run enterprises would be focused on developing the previous generation technology, namely wired telecommunications. However, it should be noted here that the private telecom operators do not have a "free ride" absent of all regulations. In fact, Indian private telecom operators continue to operate under strict targets and regulations especially with respect to the number of customers and regions served. Licenses to operate are issued by the DOT. But despite that, the scenario in India clearly differs markedly from that in the US.

Highlights of Telecom Subscription Data as on 31st March, 2015

Particulars	Wireless	Wireline	Total (Wireless+ Wireline)
Total Telephone Subscribers (Million)	969.89	26.59	996.49
Net Addition in March, 2015 (Million)	9.31	-0.13	9.19
Monthly Growth Rate	0.97%	-0.48%	0.93%
Urban Telephone Subscribers (Million)	555.71	21.47	577.18
Net Addition in March, 2015 (Million)	-1.56	-0.01	-1.57
Monthly Growth Rate	-0.28%	-0.06%	-0.27%
Rural Telephone Subscribers (Million)	414.18	5.12	419.31
Net Addition in March, 2015 (Million)	10.88	-0.12	10.76
Monthly Growth Rate	2.70%	-2.22%	2.63%
Overall Tele-density*	77.27	2.12	79.38
Urban Tele-density*	143.08	5.53	148.61
Rural Tele-density*	47.78	0.59	48.37
Share of Urban Subscribers	57.30%	80.73%	57.92%
Share of Rural Subscribers	42.70%	19.27%	42.08%
Broadband Subscribers (Million)	83.68	15.52	99.20

Figure 5: TRAI Highlights 2015

Broadband in India

India got its first Internet connection in 1986, through the ERNET project. But Internet access was restricted to certain academic and scientific institutions and government agencies. Public Internet services were first rolled out in India in 1995 by the government-run VSNL. However, for the first ten years, Internet connectivity was spotty, and the connections were very slow, and restricted to 56Kbps dial-up connections. Despite that, Indians, especially in urban India, flocked to use and experience the Internet wherever they could find a connection. Internet cafes mushroomed in the mid-1990s.

The government formulated a comprehensive broadband policy in 2004. It defined broadband as "an always-on Internet connection with download speed of 256 kbps or above (TRAI, 2010)." The policy thus laid out the licensing requirements for private operators who were interested in providing broadband services. This paved the way for the entry of private Internet service providers. However, the Internet penetration was still lower than government expectations. This was due to the fact that the last mile to the customer was still controlled by the government-run BSNL and MTNL. Nevertheless, Internet penetration started increasing rapidly from 2005 onwards. There were 0.18 million broadband connections in March 2005. This increased to 10.3 million by September 2010. Internet-based commerce was beginning to accelerate.

In 2010, 3G and 4G spectrum was auctioned in India to wireless providers. The auctions were very successful, and in September 2010, Tata Docomo became the first wireless operator to provide 3G services in India (Press Trust of India, 2010). Wireless broadband access completely changed the climate for Internet in India. E-Commerce started to flourish. By 2015, broadband subscribers were numbered at 120 million (TRAI, 2015), and India has rapidly become the country with the third largest number of Internet users in the world, with over 375million users (Internet World Stats, 2016).

The Net Neutrality Debate Comes to India

The tremendous growth of wireless services and wireless broadband in India over the last decade has greatly increased the economic prospects of rural areas and the rural populace. It is greatly reduced the urban-rural divide. There was not much discussion of the concept of net neutrality, because the government had always actively regulated and set rules for private companies to operate in the telecom sector. The government routinely set targets with respect to the areas and the number of (rural) customers served and licenses were granted or revoked based upon the results achieved. As a result, the private telecom operators have always operated under very low profit margins, depending upon volume for their profits and growth.

However, this situation started to change by 2012. The private wireless operators began to notice that customers started using Internet-based apps like WhatsApp, which was covered by their data plans, to conduct voice conversations. The CEO of Bharti Airtel, the largest wireless operator in India, began to suggest that Internet companies like YouTube should pay interconnect charges to wireless companies. Later, the company suggested that companies like Facebook and Google should share revenues with wireless service providers. But these suggestions did not see any results. Then the situation changed in 2014, when Airtel, announced additional charges to customers for making voice calls (VoIP calls) using Internet-based applications such as WhatsApp and Skype. The company clearly saw a decrease to its own voice-based revenues through these apps.

This led to a big outcry in India, and charges that Airtel was violating the principle of net neutrality began to circulate. In response, in March 2015, TRAI released a formal consultation paper on Regulatory Framework for Over-the-top (OTT) services, seeking comments from the public. The paper provided a long list of over-the-top (OTT) services that might fall under the category that could be charged separately by wireless providers. The TRAI statement indicated that it did not see Airtel as violating net neutrality and that it was not illegal, as there was no legal framework for net neutrality in India. The intent of TRAI was to ask the public for comments. However, its tone was widely criticized by the public, activists, academics and politicians alike, who saw TRAI as caving to Airtel's proposal to charge differential fees and for seeming to provide a formal vehicle to achieve it.

In response to all the criticism, on February 8, 2016, TRAI released a statement prohibiting discriminatory tariffs for data services. This ruling hailed been hailed by the world-wide Internet community.

Analysis and Conclusion

The above discussion has attempted to discuss the concept of net neutrality, and provide a comparison of net neutrality discussion in the US and India. Net neutrality is a very important concept that directly affects access to information, which in turn affects the development and growth of nations and the well-being of citizens. In order to maintain sustainable growth, it is critical to enhance and maintain net neutrality.

It is clear from the above discussion that the two countries have approached net neutrality in diametrically opposite ways. In the US, early attempts to regulate telecommunications has gradually met with opposition from those who perceive such regulations to be against free-market principles and a constraint on innovation. However, proponents and analysts such as Tim Wu note that innovation and regulation need not be a zero-sum game. The court victories by opponents of net neutrality seem to come with threats such as the potential to engage in discriminatory service practices. This would go against the basic principle of common carriage, whereby a monopoly franchise is granted use of a public good and is in return expected to provide services without any discrimination. But the court rulings are not likely to end the discussion on net neutrality any time soon, and more protracted battles are likely to ensue in the future.

In India, the focus has of the government has always been on national development, education, and poverty reduction, rather than enhancing free-market. To that end, the Indian government formulated socialist-leaning policies over the years, only to find limited success. Success was in fact achieved only after restrictive policies were relaxed and private operators were allowed to enter the telecommunications sector. But with the tremendous new growth in Internet and the Internet service providers, issues similar to those in the US are beginning to appear, in the form of demands by wireless ISPs to be allowed to enhance revenues through differential pricing for services. These attempts have been put on hold by the most recent ruling by TRAI. But it is likely that there will be challenges to this ruling in the future. It is important for India to enact laws that will accommodate its developmental needs while also allowing for free-market and innovations to flourish in the private sector.

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Public Listing, Context and CSR: The Effects of Legal Origin

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Abstract:

The literature on legal origin argues that legal institutions mold what firms do: within common law systems, shareholder rights are much stronger, reducing agency issues. We explore whether publicly-listed companies are more likely to have corporate social responsibility (CSR) codes than privately-held companies, and whether the association between a public listing and the existence of a CSR code is affected by the company's location within a specific institutional and cultural setting. We conclude that proposals to introduce more ethical dimensions to the behavior of firms need to be thought through: what works in one location may be inappropriate in another.

1. Introduction

The rising interest in corporate social responsibility (CSR) around the globe has raised questions about the impact of stock exchange listing and of institutional setting, since in some countries stock exchanges are less influential. Carter et al. (2000: 219) define CSR as: "...the managerial consideration of non-market forces or social aspects of corporate activity outside of a market or regulatory framework and includes consideration of issues such as employee welfare, community programs, charitable donations, and environmental protection."

Committing to and developing CSR activities is a means whereby firms indicate their role in society, either in response to external pressures and/or in order to enhance their reputation (Carroll, 2000). CSR is associated with reputation, considered a corporate asset which management must conserve and enhance to secure a competitive advantage, through its greater anticipation of, and responsiveness to, external changes. From a financial perspective, and based on the so-called 'universal owner' hypothesis, CSR may be driven by shareholders, such as pension funds, recognizing the virtues of long-term sustainability in their holdings (Hawley and Williams, 2000; Deakin and Hobbs, 2007). For example, Becchetti et al. (2012) find that investors track socially responsible companies and react negatively to firms exiting the Domini 400 Social Index.¹⁰ CSR may therefore be an effective tool to increase the support of 'ethically responsible' consumers and improve firm image and reputation. In turn, this would have a positive effect on individuals' consumption of the firm's products and services and investment choices (Becker-Olsen et al., 2006; Park et al., 2014; Shea, 2010).

¹⁰ This index identifies strengths and weaknesses for each of the following attributes: community; corporate governance; diversity; employee relations; environment; human rights; product quality; and controversial business issues. When the stock no longer passes the qualitative screening process, the stock is excluded from the index.

Within the literature on comparative corporate governance, there has been growing interest in the effects of legal origin on firm practices, as a means of accounting for unevenness in firm performance and societal outcomes. It is held that, under common law systems, shareholders enjoy greater rights, and this will mold the choices made by managers; the former are more able to reign in the latter, and subject them more closely to their agenda than is the case within the different manifestations of civil law (La Porta et al., 2008; Qi et al., 2011). However, a limitation of this literature is its limited focus on the law and macro-economic outcomes, with the firm being depicted as a mere transmission belt. In other words, there is a tendency to neglect variations in intra-firm dynamics and practices (c.f. Wood et al., 2014). This paper seeks to redress this shortfall through an evaluation of comparative survey evidence. It explores the extent to which firms are formally committed to social responsibility according to whether they are common law or not.

In the common law system, shareholders are legally privileged and, it is argued that the key to economic success is competition (La Porta et al., 2008). Countervailing stakeholder power is relatively weak. In the civil law countries, shareholders are seen as just one amongst a number of stakeholders (the others being managers, employees and their trade unions, communities and governments) that have a legitimate impact on what the firm does (refer to Appendix 1 for the list of common and civil law countries). Co-operation between businesses and between businesses and governments is seen as positive, rather than anti-competitive. Some countries will have more regulation on CSR than others, particularly for publicly-listed companies (Pagano et al., 1998).

In other words, the world can be divided into systems with shareholder primacy (common law systems) and those where it is mediated in some way or another (La Porta et al., 2008; Hall and Soskice, 2001). Importantly, it can be argued that whilst shareholder power is weaker in civil law countries, there is much difference in organizational priorities and practices between them. A common criticism of legal origins theory is that the panel of countries encompassed in the original analysis is very selective, and, in particular, that the categories encompass countries at very different stages of development (Du, 2010). In the dataset used for this article, the common law category encompasses only the mature developed liberal market countries; however, the civil law countries encompass a range of transitional and more peripheral countries. Hence, we first of all explore the differences between common law and civil law countries. In a subsequent step, we remove transitional or emerging market economies.

In a second instance, we explore the impact of stock market listing. Listed firms may be pressurized by stock markets into being more socially responsible, or at least more likely to have written CSR codes. Such firms are more subject to public scrutiny than unlisted ones and, arguably, are impelled to be seen to be taking CSR issues more seriously (van Cranenburgh et al., 2013) and this may even apply to small and medium sized companies (Sen and Cowley, 2013). Therefore, we verify whether publicly-listed companies that are exposed to public scrutiny are more likely to have a CSR code than privately-listed companies. We also verify whether the association between a public listing and the existence of a CSR code is affected by the location of the company, common or civil law.

The remainder of the paper is organized as follows. The next section presents our review of the literature and our hypotheses. The methodology section discusses the data sources and the measures we use to test our hypotheses. We then present the findings that listed firms are more likely to have a written CSR statement than unlisted ones; that firms in common law countries are more likely to have written statements than those in civil law countries; and that such statements are correlated with more employee-friendly management practices. In the conclusion section we draw these threads together and argue that our findings show the importance of taking into account a broad range of contextual differences when considering proposals to introduce more ethical dimensions to the behavior of firms: what works in one location may be inappropriate or difficult to sustain in another.

2. Review of the Literature and Development of Hypotheses

Legitimacy and CSR

Since poor relations with a wide range of stakeholders (especially as a result of the increasing media spotlight) can ultimately lead to customers ‘voting with their dollars’, social responsibility issues may assume a great importance in a wide range of settings. Yet, the relative prioritization of profitability concerns versus stakeholder and societal wellbeing is likely to vary according to context, reflecting variations in societal features, and formal and informal regulation.

Neo-liberal approaches to the firm traditionally suggested that “the social responsibility of business is to increase its profits” (Friedman, 1970: 1). This would suggest that, in common law countries, where shareholder rights are stronger, there would be less emphasis on socially responsible behavior. However, legitimacy theory would suggest that businesses should create a socially responsible image to gain acceptance and legitimization for their actions from their stakeholders. Legitimacy is defined as “a generalized perception or assumption that the actions of an entity are desirable, proper or appropriate within some socially constructed system of norms, values, beliefs and definitions” (Suchman, 1995: 574). Legitimacy theory is based on the idea that society allows businesses to exist according to a ‘social contract’ which is granted by stakeholders on the basis of how they perceive the organization (Suchman, 1995). Legitimacy can be considered as the outcome of the perception of the public and the society (Aerts and Cormier, 2009). Therefore, a company’s long-term survival may depend on whether stakeholders perceive its actions as in line with basic societal norms.

From a cognitive legitimacy perspective, it could be argued that firms may develop CSR practices to enhance their image and maintain or improve their legitimacy. Moreover, multinational enterprises (MNEs), operating in an integrated world economy, are the focus of media attention (Crane et al., 2008), thus possibly impelling them to further improve CSR, even in contexts where there are limited legal constraints. Media and pressure groups have exposed companies’ activities and caused them to adopt policies or take actions in a quest to extend their legitimacy (Palazzo and Scherer, 2006; van Cranenburgh et al., 2013). Such pressure provides incentives for companies to seek to respond in such a way as to gain approval and recognition for their commitments (Boiral, 2003).

However, if voluntary explicit CSR measures represent efforts to overcome periodic crises of legitimacy, it could be argued that they are in the gift of firm owners or managers, to be tendered or withdrawn at any time (Matten and Moon, 2008; Mellahi et al., 2010). In other words, such initiatives are likely to be episodic, with firms valuing flexibility to extend or withdraw CSR initiatives.

Listing and CSR

Organizations can gain more legitimacy by actively seeking support from the largest number of stakeholders possible. External pressure on companies results in companies being more likely to subject themselves to self-regulation and behaving, or encouraging stakeholders to believe they will behave, in a manner that the latter consider socially responsible.

However, Aupperle et al. (1985) found no link between CSR and organizational performance. Looking at US publicly-traded firms, Ioannou and Serafeim (2014) found that in the 1990s analysts tended to view a commitment to CSR as an agency failure but, more recently, this tendency has reversed, with socially responsible listed firms being assessed more optimistically (Cheah et al., 2011). Hence, we hypothesize the following:

Hypothesis 1a. Listed firms are more likely to have a CSR statement, whether written or verbal.

Further, investors in the financial markets should be able to exercise greater pressures on listed companies, pushing them to make formal commitments in written form. Written codes represent a more formal obligation and “are voluntary statements that commit organizations, industries, or professions to specific beliefs, values, and actions, and/or that set out appropriate ethical behavior” (Crane and Matten, 2007: 175). There is an expectation that listed firms will make more written information available as to their present condition, policies and strategies, than their unlisted counterparts, to attract and retain investors.

Hypothesis 1b. Listed firms are more likely to have a written CSR statement.

Legitimacy, CSR and Varieties of Capitalism

How does CSR vary across different institutional settings? On the one hand, it could be argued that in firms in common law countries are more likely to engage in social responsibility (Langlois and Schlegelmilch 1990). This is for two reasons. Firstly, the countervailing power of insider interests, such as workers' representation, is weaker when shareholder rights are stronger (Jackson and Apostolakou, 2010). Secondly, firms in countries with shareholder primacy are likely to be particularly sensitive to customer pressures and investor concerns, given their focus on profits (Matten and Moon, 2008).

On the other hand, for the reasons outlined above, legitimacy crises are more likely in common law countries, and that may lead to periodic CSR initiatives to compensate for trust shortfalls (Mellahi et al., 2010). In other words, in contexts where firms are under the greatest pressure to maximize shareholder value, and stakeholder rights are weaker, ethical failings may be more likely. In turn, to offset any reputational damage, firms may be impelled to promote their ethical credentials explicitly (Matten and Moon, 2008), although there is empirical evidence to the contrary (Gjørlberg, 2009). Indeed, CSR may be viewed by shareholders as unjustified empire building by managers to enhance their personal prestige, in effect misusing shareholders' money (Friedman, 1970). In common law countries, shareholders have the power to rein in managers, forcing them to concentrate on the immediate bottom line and giving them less freedom to engage in such activities. Even if stakeholder wellbeing is salient to the firm, the operations of markets may impact on managerial perceptions (Tashman and Raelin, 2013).

This leads us to two further hypotheses. Firstly, it could be argued that in common law countries, firms are less held to account, due to the absence of countervailing stakeholder power, than elsewhere. Reflecting this:

Hypothesis 2a. Firms in common law countries are less likely to have a CSR statement.

Secondly, it could be argued that, impelled by legitimacy concerns but pulled by short-term pressures to maximize profits, firms operating in such jurisdictions would be less likely to have a written CSR statement, embarking on periodic CSR initiatives characterized by regularly changing public statements of goodwill in response to periodic reputational crises, but ones to which the firm is not formally committed for a sustained period of time (Matten and Moon, 2008). Within the civil law countries, by contrast, investors are more likely to be patient (see Dore, 2000). They are more likely to value the potential benefits for an organization accruing from being socially responsible, even if it entails upfront costs and, hence, are more likely to encourage organizations to tie themselves into formal commitments to CSR in the hope of long-term gains. Fogarty (1995) argues that written codes of conduct are an expression of the attention accorded to stakeholder interests (Sacconi, 1999). They tie firms down and are more difficult to renege on than verbal statements. Further, weaker institutional coverage in emerging, transitional and/or peripheral economies might mean that less can be taken for granted than would be the case in mature institutional settings (Hancke et al., 2007) and, hence, firms adopting a CSR code due to stakeholder pressures, and/or in response to reputational issues, will be under some pressure to do so formally and in writing.

Hypothesis 2b: Firms in common law countries are less likely to have written than verbal CSR statements.

One way of testing a firm's commitment to CSR is to evaluate the kind of employment practices that it adopts. If the focus is on shareholder value, the interests of a range of other stakeholders may be jeopardized (Harrison and Wicks, 2013). Bučiūnienė and Kazlauskaitė (2012) found that organizations that had more systematic and developed approaches to human resource management (HRM) also had more developed CSR policies. On the one hand, devoting more attention to HRM does not necessarily mean that the policies adopted will be employee-friendly: for example, resources could be ploughed into stringent forms of employee performance management. On the other hand, if CSR is impelled by stronger stakeholder rights – as the hypotheses on greater CSR in civil law countries would suggest – then CSR is likely to be manifested in greater responsibility towards employees (Dore 2000). Thus, firms with a CSR statement might retain employees rather than dismiss them and, if they have to downsize, do it through voluntary rather than enforced mechanisms (Goergen et al., 2013). We expect less outsourcing, lower staff turnover

and higher levels of training. In other words, security of tenure and investment in people (c.f. Whitley, 1999) will be greater in firms that have CSR statements. So:

Hypothesis 3. Firms with more developed approaches to employee management are also more likely to have CSR statements.

3. Data and Methodology

To test our hypotheses, we followed a multi-stage data selection process. Our firm-level data consist of 6,155 firms for 31 countries included in the 2009/10 wave of the Cranet survey on employment practices (for full details see Brewster et al., 2004; and Parry et al., 2013). These surveys are conducted every four to five years and cover all major sectors within the target economies and all organizations with over 100 employees. The Cranet survey records HRM policies and practices. Seventy percent of respondents are at HR director level and the others are CEOs or specialists. Given the sensitivity of the questions asked, responses are anonymous.

To obtain our sample, we selected pairs of listed or unlisted firms that are located in common vs. civil law countries. We also focused on firms that are within a similar class of profitability measured on a Likert scale ranging from 1 (lowest) to 5 (highest profitability) (i.e. firms that have the same flexibility in terms of implementing CSR activities), in the same industry (i.e. similar business practices) and have the closest size, i.e. +/- 10%, as measured by the number of employees (i.e. firms that have the same internal pressures from their employees). We first excluded 1,868 firms with missing data on the number of employees, profitability, industry, and CSR statement and another 947 firms with missing data on the control variables. This resulted in a sample of 3,340 firms from 28 countries, including 2,036 listed firms and 1,304 unlisted firms. One of the countries had listed firms only (Denmark with 264 firms); it was excluded as we could therefore not match pairs of listed and unlisted firms. The remaining sample included 3,076 firms, with 1,773 listed and 1,303 unlisted firms from 27 countries. Using our matching criteria, we lost seven additional countries, ending up with data for 20 countries. Our final sample includes 244 firms (122 pairs of common law and civil law firms), which represent pairs of listed and unlisted companies within the same class of profitability, same industry, and within a close range of size.

To test our hypotheses about the likelihood of a firm having a (written) CSR code, we estimate the following probit equations at the firm level. The equations specify the hypothesized sign for each variable's coefficient. We shall further elaborate on the coefficients' signs below.

$$\begin{aligned}
 CSR = & \alpha + \beta_1 \text{Listed dummy} - \beta_2 \text{Common Law dummy} + \beta_3 \text{LnSize} + \beta_4 \text{Family dummy} \\
 & + \beta_5 \text{MNE dummy} + \beta_6 \text{M\&A dummy} + \beta_7 \text{Investor Rights} + \beta_8 \text{LnGDP} \\
 & + \text{Industry dummies} + \varepsilon
 \end{aligned} \tag{1}$$

$$\begin{aligned}
 CSR = & \gamma - \delta_1 \text{Common Law dummy} + \delta_2 \text{Listed Common Law dummy} \\
 & + \delta_3 \text{Listed Civil Law dummy} + \delta_4 \text{LnSize} + \delta_5 \text{Family dummy} \\
 & + \delta_6 \text{MNE dummy} + \delta_7 \text{M\&A dummy} + \delta_8 \text{Investor Rights} + \delta_9 \text{LnGDP} \\
 & + \text{Industry dummies} + \eta
 \end{aligned} \tag{2}$$

Where, *CSR* is calculated as follows. We first measure *CSR* by *CSR Variable* within an *ordered* probit regression. This variable is equal to zero in the absence of a CSR code (verbal or written), one if there is a verbal CSR code, and two if there is a written CSR code. We then run a series of regular, i.e. *binomial* probit regressions. We first use *CSR dummy* which equals one if the firm has a CSR code (written or verbal), and zero otherwise. We also use two different dependent variables indicating whether there is a written CSR code or a verbal one. *Written CSR dummy* is equal to one if the firm has a written CSR code, and zero otherwise. *Verbal CSR dummy* is equal to one if the firm has a verbal CSR code, and zero otherwise.

We include various independent variables in our regressions. To test the validity of hypotheses 1a and 1b, we use *Listed dummy* which is equal to one if the firm is listed, and zero otherwise. The validity of hypotheses 2a and 2b is tested using *Common Law dummy*, which is set to one if the firm is in a common law country, and zero otherwise. We also use *Listed Common Law dummy* and *Listed Civil Law dummy*, which are self-explanatory.

We control for firm size measured by the logarithm of the total number of employees as large companies with high visibility are more likely to disclose their CSR practices (Deegan et al., 2002; Gray et al., 1995; Guthrie and Parker, 1989; Patten, 1991; Woodward et al., 1996). Our regressions include *Family dummy* as family firms have more personal relationships with their employees and customers. They are also more concerned about their image and reputation than non-family firms, and as such we expect family firms to be more likely to have a CSR statement (Dyer and Whetten, 2006; Goergen and Renneboog, 2010). *Family dummy* is equal to one if the firm is owned and/or controlled by primarily one family, and zero otherwise.

We also include *MNE dummy* which is equal to one if the firm has a presence in more than one country, and zero otherwise. As they straddle institutional domains, MNEs are less influenced by informal and formal regulations within a single national context than their domestic counterparts (Morgan, 2012). However, as MNEs are more likely to have a higher profile than domestic firms, they will be more susceptible to negative publicity. And, MNE approaches to CSR will be influenced by host country pressures (Bondy and Starkey, 2014). Hence, MNEs take up voluntary CSR codes in order to defend their reputation and market position. Weaver et al. (1999) explain that companies that are subject to media pressure are more likely to invest in policies that will help restore lost legitimacy and avoid future negative media attention. Hence, we expect MNEs more likely to have CSR codes. Avi-Yonah (2005) describes the transformations undergone by the corporate form over time, and argues that CSR is legitimate and normatively accepted with the growth of corporations even when it does not contribute to long-run shareholder wealth. We therefore predict a positive association between CSR and M&A activity during the three-year period prior to our study (as measured by *M&A dummy*).

The likelihood of having a CSR statement might also be related to investor rights and the extent of enforcement of laws in a society, and simply to its economic wealth (GDP) (Chih et al., 2008; Welford, 2005), since in less developed countries and/or where society cannot enforce its own rules there will be less value in legitimacy. We control for investor rights and economic development using the Djankov et al. (2008) anti-self-dealing index and GDP level, respectively. Djankov et al.'s (2008) anti-self-dealing index, *Investor Rights*, measures the level of protection enjoyed by minority shareholders. We use the natural logarithm of the GDP, *LnGDP*, rather than raw GDP to control for skewness. Given that companies in some industries may be more visible and may therefore be more exposed to public scrutiny, we also use industry dummies.

To test the validity of hypothesis 3, we examine whether CSR statements are in line with CSR practices of the sample firms. We expect companies with a CSR statement to have good employment change practices, lower staff turnover and higher levels of training. First, *Employment Change* is an ordinal variable which reflects whether (i) there was growth, stagnation or a reduction in the firm's employment figures and (ii), if there was downsizing, how the downsizing was carried out. Ways of downsizing are ordered from least harsh to most harsh. In line with Goergen et al. (2013), *Employment Change* is equal to zero if the company increased its number of employees during the last three years, one if the number of employees remained the same, two if there was a recruitment freeze, three if the company used redeployments, four if it had voluntary redundancies, five if it used early retirements, six if it went down the route of no renewal of fixed/temporary contract, seven if it used outsourcing or outplacement, and eight if there were compulsory redundancies. *Increased Number of Employees* is a dummy variable, which is equal to one if there were no restrictive employment practices (i.e. two to eight above) and there was an increase in the number of employees, and zero otherwise. *Stable Number of Employees* is set to one if there were no restrictive employment practices and the number of employees remained the same, and zero otherwise. The following dummy variables indicate the use of particular employment practices and are self-explanatory: *Recruitment Freeze*, *Redeployment*, *Voluntary Redundancies*, *Early Retirements*, *No Renewals of Fixed/temporary Contracts*, *Outsourcing or Outplacement*, and *Compulsory Redundancies*. Second, we use *Annual Staff Turnover* calculated as the annual percentage of staff turnover. Finally, *Training Index* is the total number of training days over staff turnover per category of employees (managerial, professional, clerical, and manual). *Training Index* ranges from zero to five, and is equal to the sum of the four dummy variables related to *High Number of Days per Year Training (as a Percentage of Staff Turnover)* per

category of employee as well as *High Percentage Annual Payroll Costs Spent on Training dummy*. Alternatively, we use a dummy variable, which is equal to one if the value for *Training Index* for a given firm is higher than the sample median, and zero otherwise.

4. Empirical Results

Table 1 presents descriptive statistics for the full sample of 244 firms as well as the sub-samples of firms from common law countries and firms from civil law countries. Just over half of the sample firms have a CSR statement (written or verbal); this percentage is significantly higher for the civil law countries (64.8%), compared to the common law ones (45.9%) (the difference is significant at the 1% level). Moreover, 36.9% of the sample firms have a written CSR statement and 18.4% have a verbal statement. Again, a larger percentage of firms from the civil law countries have a written CSR statement (44.3%) compared to firms from common law countries (29.5%) (the difference is significant at the 5% level). However, there is no difference in the percentage of firms with a verbal CSR statement between the two legal families. The sample includes 51.6% of firms that are listed and the average firm has 1,214 employees and, by construction, there is no difference in means for the number of employees between the two sub-samples.

Table 1 – Descriptive Statistics

This table reports descriptive statistics for the full sample of 244 firms as well as the sub-samples of firms from civil and common law countries. The latter two represent pairs of listed and unlisted companies within the same class of profitability, and within a close range of size. ***, **, and * denote significance of the difference in means at the 1%, 5%, and 10% level (for the two-sided test), respectively. The t-test is used for continuous variables, and the binomial test (B-test) is used for proportions, i.e. dummy variables.

Diff/	Full Sample (N=244)		Civil Law (N = 122)		Common Law (N = 122)		T-test
	Mean	S.d.	Mean	S.d.	Mean	S.d.	B-test Diff
CSR Variable	0.922	0.902	1.090	0.891	0.754	0.884	0.003***
CSR dummy	0.553	0.498	0.648	0.480	0.459	0.500	0.003***
Written CSR dummy	0.369	0.483	0.443	0.499	0.295	0.458	0.017**
Verbal CSR dummy	0.184	0.389	0.205	0.405	0.164	0.372	0.411
Listed dummy	0.516	0.501	0.516	0.502	0.516	0.502	1.000
Size (no. of employees)	1213.893	3635.666	1257.852	3835.203	1169.934	3439.868	0.851
Family dummy	0.344	0.476	0.402	0.492	0.287	0.454	0.060*
MNE dummy	0.533	0.500	0.598	0.492	0.467	0.501	0.040**
M&A dummy	0.418	0.494	0.352	0.480	0.484	0.502	0.038**
Investor Rights	0.565	0.226	0.388	0.160	0.742	0.118	0.000***
GDP 2008 (in \$ Billion)	5297.485	5960.284	1412.275	1695.689	9182.694	6166.766	0.000***

One third of the firms are family firms (34.4%), and 53.3% are MNEs. Some 41.8% of firms were involved in a merger and acquisition deal (M&A) during the last three years prior to the survey, and they are located in countries with average investor rights of 0.565 and average GDP of \$5,297 billion. As expected, the firms from the civil law countries are more likely to be family firms and MNEs, and they are less likely to have gone through M&As as compared to those from common law countries (the difference being significant at the 10% level or better). The civil law countries also have lower investor rights and a lower GDP than the common law countries (at the 1% level), albeit that the original panel of countries includes many emerging or transitional economies. As noted above, we subsequently revisit our analysis with these countries removed.

Table 2 shows the correlations between the variables: listed firms are more likely to have a CSR statement, and this is more likely to be a written statement. Firms from common law countries are less likely to have a CSR statement.

Table 2 – Pearson Correlation Matrix

This table reports the Pearson correlation coefficients for the variables used in the regression analysis. *CSR dummy* equals one if the firm has a CSR code (written or verbal), and zero otherwise. *Written CSR dummy* is equal to one if the firm has a written CSR code, and zero otherwise. *Verbal CSR dummy* equals one if the firm has a verbal CSR code, and zero otherwise. *Listed dummy* equals one if the firm is listed, and zero otherwise. The *Common Law dummy* is set to one if the firm is headquartered in a common law country, and zero otherwise. The *Civil Law dummy* is the equivalent dummy for firms headquartered in civil law countries. Firm size is measured by *Size*, i.e. the total number of employees. *Family dummy* is set to one for family firms, and zero otherwise. The *MNE dummy* is equal to one if the firm has a presence in more than one country, and zero otherwise. The *M&A dummy* equals one for firms that have been involved in mergers and acquisitions over the past three years. *Investor Rights* is measured by the Djankov et al. (2008) anti-self-dealing index and it measures the level of protection enjoyed by minority shareholders. *GDP 2008* stands for the 2008 GDP in billion dollars.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. CSR Variable	1.000													
2. CSR dummy	0.920	1.000												
3. Written CSR dummy	0.918	0.693	1.000											
4. Verbal CSR dummy	0.034	0.418	-0.365	1.000										
5. Listed dummy	0.175	0.128	0.194	-0.079	1.000									
6. Common Law dummy	-0.172	-0.182	-0.135	-0.064	0.000	1.000								
7. Civil Law dummy	0.172	0.182	0.135	0.064	0.000	-1.000	1.000							
8. Listed Common Law	-0.019	-0.040	0.005	-0.058	0.571	0.590	-0.590	1.000						
9. Listed Civil Law	0.219	0.186	0.217	-0.033	0.571	-0.590	0.590	-0.348	1.000					
10. Size (no. of employees)	0.101	0.083	0.122	-0.047	0.079	-0.012	0.012	0.028	0.062	1.000				
11. Family dummy	-0.025	0.023	-0.070	0.118	-0.128	-0.139	0.139	-0.142	-0.003	-0.086	1.000			
12. MNE dummy	0.078	0.049	0.095	-0.056	0.039	-0.123	0.123	-0.053	0.097	0.083	0.104	1.000		
13. M&A dummy	0.080	0.103	0.044	0.078	0.055	0.133	-0.133	0.108	-0.044	0.103	-0.181	0.054	1.000	
14. Investor Rights	-0.094	-0.104	-0.069	-0.047	-0.022	0.738	-0.738	0.444	-0.470	-0.058	-0.064	-0.130	0.104	1.000
15. GDP 2008	-0.172	-0.174	-0.142	-0.046	-0.001	0.608	-0.608	0.336	-0.337	0.113	-0.049	-0.005	-0.066	0.279

Table 3 reports the results from the ordered probit regression with *CSR Variable* as the dependent variable (regression (1a)). It also presents the results from estimating three regular, binomial probit regressions using as the dependent variable *CSR dummy* (regression (1b)), *Written CSR dummy* (regression (1c)), and *Verbal CSR dummy* (regression (1d)). Regressions (1a) and (1b) show that listed firms are more likely to have a CSR statement (at the 5% level), and regression (1c) suggests an even more significant association between listed firms and those with a *written* CSR statement (at the 1% level). Regression (1d) shows no significant association between a public listing and the existence of a *verbal* CSR statement. This provides support for hypotheses 1a and 1b. Further, firms from common law countries are less likely to have a CSR statement as reflected by the significantly negative *Common Law dummy* in regressions (1a), (1b) and (1c). This suggests that hypothesis 2a is valid. Firms from common law countries are also less likely to have a written CSR statement (regression (1d)). This supports hypothesis 2b.

As to the control variables, all four regressions suggest that a CSR statement (of either form) and a written CSR statement are more likely for larger firms (at the 5% level or better). Firms that have had M&A activity in the three years preceding the survey are more likely to have a CSR statement (at the 10% level), and this is more likely to be a verbal CSR statement (at the 5% level). Family firms are more likely to have a verbal CSR statement (at the 5% level). Finally, firms in countries with greater GDP are less likely to have a verbal CSR statement (at the 5% level). The results for the control variables are similar for the binomial probit and ordered probit regressions.

Table 3 – Listed Firms and CSR Codes

Regression (1a) is an ordered probit regression whereas regressions (1b), (1c) and (1d) are regular binomial regressions. The dependent variable in regression (1a) is *CSR Variable*, which equals zero in the absence of a CSR code (whether verbal or written), one if there is a verbal CSR code, and two if there is a written CSR code. *CSR dummy*, the dependent variable in regression (1b), equals one if the firm has a CSR code (written or verbal), and zero otherwise. *Written CSR dummy* is the dependent variable in regression (1c). It equals one if the firm has a written CSR code, and zero otherwise. *Verbal CSR dummy*, the dependent variable in regression (1d), is equal to one if the firm has a verbal CSR code, and zero otherwise. ***, **, and * denote significance at the 1%, 5%, and 10% level (for the two-sided test), respectively.

	CSR Variable Ordered Probit (1a)	CSR dummy Probit (1b)	Written CSR dummy Probit (1c)	Verbal CSR dummy Probit (1d)
Constant	1.370 3.348	0.804 2.014	-2.456 2.028	4.091* 2.443
Listed dummy	0.632** 0.300	0.382** 0.180	0.529*** 0.185	-0.217 0.214
Common Law dummy	-1.031* 0.583	-0.632* 0.355	-0.854** 0.392	0.421 0.486
LnSize	0.251** 0.112	0.150** 0.066	0.207*** 0.067	-0.097 0.087
Family dummy	0.428 0.336	0.250 0.201	-0.101 0.203	0.500** 0.240
MNE dummy	0.090 0.306	0.050 0.186	0.066 0.188	0.010 0.221
M&A dummy	0.575* 0.316	0.350* 0.190	-0.008 0.192	0.538** 0.226
Investor Rights	0.780 1.097	0.496 0.678	1.002 0.681	-0.866 0.808
LnGDP	-0.128 0.119	-0.076 0.072	0.020 0.072	-0.178** 0.086
Industry dummies	Yes	Yes	Yes	Yes
Pseudo R2	0.111	0.111	0.115	0.130
LR chi2	36.67	36.62	36.49	29.7
Prob > chi2	0.006	0.006	0.006	0.041

Table 4 is similar to Table 3, but distinguishes between listed common law firms and others. Like Table 3, it includes an ordered probit regression (regression (2a)) and three binomial probit regressions (regressions (2b), (2c) and (2d)). Regressions (2a) and (2b) suggest that firms from common law countries are less likely to have a CSR statement (at the 10% level), further supporting hypothesis 2a. In contrast, listed firms from civil law countries are more likely to have a CSR statement (at the 10% level or better), qualifying our earlier support for hypothesis 1b. Moreover, regression (2c) suggests that firms from common law countries are less likely to have a written CSR statement (at the 10% level). On the contrary, listed firms from civil law countries are more likely to have a written CSR statement (at the 1% level) whereas they are less likely to have a verbal CSR statement (regression (2d) and at the 10% level). While we found support for hypothesis 2b for the case of all, i.e. listed as well as unlisted, common law based firms, regression (2c) suggests that the listing status of common law countries does not have an impact. Hence, hypothesis 2b is valid for all firms from common law countries, whether listed or not. As to the control variables, Table 4 shows similar patterns to those in Table 3.

Table 4 – Listed Common Law and Listed Civil Law Firms and CSR Codes

Table 4 is similar to Table 3, with the only difference being the distinction between listed Common Law firms and listed Civil Law firms. ***, **, and * denote significance at the 1%, 5%, and 10% level (for the two-sided test), respectively.

	CSR Variable Ordered Probit (2a)	CSR dummy Probit (2b)	Written CSR dummy Probit (2c)	Verbal CSR dummy Probit (2d)
Constant	1.341 3.353	0.780 2.017	-2.410 2.035	4.055* 2.471
Common Law dummy	-1.069* 0.711	-0.665* 0.392	-0.737* 0.439	0.181 0.526
Listed Common Law dummy	0.666 0.442	0.412 0.270	0.419 0.259	0.038 0.297
Listed Civil Law dummy	0.592* 0.316	0.347* 0.187	0.639*** 0.186	-0.497* 0.286
LnSize	0.250** 0.112	0.150** 0.066	0.208*** 0.067	-0.109 0.088
Family dummy	0.425 0.337	0.248 0.202	-0.093 0.203	0.473** 0.242
MNE dummy	0.091 0.306	0.051 0.186	0.063 0.188	0.023 0.222
M&A dummy	0.577* 0.317	0.352* 0.190	-0.016 0.192	0.553** 0.227
Investor Rights	0.778 1.096	0.491 0.678	1.020 0.683	-0.906 0.807
LnGDP	-0.126 0.120	-0.075 0.072	0.017 0.072	-0.171** 0.087
Industry dummies	Yes	Yes	Yes	Yes
Pseudo R2	0.111	0.111	0.116	0.137
LR chi2	36.690	36.650	36.860	31.230
Prob > chi2	0.009	0.009	0.008	0.038

Table 5 is a first step towards testing the validity of hypothesis 3. It presents descriptive statistics for the employment practices for the entire sample as well as for the sub-samples of firms from civil law and common law countries. *Employment Change* has a value of 2.328, with a value of two indicating an employment freeze and three indicating redeployment. The average value for *Employment Change* for firms from civil law countries (1.672) is significantly lower (at the 1% level) than for firms from common law countries (2.984). The less stringent employment practices of firms from civil law countries should be seen in the light of the conclusions drawn from Tables 3 and 4 that firms from civil law countries are more likely to implement good CSR practices as reflected by the existence of a CSR statement. Breaking down *Employment Change* into its individual components, 56.1% of companies have had an increase in the number of employees and 13.1% maintained their number of employees during the last three years. A significantly larger percentage (at the 10% level) of firms from civil law countries increased the number of employees compared to common law countries. For the remaining 30.8% of sample firms, the decrease in the number of employees was mainly driven by recruitment freezes (28.3% of the firms), redeployment (24.2%), compulsory redundancies (23.4%), followed by the other reasons. Recruitment freezes, compulsory redundancies, and redeployment were significantly higher in common law countries compared to civil law countries (at the 10% level or better). Note that the percentage of firms using the various practices is greater than one (100%) given that some firms used several practices to decrease the number of employees.

Table 5 also indicates that average annual staff turnover was 15.19%; there is no significant difference between the firms from civil law countries and those from common law ones. The percentage of annual payroll costs spent on training is equal to 4.63% on average; again there is no significant difference between the two sub-samples. The average number of days of training is 8.77 days per year for management, 10.06 days for professionals, 6.69 days for clerical staff, and 6.11 days for manual laborers. There is a significantly higher number of days of training offered to management, professionals and clericals in civil law countries (at the 5% level or better). When we adjust the annual number of days of training by staff turnover (as firms with high turnover will be forced to engage in a greater amount of *basic* induction training), we still find a higher number of days of training for both managers and clerical employees (at the 5% level or better) for the firms from civil law countries. Further, a higher percentage of firms from civil law countries than firms from common law ones that offer high (i.e. above median) levels of training for all four categories of employees (at the 10% level or better). Finally, *Training Index* (ranging from zero to five) includes the four dummy variables indicating whether the number of days of training per category of employee is greater than the sample median as well as the dummy variable indicating whether the percentage of annual payroll costs spent on training is greater than the sample median. The average for *Training Index* is 1.6; it is significantly higher for firms from civil law countries (at the 1% level). Therefore, hypothesis 3 seems valid: firms with CSR statements are more likely to have more developed HRM approaches.

Table 6 consists of four matrices or panels. The first two panels study the impact on *Employment Change* of each combination of the two legal families (common or civil law) with the presence or absence of a CSR statement (written or verbal) (Panel A1), and with the listing status (unlisted vs. listed) (Panel A2). The next two panels, Panels B1 and B2, are the equivalent panels for the impact on *Training Index*.

Table 5 – Legal Origin and CSR Practices

Employment Change is equal to zero if the company had an increase in its number of employees during the last three years, one if the number of employees remained stable during the last three years, 2 if the company has a recruitment freeze, 3 if the company has a redeployment practice, 4 if the company has a voluntary redundancy, 5 if the company has an early retirement, 6 if the company has a no renewal of fixed/temporary contract, 7 if the company uses outsourcing or outplacement, 8 if the company has compulsory redundancies. *Increased Number of Employees* is a dummy variable, which is equal to one if there were no restrictive employment practices and there was an increase in the number of employees, and zero otherwise. *Stable Number of Employees* is set to one if there were no restrictive employment practices and the number of employees remained the same, and zero otherwise. The following dummy variables indicate the use of particular employment practices and are self-explanatory: *Recruitment Freeze dummy*, *Redeployment dummy*, *Voluntary Redundancies dummy*, *Early Retirements dummy*, *No Renewals of Fixed/temporary Contracts dummy*, *Outsourcing or Outplacement dummy*, and *Compulsory Redundancies*. *Annual Staff Turnover* is the annual percentage of staff turned over. For the *Training Index*, the results are presented per day, as a percentage of staff turnover, as well as dummy variables equal to one if the variable value for a given firm is higher than the sample median (high CSR practice), and otherwise a value of zero. *High Number of Days per Year Training (as a Percentage of Staff Turnover)* is a dummy variable, which is set to one if the firm offers a number of training days (adjusted by staff turnover) which exceeds the sample median, *High Percentage Annual Payroll Costs Spent on Training dummy* is the equivalent dummy variable for an above median spent on training. The *Training Index* ranges from zero to five, and it is equal to the sum of the four dummy variables related to *High Number of Days per Year Training (as a Percentage of Staff Turnover)* per category of employee as well as the *High Percentage Annual Payroll Costs Spent on Training dummy*. ***, **, and * denote significance at the 1%, 5%, and 10% level (for the two-sided t-test for differences in continuous variables or the binomial test (b-test) for differences in dummy variables), respectively.

	Total Sample			Civil Law			Common Law			T-test for Diff/ B-test for Diff
	N	Mean	s.d.	N	Mean	s.d.	N	Mean	s.d.	
<i>Employment Change</i>										
Index	244	2.328	3.183	122	1.672	2.540	122	2.984	3.609	0.001***
Increased Number of Employees	244	0.561	0.497	122	0.615	0.489	122	0.508	0.502	0.094*
Stable Number of Employees	244	0.131	0.587	122	0.115	0.320	122	0.148	0.768	0.664
Decrease in the number of Employees by:										
Recruitment Freeze dummy	244	0.283	0.451	122	0.197	0.399	122	0.369	0.484	0.003***
Redeployment dummy	244	0.242	0.429	122	0.197	0.399	122	0.287	0.454	0.100*
Early Retirement dummy	244	0.156	0.363	122	0.180	0.386	122	0.131	0.339	0.291
Voluntary Redundancies dummy	244	0.193	0.395	122	0.197	0.399	122	0.189	0.393	0.872
Non-renewal of Fixed-term Contracts dummy	244	0.217	0.413	122	0.189	0.393	122	0.246	0.432	0.279
Outsourcing dummy	244	0.127	0.334	122	0.123	0.330	122	0.131	0.339	0.848
Compulsory Redundancies dummy	244	0.234	0.424	122	0.172	0.379	122	0.295	0.458	0.023**

Training and Staff Turnover

Annual Staff Turnover	211	15.190	20.034	103	15.340	25.770	108	15.046	12.435	0.916
Percentage of Annual Payroll Costs Spent on Training	142	4.627	5.720	83	4.241	4.008	59	5.169	7.504	0.342
Percentage of Annual Payroll Costs Spent on Training (Adjusted by Staff Turnover)	120	0.728	1.284	67	0.985	1.628	53	0.403	0.460	0.013 **
Number of Days per Year Training for										
Management	159	8.774	12.330	92	11.022	14.873	67	5.687	6.500	0.007***
Professional	159	10.063	19.818	94	13.234	24.902	65	5.477	5.693	0.015**
Clerical	155	6.690	15.402	93	8.978	19.373	62	3.258	3.585	0.023**
Manual	119	6.109	15.902	76	7.592	19.501	43	3.488	4.506	0.177
Number of Days per Year Training for (as a Percentage of Staff Turnover)										
Management	132	1.134	2.148	71	1.534	2.739	61	0.668	0.956	0.020**
Professional	133	1.350	2.698	74	1.687	2.943	59	0.926	2.309	0.106
Clerical	129	0.725	1.174	73	0.993	1.441	56	0.375	0.518	0.003***
Manual	99	0.564	1.212	61	0.713	1.494	38	0.324	0.422	0.120
High Number of Days per Year Training for (as a Percentage of Staff Turnover)										
Management	132	0.447	0.499	71	0.577	0.497	61	0.295	0.460	0.001***
Professional	133	0.466	0.501	74	0.622	0.488	59	0.271	0.448	0.000***
Clerical	129	0.496	0.502	73	0.630	0.486	56	0.321	0.471	0.000***
Manual	99	0.495	0.503	61	0.590	0.496	38	0.342	0.481	0.016*
High Percentage Annual Payroll Costs Spent on Training dummy (Adjusted by Staff Turnover)	142	0.423	0.496	83	0.410	0.495	59	0.441	0.501	0.714
Training Index	143	1.601	1.649	83	1.964	1.777	60	1.100	1.311	0.002***
Training (excl. obs. with no payroll costs spent/training)	142	1.592	1.651	83	2.000	1.781	59	1.017	1.252	0.000***

Table 6 – CSR Practices in the Interaction between Legal Origin and CSR Codes

The first two panels study the impact on *Employment Change* of each combination of the variety of capitalism (civil and common law) and CSR statement (presence vs. absence) (Panel A1) and each combination of legal origin (civil vs common law) and listing status (unlisted vs. listed) (Panel A2). The next two panels, Panels B1 and B2, are the equivalent panels for the impact on the *Training Index*. ***, **, and * denote significance at the 1%, 5%, and 10% level (for the two-sided test), respectively.

Panel A1 – Employment Change in the Interaction between Legal Origin and CSR Codes

<i>Employment Change</i>	Civil Law	Common Law	T-test for Difference
CSR	I 1.785	II 2.895	I vs. II 0.042**
	2.668	3.639	
No CSR	III 1.465	IV 3.062	III vs. IV 0.011***
	2.303	3.609	
	II vs. III 0.026**	I vs. III 0.509	II vs. IV 0.800
			I vs. IV 0.016***

Panel A2 – Employment Change in the Interaction between Legal Origin and Public Listing

<i>Employment Change</i>	Civil Law	Common Law	T-test for Difference
Unlisted	I 1.847	II 2.797	I vs. II 0.095**
	2.558	3.488	
Listed	III 1.508	IV 3.159	III vs. IV 0.004***
	2.533	3.738	
	II vs. III 0.021**	I vs. III 0.463	II vs. IV 0.582
			I vs. IV 0.027***

Panel B1 – Training Index in the Interaction between Variety of Capitalism and CSR Codes

<i>Training Index</i>	Civil Law	Common Law	T-test for Difference
CSR	I 2.231	II 1.083	I vs. II 0.006**
	1.822	1.100	
No CSR	III 1.613	IV 0.971	III vs. IV 0.090*
	1.667	1.361	
	II vs. III 0.184	I vs. III 0.127	II vs. IV 0.739
			I vs. IV 0.001***

Panel B2 – Training in the Interaction between Variety of Capitalism and Public Listing

<i>Training Index</i>	Civil Law	Common Law	T-test for Difference
Unlisted	I 1.744	II 0.964	I vs. II 0.045**
	1.774	1.201	
Listed	III 2.275	IV 1.065	III vs. IV 0.002***
	1.768	1.315	
	II vs. III 0.001***	I vs. III 0.176	II vs. IV 0.762
			I vs. IV 0.075*

Panel A1 shows that employment practices are significantly less harsh (at the 5% level or better) in firms from civil law countries, regardless of whether they have a CSR statement. However, the existence of a CSR statement is not associated with specific employment practices for firms from the same legal family. Similarly, Panel A2 suggests that the listing status of a firm does not affect its employment practices.

Panels B1 and B2 suggest that training is always significantly higher (at the 10% level or better) in firms from civil law countries. Again, the existence of a CSR statement and the listing status do not have a significant impact. All that matters is legal family. Overall, the results from Table 6 are consistent with those from Table 5: legal origin has a significant impact on the HRM practices, providing further support for hypothesis 3.

5. Robustness Tests

But, what about possible differences among civil law countries? What happens if we distinguish between mature countries and those of more peripheral or transitional status? We remove South Africa from the common law category, and all Eastern European and Mediterranean civil law countries that might be considered as peripheral or transitional. This includes 46 companies from Bulgaria, Cyprus, Greece, Hungary, Lithuania, Russia, Serbia, Slovakia, and the Turkish Cypriot Community in the common law country. Table 7 reports the equivalent regressions to those from Table 3 (the regressions that include *Listed dummy*) and Table 4 (the regressions that include *Listed common law dummy* and *Listed civil law dummy*), but it is based on observations from mature civil and common law countries only.

Table 7 – CSR Practices in the Interaction between Legal Origin and CSR Codes Excluding Developing Countries

	CSR Variable	CSR dummy	Written CSR dummy	Verbal CSR dummy	CSR Variable	CSR dummy	Written CSR dummy	Verbal CSR dummy
	(3a)	(3b)	(3c)	(3d)	(4a)	(4b)	(4c)	(4d)
Constant	3.621 <i>4.497</i>	1.999 <i>2.645</i>	0.489 <i>2.652</i>	1.832 <i>3.315</i>	3.625 <i>4.468</i>	1.978 <i>2.635</i>	0.470 <i>2.668</i>	2.476 <i>3.588</i>
Listed dummy	0.448* <i>0.268</i>	0.277* <i>0.162</i>	0.535*** <i>0.202</i>	-0.413* <i>0.248</i>				
Common Law dummy	-0.477 <i>0.831</i>	-0.309 <i>0.505</i>	-0.433 <i>0.512</i>	0.399 <i>0.670</i>	-0.808 <i>0.456</i>	-0.499 <i>0.274</i>	-0.254 <i>0.141</i>	-0.097 <i>0.740</i>
Listed Common Law dummy					0.070 <i>0.537</i>	0.061 <i>0.316</i>	0.407 <i>0.261</i>	0.095 <i>0.311</i>
Listed Civil Law dummy					0.658* <i>0.366</i>	0.409* <i>0.247</i>	0.722** <i>0.317</i>	-1.405*** <i>0.472</i>
LnSize	0.239** <i>0.114</i>	0.143** <i>0.067</i>	0.202*** <i>0.075</i>	-0.108 <i>0.109</i>	0.235** <i>0.114</i>	0.140** <i>0.067</i>	0.204*** <i>0.075</i>	-0.151 <i>0.114</i>
Family dummy	0.286 <i>0.374</i>	0.172 <i>0.225</i>	-0.309 <i>0.230</i>	0.756*** <i>0.292</i>	0.256 <i>0.376</i>	0.161 <i>0.226</i>	-0.296 <i>0.231</i>	0.724** <i>0.303</i>
MNE dummy	0.102 <i>0.350</i>	0.056 <i>0.213</i>	0.061 <i>0.216</i>	0.018 <i>0.277</i>	0.091 <i>0.350</i>	0.049 <i>0.214</i>	0.068 <i>0.216</i>	-0.009 <i>0.282</i>
M&A dummy	0.337 <i>0.346</i>	0.206 <i>0.209</i>	-0.191 <i>0.215</i>	0.638** <i>0.268</i>	0.342 <i>0.347</i>	0.212 <i>0.209</i>	-0.199 <i>0.215</i>	0.720** <i>0.282</i>
Investor Rights	-0.168 <i>1.541</i>	-0.074 <i>0.942</i>	0.389 <i>0.954</i>	-1.005 <i>1.211</i>	-0.166 <i>1.540</i>	-0.088 <i>0.941</i>	0.405 <i>0.958</i>	-1.420 <i>1.285</i>
LnGDP	-0.194 <i>0.154</i>	-0.110 <i>0.090</i>	-0.079 <i>0.091</i>	-0.092 <i>0.113</i>	-0.187 <i>0.153</i>	-0.105 <i>0.090</i>	-0.083 <i>0.092</i>	-0.092 <i>0.123</i>
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R2	0.102	0.102	0.133	0.164	0.105	0.105	0.135	0.207
LR chi2	27.520	27.440	34.930	28.470	28.300	28.200	35.530	36.000
Prob > chi2	0.051	0.052	0.006	0.019	0.058	0.059	0.008	0.003

***, **, and * denote significance at the 1%, 5%, and 10% level (for the two-sided test), respectively.

The table confirms the results from Tables 3 and 4. Again, listed firms are more likely to have a written CSR statement, whereas those from common law countries are less likely to have a (written) CSR statement. Furthermore, listed firms from civil law countries are more likely to have a CSR statement, which is more likely to be a written statement. This provides further support for hypotheses 1a, 1b, 2a, and 2b. Contrary to what is argued by La Porta et al. (2008), Allen (2012) argues that both common and civil law systems confer distinct advantages (Allen, 2012). Hence, it could be argued that stronger stakeholder rights and deeper, more embedded, relations between firms and other actors in civil law countries will encourage more sustainable approaches to social responsibility than elsewhere.

6. Conclusion

Formally committing the firm to a written CSR agenda diminishes the room for maneuver by owners, and their relative ability to focus on maximizing short-term returns (Carroll, 2000). This means that investment horizons may determine the nature of commitment to CSR. There is however a limit to this argument when it comes to employment practices: corporate social responsibility (CSR) in relation to employees seems to be largely unaffected by the existence of CSR statements.

We found that formal CSR statements were more common in firms from civil law countries, particularly in listed firms. This could reflect the extent to which greater information on such firms is in the public domain – making it easier to hold them to account – and/or could be because such firms are likely to have more resources to plough back into CSR. Whilst, clearly, legitimacy concerns and associated, culturally rooted expectations are an important issue in determining CSR, the compensatory argument – that firms are more likely to seek to be seen to be socially responsible in settings where ethical lapses are more likely – has limits. Any explicit CSR behavior is then likely to be episodic and/or within informally set parameters rather than formalized written commitments to CSR that may be difficult to withdraw.

This paper adds to the growing body of literature that applies comparative institutional analysis to firm level policies and practices, seeking to move beyond the finance literature's traditional focus on formal rules. It demonstrates that the relationship between setting and practice is a complex one, and that outcomes reflect both regulation and organization specific characteristics. It also highlights the importance of greater informality and flexibility in CSR commitments in common law countries in comparison with civil law ones. Finally, employment practices in common law countries were less employee-friendly, irrespective of whether they had a written CSR statement or not.

Overall, the paper makes the point that proposals to introduce more ethical dimensions to the behavior of firms need to be thought through, taking account of a broader range of contextual differences than simply formal regulation: what works in one location may be inappropriate or difficult to sustain in another.

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Appendix 1

Civil Law Countries

Austria

Belgium

Bulgaria

Cyprus

France

Germany

Greece

Hungary

Japan

Lithuania

Russia

Serbia

Slovakia

Slovenia

Switzerland

Turkish Cypriot Community

Common Law Countries

South Africa

Australia

United Kingdom

USA

Foreign Business Activities, Foreignness of the VC Syndicate, and IPO Performance

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Abstract:

This paper examines the role played by foreign venture capital firms (VCs) in affecting the IPO premium of US IPO firms. We find that US VC-backed IPOs benefit from the foreignness of the VC syndicate (via the presence and distance of foreign VCs), which generates ample growth potential for investee firms, which in turn translates into a higher IPO premium. More precisely, we find evidence of a non-linear relationship between foreign VCs and the IPO premium; the latter first increases with the foreignness of the VC syndicate, and then decreases. While the initially positive effect of foreign VCs lends support to the resource-based and institutional theories, the subsequently negative effect suggests that greater presence and distance reduce the VC syndicate's effectiveness in properly monitoring the IPO firm. Our findings also indicate that foreign VCs foster the foreign business activities of US IPO firms, and that after controlling for the endogenous determination of foreign business activities, greater foreign VC presence and distance combined with the IPO firm's foreign business activities increase the IPO premium.

Keywords: venture capital, initial public offerings, foreignness of the VC syndicate, foreign business activities, international presence, resource-based view, legitimacy.

JEL classification: G23, G24, G28, G32, G34, L32

1. INTRODUCTION

Assessing the value of firms going public can be tricky, as such firms frequently do not have extensive financial track records that can be used to value them and to extrapolate trends for future performance. Entrepreneurs are thus likely to build legitimacy for their new ventures (Ahlstrom and Bruton, 2001), acting as an antidote for the business's liability of newness (Stinchcombe, 1965).¹¹ Building legitimacy for the IPO firm is critical for creating a perception of enhanced chances of survival and growth potential. Legitimacy is a means to attract additional resources such as top managers and financial resources (Zimmerman and Zeitz, 2002), and legitimacy could be further strengthened by strategic actions such as the internationalization of the firm. Indeed, foreign business activities may confer legitimacy and reduce the uncertainty surrounding the IPO firm, reflecting its ability to generate revenues beyond its domestic environment.

Firms may also gain legitimacy by building ties with foreign professional investors such as venture capital firms (VCs). A close tie with a foreign VC would give the IPO firm access to a pool of international resources, otherwise not available. It would also certify the quality of the firm as VCs are known for their superior capabilities of assessing the value of IPO firms (Stuart et al., 1999). In this paper, we examine the

¹¹ According to Stinchcombe (1965), the liability of newness refers to the many challenges that newly established firms face given their young age and that make them prone to failure.

extent to which foreign business activities and foreign VCs (via their presence and distance) constitute important factors in investors' valuation of an IPO firm.

As the IPO firm embarks on setting the offer price, it receives feedback from investors via the roadshows that it conducts with the underwriter. Further feedback may be provided during the book building process. The offer price is thus an expression of how much investors are willing to pay for the IPO shares. Setting the offer price much higher or lower than the firm's intrinsic value might make investors avoid the offering. The IPO premium, i.e. the difference between the offer price and the pre-IPO book value per share expressed as a fraction of the offer price (Nelson, 2003; Rasheed et al., 1997), is preferred over other valuation metrics, such as underpricing, the stock price, and the offer price, as it incorporates the book value of the firm's assets as reported in the IPO prospectus. It hence reflects a more robust estimate of investors' perceived future value of the firm and the firm's earnings potential (Lester et al., 2006).¹² In turn, the IPO offer price represents the price that during the pre-IPO roadshows investors have expressed to be willing to pay (Welbourne and Andrews, 1996). We expect firms with an international presence at the time of their IPO to have greater growth opportunities than those with a purely domestic presence, which would be reflected by a higher IPO premium. Although we focus on the IPO premium in what follows, in robustness tests we examine the impact of foreign business activities as well as foreign VCs on IPO underpricing. We expect both to lower IPO underpricing. We find evidence of this.

From a resource-based perspective, a firm's internationalization consists of developing and maintaining specific knowledge and resources that differentiate it from firms operating within their national boundaries, as well as a means of reducing uncertainty (Johanson and Wiedersheim-Paul, 1975; Shama, 1995). Establishing foreign business activities is considered as an important way for a firm to improve its global competitive advantage (Nachum and Zaheer, 2005; Dunning, 1996; Hitt et al., 1994) and thus increasing shareholder value (Bowe et al., 2010). More importantly, expanding its business beyond the national boundaries allows the firm to benefit from substantial growth opportunities through developing its core business competencies and its knowledge of foreign markets (Hitt et al., 2006; Barlett and Ghoshal, 1989). Foreign business activities also reflect the firm's ability to establish further ties with various constituencies in the global market as well as its ability to attract and manage new and diverse stakeholders (Bell et al., 2014). Similarly, attracting a foreign VC may be considered as a token of trust by a foreign investor seeking value maximization. Importantly, foreign VCs may act as resource providers and supporters of the firm's international growth and development, which is likely to increase the IPO premium.

This paper makes three major contributions to the existing literature. First, it adds to prior literature on IPO performance by identifying two important and novel determinants of the IPO premium. These determinants are the foreign business presence and the foreignness of the VC syndicate, which both increase the IPO premium of US IPO firms.

Second, this paper extends the existing literature on value added by foreign VCs via the monitoring and development of their US portfolio companies (e.g., Nahata et al., 2014; Chemmanur et al., 2012; Makela and Maula, 2006). Building on the resource-based and institutional theories, we argue that foreign VCs provide their portfolio companies with ample growth opportunities that translate into a higher IPO premium. More specifically, we hypothesize that US portfolio companies benefit from the foreignness of the VC syndicate. Such foreignness reflects both the (degree of) presence of foreign VCs (as measured by foreign lead VC ownership, the proportion of foreign VCs in the VC syndicate, and foreign VC ownership), and the distance between the IPO firm and the foreign VCs (as measured by the number of foreign VC mother tongues, their average geographic distance to the USA, and their average cultural distance). While the positive effect on the IPO premium is supported at low levels of foreign VC presence and distance, we find that the increasing foreignness of the VC syndicate limits VCs' effectiveness in properly monitoring their investees. More precisely, and after controlling for domestic VC presence and distance, we find evidence of a non-linear relationship between the IPO premium and foreign VC presence and distance,

¹² See Certo et al. (2009) for a discussion about the different performance measures used in the IPO literature.

whereby the IPO premium first increases and then decreases with higher levels of foreignness of the VC syndicate as measured by foreign VC presence as well as foreign VC distance from the IPO firm.

Third, we study the role played by foreign VCs in developing the international activities of their US portfolio companies and find that foreign VCs support the international exposure and foreign business activities of US IPO firms. Importantly, we find that foreign VCs strengthen the positive impact of foreign business activities on the IPO premium.

The remainder of this paper is organized as follows. Section 2 reviews the literature and develops the hypotheses. Section 3 presents the data sources, describes the sample, and discusses the methodology. Section 4 presents the empirical results and Section 5 conducts extensive robustness and endogeneity checks. Finally, Section 6 concludes and discusses the relevance of our results.

2. LITERATURE REVIEW

2.1. Foreign presence and IPO premium

The internationalization of a firm creates opportunities to develop value maximizing activities in addition to those available to purely domestic firms (Errunza and Senbet, 1981). Previous literature puts forward additional benefits from foreign business activities. Michel and Shaked (1986) as well as Beamish (1999) show that firms with foreign business activities have lower total and systematic risk compared to purely domestic firms. Importantly, investors tend to respond positively to internationalization as it leverages growth opportunities and innovation compared to purely domestic companies (Zahra et al., 2000). For example, greater foreign exposure, and more generally greater global exposure, is rewarded by an increase in the firm's price to earnings ratio given the reduction in systematic risk (Aggarwal, 1979). Finally, compared to domestic earnings, foreign earnings have a larger positive effect (2.4 times larger) on abnormal returns (Bodnar and Weintrop, 1997) and this effect is driven by the greater growth expectations of multinational operations and earnings as compared to domestic operations and earnings (Garrod and Rees, 1998).

Prior empirical research confirms a positive relationship between internationalization and firm performance in the US context. Foreign business activities are recognized by investors and are reflected through higher share prices (e.g., Errunza and Senbet, 1981; Doukas and Travlos, 1988; Agmon and Lessard, 1997; Delios and Beamish, 1999; Lu and Beamish, 2001). By the same token, Berry and Sakakibara (2008), who investigate the internationalization of Japanese firms, show that their performance increases after they develop experience of and learning about the foreign markets. Finally, Desai et al. (2009) show that firms that established a foreign presence between 1982 and 2004 also expanded their domestic operations during the same period, which is likely to translate into even higher profitability and performance.

Based on the above literature, foreign business activities likely improve a company's growth potential, and might therefore represent an important determinant of the premium paid by investors for its IPO shares. This leads us to our first hypothesis.

Hypothesis (1): The IPO premium is positively related to the foreign business activities of the IPO firm.

2.2. Foreignness of the VC syndicate and IPO premium

The role played by VCs in certifying and monitoring their portfolio companies has been well documented in prior literature. Typically VCs are associated with more successful IPOs, as reflected by better short- and long-run IPO performance. However, there is as yet little evidence on the role played by foreign VCs in affecting the value creation and growth opportunities of their investees. Tykvova and Walz (2007) argue that German companies benefit from the expertise of more experienced and reputable foreign VCs compared to local German VCs that are younger and less established, not independent, and mostly

public VCs. They find that German companies backed by foreign VCs have better long-run post-IPO performance and lower firm-specific volatility than other IPOs.¹³

Dai et al. (2012) and Devigne et al. (2013) examine the effect of the involvement of foreign VCs on the IPO exit performance and growth of Asian and European portfolio companies. They find that companies with foreign VC backing are more likely to have a successful IPO compared to firms backed by local VCs. Nahata et al. (2014) as well as Chemmanur et al. (2012) report similar findings for a sample of 9,000 and 30,071 VC-backed portfolio companies from 32 emerging and 45 developed countries, respectively. In sum, foreign VCs are better at selecting their portfolio companies, they allow for better risk diversification, provide better monitoring of their portfolio companies (Makela and Maula, 2006), and show greater commitment towards their investees than local VCs (Maula and Makela, 2003).

Guo and Jian (2013) provide further support for the positive effect of foreign VCs on the performance of IPO firms for the case of China. They show that foreign VCs create more value for the Chinese manufacturing firms they invest in than domestic VCs. Similarly, Jiang et al. (2014) find that IPOs listed on the Chinese SME market and backed by foreign VCs have a higher premium and lower underpricing than their non VC-backed peers. More generally, foreign investors might exert pressure for increased internationalization in order to increase shareholder value (Bowe et al., 2010; Strange et al., 2009). In particular, their familiarity with the capital and product markets of their home country may be valuable during their portfolio companies' expansion into foreign markets (Schertler and Tykvova, 2011).

Nevertheless, foreign VCs investing in the US might face a liability of foreignness due to their lack of local market knowledge. Such liability arises from the unfamiliarity with the environment, including cultural and language differences. It also arises from the costs of coordinating business activities across cultural and geographic distances (Zaheer, 1995) and the costs of higher uncertainty (Podolny, 2005). To overcome such liability, foreign VCs need to incur significant monitoring and information collection costs as they might lack the local market knowledge of their investees (Li, 2012; Chemmanur et al., 2012). As the presence of foreign VCs within the VC syndicate of US portfolio companies becomes more pronounced, their monitoring and information collection costs become prevalent and may deter them from properly monitoring their portfolio companies.

Hence, while the increased presence of foreign VCs can create more growth opportunities for the portfolio companies, past a certain level their presence may negatively affect the quality of monitoring by the VC syndicate. Hence:

Hypothesis (2): The IPO premium first increases with the presence of foreign VCs, and then decreases once their presence exceeds a certain level.

The above hypothesis focuses on the impact of the presence of foreign VCs on the business development of their portfolio companies internationally. However, what may matter is the distance in space and culture between the VCs and the portfolio firm. More precisely, more distant foreign VCs may offer access to untapped growth potential in foreign markets and hence enhance the success of their investees (Deloitte, 2010).

Conversely, VCs that are geographically close to their portfolio companies are better able to provide them with monitoring and value creation (Wright et al., 2005), resulting in a more successful IPO (Cumming and Dai, 2010). Cross-border VC investment is associated with decreasing communication and less efficient management participation and interaction when the VCs are distant from their portfolio companies, which is in line with increasing transaction costs described in Williamson (1966). Such transaction costs, coupled with high information asymmetry may limit foreign VCs' ability to identify and monitor their portfolio companies (Bell et al., 2012). The cultural and geographic distances between the head offices of the VCs and the cities of incorporation of the IPO firms are also an important determinant

¹³ There is also evidence that the monitoring role of VCs depends on the institutional framework of their country of origin (Aguilera et al., 2008). Chahine and Saade (2011) find that foreign VCs originating from countries with greater (weaker) shareholder protection than that prevailing in the US monitor their portfolio companies more (less) extensively, which results in lower (higher) underpricing.

of VCs' investment behavior and exit performance. Such distances may hinder the commitment of foreign VCs to their portfolio companies (Maula and Makela, 2003), decrease VC effectiveness, and negatively affect exit performance (Li et al., 2014). As the distance between the VCs and their investee increases, inefficiencies within the VC syndicate will intensify, and this will exacerbate VCs' ability to effectively monitor their investee. We expect that foreign VCs that are closer exert a more positive influence on the growth potential of their IPO firms. Hence:

Hypothesis (3): The IPO premium first increases with the distance between the VCs and their investee, and then decreases as the distance becomes even greater.

2.3. Foreign VCs, internationalization of portfolio companies, and IPO premium

The research on the internationalization of VCs emphasizes the role of legitimacy (Zaheer, 1995) as well as the role of the institutional and organizational learning contexts (Li and Zahra, 2012; Meuleman and Wright, 2011) in the development of cross-border syndication. However, only few studies have attempted to unveil the effect of foreign VCs on the internationalization and the other strategic outcomes of their IPO firms. For example, Humphery-Jenner and Suchard (2013) study the effect of foreign VCs on Chinese IPOs and find that the likelihood of success of the IPO firm increases when the foreign VC collaborates with a joint venture partner. A possible reason for this is that foreign VCs are involved in IPOs at the strategic level, i.e. they evaluate potential acquisitions of other firms and assist with strategic planning, compared to domestic VCs whose involvement tends to be limited to the operational level (Pruthi et al., 2003).¹⁴

Nonetheless, in line with the literature on the liability of foreignness (Zaheer, 1995), firms initiating foreign business activities may lack legitimacy with the market participants of the foreign country and may thus face a greater liability of foreignness. To overcome this legitimacy issue, companies that seek to internationalize their operations may establish foreign alliances to help them enter and navigate in foreign markets (Bruton et al., 2010). Foreign VCs may thus provide their investees with legitimacy in the market which helps their internationalization (Makela and Maula, 2005). In fact, foreign VCs may provide access to international networks, as well as help with the establishment of foreign offices, the recruitment of new staff, and attracting foreign customers. They may also provide knowledge about the legal environment and provide contacts with investors and financiers (Lutz and George, 2012; Makela and Maula, 2005; Makela and Maula, 2008). The reputation and international knowledge of the foreign VC also serve as important catalysts for the internationalization, especially for technology firms in the US (Fernhaber and McDougall-Covin, 2009). As a result, the foreignness of the VC syndicate is an important determinant of firms' ability to expand internationally and gain legitimacy in foreign markets (Alcantara et al., 2006). From a resource-based perspective, the presence and the distance of foreign VCs within the VC syndicate of IPO firms with foreign business activities is likely to further support their international expansion. Hence:

Hypothesis (4): The presence of foreign VCs increases the positive association between the IPO premium and foreign business activities.

Hypothesis (5): The distance between the foreign VCs and the IPO firm increases the positive association between the IPO premium and foreign business activities.

3. Data Sources, Sample and Methodology

This section states the data sources and describes the sample selection process and methodology.

3.1. Data sources and sample

¹⁴ The authors use the following strategic variables: developing new strategies to meet changing circumstances, evaluation of acquisitions once the firm becomes well established, helping to form and manage the board, seeking additional equity finance, and acting as a sound board.

This study examines how foreign VCs affect the performance and the internationalization of 1,200 IPOs completed between January 01, 1995 and December 31, 2011. Our sample is drawn from the entire population of 5,932 IPOs in the US markets as obtained from Thomson Financial Securities Data Company (SDC). Similar to previous literature, we first removed IPOs representing all ADRs, REITs, unit offerings, carve-outs and spinoffs, closed-end funds, foreign IPOs, and penny stocks (IPOs with an offer price below USD 5). There were 2,294 such IPOs. This resulted in a sample of 3,638 IPOs, including 1,979 VC-backed IPOs and 1,659 non VC-backed IPOs. We then matched our subsample of VC-backed IPOs with the list of companies in VentureXpert database, and we excluded 602 VC-backed IPOs for which we had incomplete data about VC members (undisclosed VC firms or missing data). We then matched the remaining sample of 3,036 IPOs (1,377 VC backed IPOs and 1,659 non-VC-backed IPOs) with data from both Thomson Financial Database and Datastream about firm characteristics and foreign business activities, including foreign sales, foreign assets, and foreign net income. We dropped 1,059 companies for which we could not determine whether they have or do not have foreign activities at IPO (563 VC-backed IPOs and 496 non VC-backed IPOs). We also excluded 777 IPOs with missing data on firm characteristics and CEO origin (402 VC-backed IPOs and 375 non VC-backed IPOs). The final sample includes 1,200 IPOs (412 VC-backed IPOs and 788 non VC-backed IPOs) for which we hand-collected detailed data on the characteristics of VC firms from the VentureXpert database and/or the VCs' websites. We used the Center for Research in Securities Prices (CRSP) data on closing stock prices, and the IPO prospectuses to collect data on CEO origin.

Table 1 shows the sample's representativeness of the entire population of US VC-backed firms over 1995-2011. Panel A presents the distribution across time for both the sample and the population of VC-backed IPOs: the sample's distribution across time is similar to that of the overall population. Similarly, Panel B shows that the sample is representative of the population when it comes to the distribution of IPOs across industries, i.e. across the one-digit Standard Industrial Classification (SIC) codes. Table 1 thus confirms the sample's representativeness of the population.

Table 1 – Sample Representativeness

This table compares the distribution across time (Panel A) and across industries (Panel B) of the IPOs in the sample to that of the entire IPO population. Panel A is based on the IPO year whereas Panel B uses the one-digit SIC code.

Panel A – Distribution of IPOs across Time

The Year	IPO Sample (N=1200)		Entire Population (N=3638)	
	No.	%	No.	%
1995	35	2.9	393	10.8
1996	42	3.5	605	16.6
1997	99	8.3	375	10.3
1998	108	9.0	249	6.8
1999	121	10.1	491	13.5
2000	86	7.2	419	11.5
2001	13	1.1	52	1.4
2002	34	2.8	67	1.8
2003	45	3.8	64	1.8
2004	110	9.2	187	5.1
2005	127	10.6	157	4.3
2006	118	9.8	156	4.3
2007	116	9.7	159	4.4
2008	11	0.9	24	0.7
2009	36	3.0	45	1.2
2010	58	4.8	104	2.9
2011	41	3.4	91	2.5
Total	1200	100	3638	100

Panel B – Distribution of IPOs across Industries

Industry Classification	No.	%	No.	%
1 – Mining and Construction products	71	5.9	131	3.6
2 – Light manufactured products	103	8.6	398	10.9
3 – Heavy manufactured products	306	25.5	779	21.4
4 – Transportation and public utilities	105	8.8	331	9.1
5 – Wholesale trade	100	8.3	298	8.2
6 – Finance, insurance, and real estate	145	12.1	341	9.4
7 – Services	301	25.1	1133	31.1
8 – Health services	69	5.8	227	6.2
Total	1200	100	3638	100

3.2. Methodology

Our testable hypotheses relate to the effects of the foreignness of the VC syndicate (as measured by foreign VC presence and distance) as well as foreign business activities on the IPO premium. Prior research uses three proxies for internationalization: foreign sales to total sales, foreign assets to total assets (LiPuma 2012; Blonigen and Wooster, 2003; Stopford and Dunning, 1983; Daniels and Bracker, 1989), and foreign net income to total net income (Kotabe et al., 2002). We use the same three proxies. In robustness checks, and in line with Sullivan (1994), we measure foreign business activities using a dummy variable equal to one if the IPO firm has any type of foreign business activities (i.e. foreign sales, foreign assets, or foreign net income), and zero otherwise.

Importantly, foreign business activities may not be exogenous as foreign VCs may be selecting IPO firms with existing foreign business activities. To address this potential endogeneity issue, we apply a three-stage least-squares (3SLS) regression system, consisting of the following system of simultaneous equations:

$$\text{Foreign Business Activities} = \alpha_0 + \alpha_1 \text{ Foreignness of the VC Syndicate (via Presence or Distance)} + \alpha_2 \text{ Foreign CEO dummy} + \alpha_3 \text{ Market Capitalization} + \alpha_4 \text{ Hi-tech dummy} + \alpha_5 \text{ LnAge} + \text{Industry dummies} + \text{Year dummies} + \varepsilon \quad (1)$$

$$\text{IPO Premium} = \beta_0 + \beta_1 \text{ Foreign Business Activities} + \beta_2 \text{ Foreignness of the VC Syndicate (via Presence or Distance)} + \beta_3 \text{ Foreignness of the VC Syndicate Squared (via Presence or Distance)} + \beta_4 \text{ Foreign Business Activities} \times \text{Foreignness of the VC Syndicate} + \beta_5 \text{ Market Capitalization} + \beta_6 \text{ Hi-tech dummy} + \beta_7 \text{ LnAge} + \beta_8 \text{ Lock-up Period} + \beta_9 \text{ Underwriter Reputation} + \beta_{10} \text{ Bubble dummy} + \beta_{11} \text{ Market Return} + \text{Industry dummies} + \text{Year dummies} + \xi \quad (2)$$

Where, the first stage regression, i.e., equation (1), measures the magnitude of foreign business activities, proxied by the proportion of foreign sales out of total sales, the proportion of foreign assets out of total assets, and the proportion of foreign income out of total income. The second stage regression, i.e., equation (2), explains IPO performance measured by *IPO Premium*, which is defined as the difference between the offer price and the book value per share expressed as a fraction of the offer price. Again, this measures the price premium paid by the IPO investors in excess of the IPO firm book value, and represents investors' expectations of the firm's value (Welbourne and Andrews, 1996; Rasheed, et al., 1997).

The first-stage regression within the 3SLS model includes an instrumental variable that should be correlated with the dependent variable, i.e., foreign business activities, but should not be correlated with the dependent variable of the second-step regression, i.e., the IPO premium. We thus include *Foreign CEO dummy* as an instrumental variable (IV). *Foreign CEO dummy* is equal to one if the CEO of the IPO firm is a foreigner, and zero otherwise. This is in line with prior research suggesting that US firms that switch from US CEOs to foreign CEOs experience an increase in their foreign assets and foreign sales (Blonigen and Wooster, 2003) and that the foreign nationality of the CEO contributes to increased exporting activities (Sala and Yalcin, 2012). We find that *Foreign CEO dummy* is a valid instrumental variable since it is correlated with foreign business activities, but not with the IPO premium.

We consider a VC to be foreign if the VC's country of incorporation is not the USA. To examine the effect of the foreignness of the VC syndicate, we use six different variables to measure the presence and distance of foreign VCs. These six variables include three proxies for presence: (1) *Foreign Lead VC Ownership* which is the number of shares owned by the lead foreign VC over the total number of shares outstanding prior to IPO. In line with Lee and Wahal (2004), we consider the VC with the earliest investment to be the lead VC. For 143 IPO firms with more than one lead VC, whether foreign or domestic, we use the one with the highest ownership as the lead VC ownership.¹⁵ Wang and Wang (2011) indicate that lead VCs are typically the most active investors and play a leading role in monitoring and professionalizing their investees. As such, the foreignness of the VC syndicate would be reinforced if foreign VCs took the lead of the VC syndicate. We also use (2) *Proportion of Foreign VCs* which is equal to the number of foreign VCs over the number of VCs in the IPO firm's VC syndicate. Finally, we use (3) *Foreign VC Ownership* which is equal to the number of shares owned by foreign VCs over the total number of shares outstanding, both measured immediately prior to IPO.

We also use three proxies for distance which include: (1) *Average Foreign VC Distance*, i.e. the average of the distances, in miles, between each foreign VC head office and the city of incorporation of the IPO firm. Prior literature also cites the geographic distance between the portfolio company and the VC as a major factor affecting the latter's involvement in the former (Dai et al., 2012; Aizenman and Kendall, 2012; Chemmanur et al., 2012).

We also use (2) *Number of Foreign VC Mother Tongues*, i.e. the number of foreign mother tongues among the VC syndicate. If the VC's mother tongue is not English, then this may represent a barrier that severely limits the VC's involvement in its investee. Finally, we use (3) *Average Foreign VC Cultural Distance* to measure cultural differences between the foreign VC's country of origin and its investee's home country. In line with prior literature (Dai et al., 2012; Chemmanur et al., 2012; Kogut and Singh, 1988), we calculate *Average Foreign VC Cultural Distance* as a measure of cultural distance using Hofstede's (1980)

¹⁵ We do not have any IPO firms where all the lead VCs are foreign.

four dimensions of national culture: power distance, uncertainty avoidance, masculinity, and individualism.¹⁶

In addition to using the domestic equivalent for foreign VC lead ownership, proportion of foreign VCs, foreign VC ownership, and average foreign VC distance,¹⁷ we also use a set of control variables that prior literature finds to be determinants of IPO performance. In particular, we use IPO firm size and age, and we expect smaller firms and younger firms to have more growth opportunities than larger or more established and mature firms. We thus expect IPO firm size and age to be negatively associated with the IPO premium. We measure firm size by *Market Capitalization* which is the total number of shares outstanding immediately after the IPO times the offer price. In line with Loughran and Ritter (2004), *Firm Age* is the difference, in years, between the IPO date and the firm's incorporation date. Additionally, hi-tech firms have more intangible assets and greater potential for growth. Hence, we include *Hi-tech dummy* which is equal to one if the IPO firm is a hi-tech firm,¹⁸ and zero otherwise, and we expect it to positively affect the IPO premium.

The existence of a lock-up period as well as its length has been suggested as a signal of the IPO's quality. Bruton et al. (2010) show that lock-up agreements are used by VCs to signal their confidence in their portfolio firms, and we expect the length of the lock-up period to positively affect the IPO premium. *Lock-up Period* is equal to the difference, in days, between the IPO date and the end of the lock-up period (Chahine and Goergen, 2011).

Underwriter reputation is also considered an important signaling mechanism as reputable underwriters, given their greater standing compared to the other underwriters, are able to attract the better issuing firms (Paleari et al., 2014). In turn, issuing firms underwritten by more reputable underwriters attract more investors and have a greater IPO premium given that they charge a higher offer price relative to their book value per share (Chemmanur and Krishnan, 2012). Underwriter reputation is based on the underwriter ranking in Loughran and Ritter (2004), which in turn relies on the classification of Carter and Manaster (1990), and is on a scale of zero to nine, ranging from the least to the most prestigious underwriter.

We also control for the momentum effect by including *Market Return*, the pre-IPO market return, which according to Aaij and Brounen (2002) is positively associated with IPO value. In line with Derrien (2005), *Market Return* is the weighted average of the daily returns on a CRSP equally weighted portfolio over the 3 months preceding the IPO date, where the average daily return for the least recent month is given a weight of 1, the return for the second month preceding the IPO date a weight of 2, and the daily average return of the last month prior to the IPO date a weight of 3. Finally, we add *Bubble dummy* which is equal to one if the IPO was completed during the 1999-2000 period, and zero otherwise. This period was characterized by greater availability of capital in the financial markets as well as higher valuation multiples, thus leading to a positive association between the IPO premium and the bubble dummy (Ljungqvist, 2007;

¹⁶ Similar to Kogut and Singh (1988), the cultural distance between a given foreign VC's country of origin j and the USA (US), the home country of all of the IPO sample companies, is computed as follows:

$$Cultural\ Distance_j = \sum_{i=1}^4 \frac{(I_{ij} - I_{i,US})/V_i}{4}$$

where i refers to the four dimensions of national culture as stated above, I_{ij} represents Hofstede's index for cultural dimension i and country j , and V_i represents the variance of the index across dimension i . Cultural distance is equal to the average of the culture distances between the country of origin of each foreign VC and the US.

¹⁷ The number of VC mother tongues and the average VC cultural distance do not apply for domestic VC firms as they share the same mother tongue and culture with their investees.

¹⁸ Hi-tech firms are defined as in Loughran and Ritter (2004). They are as those with SIC codes 3571, 3572, 3575, 3577, 3578 (computer hardware), 3661, 3663, 3669 (communications equipment), 3671, 3672, 3674, 3675, 3677, 3678, 3679 (electronics), 3812 (navigation equipment), 3823, 3825, 3826, 3827, 3829 (measuring and controlling devices), 3841, 3845 (medical instruments), 4812, 4813 (telephone equipment), 4899 (communications services), 7371, 7372, 7373, 7374, 7375, 7378, and 7379 (software).

Ritter and Welch, 2002). We further control for differences across industries and time using industry dummies and year dummies, respectively.

4. EMPIRICAL RESULTS

We start by discussing descriptive statistics. We then analyze the association between IPO performance, foreign business activities, and foreign VCs.

4.1. Descriptive statistics

Table 2 shows the descriptive statistics for the sample, including the mean, the standard deviation, and the quartiles (Q1, Q2 or median, Q3, and Q4). Panel A presents the descriptive statistics for foreign and domestic VC presence and distance for the subsample of the 412 VC-backed IPOs. The VC syndicate (*VC Syndicate*) is comprised of 4.738 VC firms on average. The average proportion of ownership of foreign (*Foreign Lead VC Ownership*) and domestic lead VCs (*Domestic Lead VC Ownership*) to the number of outstanding shares before IPO is 0.017 and 0.153, respectively. The average proportion of foreign VCs (*Proportion of Foreign VCs*) and domestic VCs, i.e. the number of foreign VCs and that of domestic VCs to the total number of VCs within the VC syndicate, is 0.073 and 0.927, respectively. Foreign VCs and domestic VCs own an average of 3.1% and 32.2% of shares outstanding immediately prior to the IPO, respectively. Not tabulated, focusing on the foreign VCs that are involved in 109 of the 1,377 VC-backed IPOs, the average proportion of foreign VCs and domestic VCs is 27.7% and 72.3%, respectively. Moreover, Foreign VCs and domestic VCs own an average 11.8% and 26.6%, respectively.

The average number of foreign mother tongues of foreign VCs within the VC syndicate (*Number of Foreign VC Mother Tongues*) is 0.199. The average of the distances between the location of the foreign VC or that of the domestic VC, on the one hand, and the city of incorporation of the IPO firm on the other hand (*Average Foreign VC Distance* and *Average Domestic VC Distance*) is roughly 1,239 and 787 miles, respectively. Additionally, the average cultural distance (*Average Foreign VC Cultural Distance*) between the IPO firm and each of its foreign VCs is 0.121, on a scale of 0 to 6.63, based on the four cultural dimensions as per Hofstede's (1980) measure of cultural distance. Looking at the sub-sample of 109 VC-backed IPOs involving foreign VCs, the average cultural distance increases to 1.65, which is almost equal to the average VC cultural distance of the 149 countries (including the USA) covered by the Hofstede Index, including the US.

Table 2 – Descriptive Statistics

This table provides descriptive statistics for the sample of 1200 IPOs from 1995 to 2011. Panel A presents the descriptive statistics of foreign and domestic VC Presence and Distance in the subsample of 412 VC-backed IPOs. Panel B presents the descriptive statistics for firm characteristics for the entire sample of 1200 VC-backed and non VC-backed IPOs. Panel A includes the following VC-related variables: *VC Syndicate* is the number of VC firms investing in the IPO firm. *Foreign (Domestic) Lead VC Ownership* is equal to the number of shares owned by the lead foreign (domestic) VC over the total number of shares outstanding prior to IPO. *Proportion of Foreign (Domestic) VCs* is the proportion of foreign (domestic) VCs out of the total number of VCs in the VC syndicate. *Foreign (Domestic) VC Ownership* is equal to the number of shares owned by foreign (domestic) VCs over the total number of shares outstanding prior to IPO. *Number of Foreign VC Mother Tongues* is the number of foreign mother tongues within the VC syndicate. *Average Foreign (Domestic) VC Distance* is the weighted average distance, in miles, between the capital of each foreign (domestic) VC's county/country and the portfolio company's city of incorporation. *Average Foreign VC Cultural Distance* is the average of the Hofstede (1980) index values for each VC's home country. The index is based on the four dimensions of national culture of foreign VCs. Panel B includes *IPO Premium* is the ratio of the difference between the offer price and the book value per share to the offer price. *Proportion Foreign Sales* is the IPO firm's ratio of sales generated outside the US to the firm's total sales. *Proportion Foreign Assets* is the IPO firm's ratio of assets owned outside the US to the firm's total assets. *Proportion Foreign Income* is the IPO firm's ratio of income generated outside the US to the firm's total income. *Foreign CEO dummy* is equal to one if the CEO of the IPO firm is a foreigner, and zero otherwise. *Market Capitalization* is calculated in USD million at the offer price. *Hi-tech dummy* is equal to one if the IPO firm is a hi-tech firm, and zero otherwise. *Firm Age* is the difference, in years, between the IPO date and the firm's incorporation date. *Lock-up Period* is equal to the difference, in days, between the IPO date and the end of the lock-up period date. *Underwriter Reputation* is based on underwriter ranking in Loughran and Ritter (2004). *Bubble Period dummy* is equal to one if the IPO occurs in 1999-2000, and zero otherwise. *Market Return* is the weighted average of the daily return of the CRSP equally weighted portfolio over a 3 month-period preceding the IPO date. The weights are 1, 2, and 3 from the least recent month to the most recent month before the IPO date. * Data on *Proportion of Foreign Assets (Income)* is available for only 1,059 (1,123) IPOs within the sample.

	Mean	s.d.	Q1	Q2	Q3	Q4
<i>Panel A – VC Firm Characteristics: VC-backed Sub-sample (N = 412)</i>						
VC Syndicate	4.738	3.848	2.000	3.000	7.000	22.000
Foreign Lead VC Ownership	0.017	0.066	0.000	0.000	0.000	0.695
Domestic Lead VC Ownership	0.153	0.189	0.030	0.078	0.203	1.000
Proportion of Foreign VCs	0.073	0.168	0.000	0.000	0.064	1.000
Proportion of Domestic VCs	0.927	0.168	0.936	1.000	1.000	1.000
Foreign VC Ownership	0.031	0.085	0.000	0.000	0.015	0.939
Domestic VC Ownership	0.322	0.267	0.089	0.279	0.499	1.000
Number of Foreign VC Mother Tongues	0.199	0.488	0.000	0.000	0.000	3.000
Average Foreign VC Distance	1238.848	951.008	549.000	1136.952	1645.000	5234.500
Average Domestic VC Distance	786.811	632.336	239.250	744.167	1233.375	2628.000
Average Foreign VC Cultural Distance	0.121	0.322	0.000	0.000	0.009	3.056
<i>Panel B – IPO Firm Characteristics: Entire Sample (N = 1,200)</i>						
IPO Premium	0.669	0.237	0.527	0.699	0.820	2.038
Proportion Foreign Sales	0.124	0.222	0.000	0.000	0.163	1.000
Proportion Foreign Assets*	0.047	0.130	0.000	0.000	0.010	1.000
Proportion Foreign Income*	0.053	0.284	0.000	0.000	0.000	4.015
Foreign CEO dummy	0.203	0.402	0.000	0.000	0.000	1.000
Market Capitalization (in \$mil.)	593.819	1257.260	126.211	263.099	566.717	19537.034
Hi-tech dummy	0.445	0.497	0.000	0.000	1.000	1.000
Firm Age	19.982	26.187	4.803	10.330	21.972	165.670
Lock-up Period	174.096	62.311	180.000	180.000	180.000	540.000
Underwriter Reputation	7.720	1.838	7.000	8.001	9.000	9.001
Bubble Period dummy	0.173	0.378	0.000	0.000	0.000	1.000
Market Return	0.008	0.022	-0.003	0.003	0.011	0.147

Panel B presents the descriptive statistics for the firm characteristics for the entire sample of the 1,200 VC-backed and non VC-backed IPOs. The sample firms exhibits an average IPO premium of 66.9%, thus having value paid by investors that is above and beyond the book value of their shares. This is slightly lower than the 68.62% reported in Welbourne and Andrews (1996) for a sample of 136 IPOs completed in

1988. The IPO premium displays slightly negative skewness (the mean of 66.9% is lower than the median of 69.9%). The average proportion of foreign sales (*Proportion Foreign Sales*) is 0.124. The average proportion of foreign assets is 0.047, and the average proportion of foreign net income is 0.053. Additionally, 20.3% of IPO firms have a foreign CEO at the time of going public.

When examining the remaining IPO firm characteristics, we find that the average IPO market capitalization is \$593.819 million with a positive skewness, thus indicating that the sample includes a few very large IPOs. We also find that 44.5% of the IPOs are in high technology sectors (*Hi-tech dummy*). Additionally, the average age of the firms at the IPO (*Firm Age*) is roughly 20 years, with a median age of about 10 years. The average length of the lock-up period (*Lock-up Period*) is roughly 174 days. The average IPO is taken public by a prestigious underwriter (*Underwriter Reputation*) as reflected by the high average reputation ranking of 7.72, and 17.3% of the IPOs in our sample are taken public during the Internet bubble.¹⁹ Finally, the prevailing market conditions prior to the time of going public are characterized by a weighted average market return of 0.8%.

The correlation matrix, which is not reported for the sake of brevity but available upon request, indicates that the IPO premium is highly and positively correlated with the ownership of foreign lead VCs, the proportion of foreign VCs, foreign VC ownership, the number of foreign VC mother tongues, the average foreign VC distance, and the average foreign VC cultural distance (all significant with $p=1\%$). This provides preliminary support for the positive impact of foreign VCs on the IPO premium.²⁰ Importantly, the variance inflation factor (VIF) is lower than 1.82, which rejects the existence of multicollinearity.

4.2. The effect of the foreignness of the VC syndicate and foreign business activities on the IPO premium

Table 3 examines the effect of the foreignness of the VC syndicate and foreign business activities on the IPO premium. It uses a three-stage least-squares (3SLS) model that allows for the simultaneous determination of foreign business activities – as proxied by the proportion of foreign sales, foreign assets, and foreign income – and the IPO premium. The table has three panels and each panel uses a different measure of foreign business activities.

Panel A uses the proportion of foreign sales as a measure of foreign business activities. Regressions (1a) to (1f) (the first-step regressions) in Panel A control for the potential endogenous determination of foreign sales, whereas regressions (2a) to (2f) (the second-step regressions) examine the effect of the predicted foreign sales on the IPO premium. The predicted proportion of foreign sales is included in regressions (2a) to (2f). The various regressions, designated by the letters *a* to *f*, use different proxies for foreign and domestic VC presence and distance. On the one hand, foreign and domestic VC presence is measured by foreign and domestic lead VC ownership in regressions (1a) and (2a), the proportions of foreign VCs and domestic VCs in regressions (1b) and (2b), and foreign VC ownership and domestic VC ownership in regressions (1c) and (2c). On the other hand, VC distance is measured by the number of foreign VC mother tongues in regressions (1d) and (2d), the logarithm of the average foreign VC distance in regressions (1e) and (2e), and the average foreign VC cultural distance in regressions (1f) and (2f). If applicable, we also include the domestic equivalent for VC distance as a control variable.

¹⁹ According to Carter and Manaster (1990) and Loughran and Ritter (2004), underwriters with a reputation ranking greater than 7.1 are considered to be reputable or prestigious underwriters.

²⁰ We also perform several tests of equality of means for the IPO premium (these tests are not tabulated) that involve dividing the sample according to whether IPO firms have foreign VCs or not and whether IPO firms have foreign business activities or not. The results show that IPO firms with no foreign VCs and no foreign business activities have the lowest IPO premium. The IPO premium increases as firms are exposed to foreign business activities and to foreign VC. The highest IPO premium levels are observed for IPO firms that have both foreign VC (presence or distance) and foreign business activities. The above differences in means are all significant ($p=5\%$ or better).

Table 3 – Foreign VC, Foreign Business, and IPO Performance: A 3SLS Model

The table examines the effect of foreign business on the IPO premium by controlling for the endogenous determination of foreign business activities, proxied by *Proportion Foreign Sales*, *Proportion Foreign Assets*, and *Proportion Foreign Income* for our studied sample of 1200 IPO firms from 1995 to 2011. The regressions are estimated using 3-stage least squares (3SLS). Panel A includes the regressions run using the proportion of foreign sales. The first stage regressions (1a, 1b, 1c, 1d, 1e, and 1f) control for the endogenous determination of foreign sales, and the second stage regressions ((2a), (2b), (2c), (2d), (2e), and (2f)) examine the effect of our predicted foreign sales on IPO Premium. Panels B and C repeat the analysis using the proportion of foreign assets and the proportion of foreign income, respectively. Each regression uses different proxies for the foreignness of the VC syndicate, including *Foreign Lead VC Ownership*, *Proportion of Foreign VCs*, *Foreign VC Ownership*, *Number of Foreign VC Mother Tongues*, *LnAverage VC Distance*, and *Average Foreign VC Cultural Distance*. *Foreign CEO dummy* is used as an instrument in the first stage regression. Control variables include comparable VC firm characteristics for Domestic VCs, when possible, as well as firm characteristics: market capitalization, a hi-tech dummy, IPO firm age, length of the lock-up period, underwriter reputation, a bubble dummy, and market return. All variables are defined in Table 2. ***, **, * stand for statistical significance at the 1%, 5%, and 10% level, respectively. The figures in italic are the White heteroskedasticity-consistent standard errors. All of the regressions contain industry and year dummies. The subscripts ^a, ^b and ^c identify the pairs of coefficients with a significant Wald test statistic at the 1%, 5%, and 10% level, respectively.

	<u>Lead VC Ownership</u>		<u>Proportion VC</u>		<u>VC Ownership</u>		<u>Number of Foreign VC Mother Tongues</u>		<u>LnAverage VC Distance</u>		<u>Average Foreign VC Cultural Distance</u>	
	Prop.For. Sales	IPO Premium	Prop.For. Sales	IPO Premium	Prop.For. Sales	IPO Premium	Prop.For. Sales	IPO Premium	Prop.For. Sales	IPO Premium	Prop.For. Sales	IPO Premium
	(1a)	(2a)	(1b)	(2b)	(1c)	(2c)	(1d)	(2d)	(1e)	(2e)	(1f)	(2f)
Constant	-0.199*** <i>0.040</i>	0.266*** <i>0.087</i>	-0.214*** <i>0.040</i>	0.137* <i>0.084</i>	-0.196*** <i>0.040</i>	0.257*** <i>0.087</i>	-0.216*** <i>0.040</i>	0.260*** <i>0.088</i>	-0.207*** <i>0.040</i>	0.143* <i>0.090</i>	-0.215*** <i>0.040</i>	0.139* <i>0.082</i>
Foreign VC Presence & Distance	0.517*** <i>0.147</i>	1.693*** <i>0.377</i>	0.207*** <i>0.059</i>	0.645*** <i>0.194</i>	0.523*** <i>0.117</i>	1.074*** <i>0.258</i>	0.089*** <i>0.021</i>	0.131** <i>0.055</i>	0.024*** <i>0.004</i>	0.008* <i>0.009</i>	0.156*** <i>0.031</i>	0.226*** <i>0.077</i>
Foreign VC Presence & Distance Squared		-2.303*** <i>0.897</i>		-0.496** <i>0.228</i>		-1.218** <i>0.607</i>		-0.029* <i>0.034</i>		-0.002* <i>0.001</i>		-0.020* <i>0.040</i>
Foreign VC Presence & Distance x Foreign Sales Activities		0.153* <i>0.079</i>		0.122** <i>0.057</i>		0.145* <i>0.080</i>		0.041 <i>0.027</i>		0.005** <i>0.002</i>		0.055 <i>0.052</i>
Domestic VC Presence & Distance	0.217*** <i>0.046</i>	0.037 <i>0.058</i>	0.102*** <i>0.019</i>	0.009 <i>0.029</i>	0.158*** <i>0.031</i>	-0.039 <i>0.039</i>			-0.000*** <i>0.000</i>	0.000 <i>0.000</i>		
Proportion Foreign Sales		0.065** <i>0.033</i>		0.060* <i>0.036</i>		0.075** <i>0.033</i>		0.061* <i>0.037</i>		0.088** <i>0.040</i>		0.060* <i>0.036</i>
Foreign CEO dummy	0.125*** <i>0.015</i>		0.119*** <i>0.015</i>		0.127*** <i>0.014</i>		0.117*** <i>0.015</i>		0.120*** <i>0.014</i>		0.116*** <i>0.015</i>	
Ln Market Capitalization	0.030*** <i>0.005</i>	0.046*** <i>0.008</i>	0.031*** <i>0.005</i>	0.047*** <i>0.009</i>	0.030*** <i>0.005</i>	0.046*** <i>0.008</i>	0.034*** <i>0.005</i>	0.046*** <i>0.008</i>	0.031*** <i>0.005</i>	0.043*** <i>0.009</i>	0.033*** <i>0.005</i>	0.046*** <i>0.008</i>
Hi-tech dummy	0.042*** <i>0.014</i>	0.054*** <i>0.016</i>	0.039*** <i>0.014</i>	0.054*** <i>0.016</i>	0.038*** <i>0.013</i>	0.051*** <i>0.016</i>	0.038*** <i>0.014</i>	0.053*** <i>0.016</i>	0.039*** <i>0.013</i>	0.052*** <i>0.019</i>	0.036*** <i>0.014</i>	0.050*** <i>0.016</i>

LnAge	0.013***	0.012**	0.013***	0.013**	0.014***	0.012**	0.013***	0.012**	0.014***	0.011*	0.013***	0.011**
	0.005	0.006	0.005	0.006	0.005	0.006	0.005	0.006	0.005	0.006	0.005	0.006
Lockup Period		0.000		0.000		0.000		0.000		0.000		0.000
		0.000		0.000		0.000		0.000		0.000		0.000
VC Syndicate	0.007***	0.010***	0.006**	0.006**	0.007***	0.008***	0.005**	0.008***	0.006**	0.009***	0.006***	0.009***
	0.002	0.003	0.003	0.003	0.002	0.003	0.002	0.003	0.003	0.003	0.002	0.003
Underwriter Reputation		0.000		0.000		0.000		0.001		0.000		0.000
		0.004		0.004		0.004		0.004		0.005		0.004
Bubble Period dummy		0.149**		0.148**		0.165**		0.150**		0.169***		0.158**
		0.069		0.066		0.069		0.070		0.065		0.066
Market Return		0.058		0.053		0.106		0.001		0.111		0.028
		0.323		0.339		0.324		0.324		0.339		0.319
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R Squared	0.237	0.192	0.239	0.188	0.245	0.189	0.228	0.182	0.245	0.178	0.234	0.187
F-Statistics	373.140	274.910	377.370	272.130	388.360	267.410	354.740	258.690	388.390	250.620	365.670	267.960
Prob > F	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Panel B – IPO Performance, the Foreignness of the VC Syndicate, and Foreign Business Activities: Using the Proportion of Foreign Assets

	Prop. For. Assets	IPO Premium	Prop. For. Assets	IPO Premium	Prop. For. Assets	IPO Premium	Prop. For. Assets	IPO Premium	Prop. For. Assets	IPO Premium	Prop. For. Assets	IPO Premium
	(3a)	(4a)	(3b)	(4b)	(3c)	(4c)	(3d)	(4d)	(3e)	(4e)	(3f)	(4f)
Constant	-0.116***	0.055	-0.125***	0.206*	-0.113***	0.234**	-0.128***	0.049	-0.122***	0.030	-0.127***	0.050
	0.026	0.096	0.026	0.117	0.026	0.114	0.027	0.099	0.026	0.094	0.027	0.100
Foreign VC Presence & Distance	0.145***	1.653***	0.063***	0.757***	0.139***	0.919***	0.006	0.211**	0.010***	0.007**	0.007	0.209*
	0.031	0.442	0.014	0.220	0.022	0.308	0.017	0.088	0.003	0.003	0.024	0.121
Foreign VC Presence & Distance Squared		-1.998**		-0.692***		-0.807*		-0.080*		-0.001*		-0.050*
		0.834		0.264		0.481		0.044		0.001		0.031
Foreign VC Presence & Distance x Proportion Foreign Assets		0.004**		0.001		0.030*		0.000		0.001*		0.002
		0.002		0.015		0.016		0.005		0.001		0.008
Domestic VC Presence & Distance	0.091	0.054	0.038	0.025	0.043	-0.004			-0.000	0.000		
	0.104	0.084	0.042	0.035	0.080	0.070			0.000	0.000		
Proportion Foreign Assets		0.101*		0.073		0.097		0.043		0.099*		0.022
		0.055		0.059		0.062		0.061		0.060		0.063
Foreign CEO dummy	0.038***		0.036***		0.038***		0.034***		0.035***		0.034***	
	0.010		0.010		0.010		0.010		0.010		0.010	
Firm Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R Squared	0.139	0.186	0.138	0.174	0.154	0.178	0.121	0.171	0.139	0.174	0.121	0.177
F-Statistics	170.720	237.760	169.350	231.240	192.390	224.720	145.310	222.140	171.260	221.190	145.250	225.040

Prob > F 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.000

Panel C – IPO Performance, the Foreignness of the VC Syndicate, and Foreign Business Activities: Using the Proportion of Foreign Income

	Prop.For. Income	IPO Premium	Prop.For. Income	IPO Premium	Prop.For. Income	IPO Premium	Prop.For. Income	IPO Premium	Prop.For. Income	IPO Premium	Prop.For. Income	IPO Premium
	(5a)	(6a)	(5b)	(6b)	(5c)	(6c)	(5d)	(6d)	(5e)	(6e)	(5f)	(6f)
Constant	-0.147** 0.059	0.273*** 0.099	-0.155*** 0.059	0.128 0.081	-0.146** 0.059	0.271*** 0.100	-0.157*** 0.059	0.257** 0.101	-0.151*** 0.059	0.284** 0.112	-0.157*** 0.059	0.124 0.081
Foreign VC Presence & Distance	0.129* 0.067	1.963*** 0.464	0.067 0.088	0.732*** 0.191	0.468*** 0.211	1.511*** 0.382	0.019 0.035	0.156** 0.064	0.015*** 0.006	0.002** 0.001	0.003 0.045	0.217*** 0.077
Foreign VC Presence & Distance Squared		-2.778** 1.112		-0.554** 0.237		-2.032** 0.981		-0.027* 0.016		-0.001* 0.001		-0.023* 0.014
Foreign VC Presence & Distance x Proportion Foreign Income		0.001 0.003		0.002 0.005		0.010* 0.005		0.000 0.002		0.001* 0.001		0.000 0.002
Domestic VC Presence & Distance	0.116 0.256	0.051 0.058	0.094 0.029	0.016 0.029	0.084** 0.047				-0.026 0.038	0.000 0.000		0.000* 0.000
Proportion Foreign Income		0.087* 0.046		0.060 0.047		0.108** 0.045		0.062 0.048		0.088* 0.046		0.070 0.047
Foreign CEO dummy	0.083*** 0.022		0.082*** 0.022		0.081*** 0.022		0.079*** 0.022		0.081*** 0.021		0.081*** 0.022	
Firm Characteristics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R Squared	0.064	0.184	0.069	0.184	0.067	0.178	0.061	0.177	0.070	0.157	0.061	0.183
F-Statistics	76.310	255.760	83.470	249.550	80.550	246.820	72.680	237.880	84.580	232.800	72.360	248.450
Prob > F	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

The results indicate that the proportion of foreign sales is positively and significantly ($p=1\%$) related to our instrumental variable, *Foreign CEO dummy*. Foreign sales also increase with a foreign and domestic lead VC ownership VC ($p=1\%$), the proportions of foreign and domestic VCs ($p=1\%$), foreign and domestic VC ownership ($p=1\%$), the number of foreign VC mother tongues ($p=1\%$), the average foreign as well as domestic VC distance ($p=1\%$), and the average foreign VC cultural distance ($p=1\%$). It is also higher for larger firms ($p=1\%$), for hi-tech firms ($p=1\%$), for older firms ($p=1\%$), as well as for firms with a larger VC syndicate ($p=5\%$ or better). Interestingly and as one would expect, the proportion of foreign sales is negatively associated with the average distance of domestic VCs ($p=1\%$), which indicates that geographically close domestic VCs are less likely to support the internationalization of their portfolio companies. It is also important to note that the effect of foreign VC presence and distance is always economically higher than that of domestic VC presence and distance.

Regressions (2a) to (2f), which examine the effects of foreign sales and foreign VCs on the IPO premium, show that, after controlling for the potential endogenous relationship, foreign sales positively affect the IPO premium ($p=10\%$ or better). In support of Hypothesis (1), this suggests that investors perceive IPO firms with foreign sales to have greater growth opportunities.

Regressions (2a) to (2f) also indicate that the IPO premium is positively related to foreign VC presence, namely foreign lead VC ownership ($p=1\%$), the proportion of foreign VCs within the VC syndicate ($p=1\%$), and foreign VC ownership ($p=1\%$), as well as the number of foreign VC mother tongues ($p=5\%$), the average foreign VC distance ($p=10\%$), and the average foreign VC cultural distance ($p=1\%$). Importantly, the square of each of these variables is also significant ($p=10\%$ or better) and is negative, suggesting a non-linear relationship whereby foreign VC presence and distance first has a positive effect on the IPO premium. Hence, beyond a certain level of VC presence or distance the effect on the IPO premium becomes negative. The results thus confirm the non-linear association between the IPO premium on the one side and the foreignness of the VC syndicate (via the presence and distance of foreign VCs) on the other side, which is consistent with Hypotheses (2) and (3). The non-linear effect of the number of foreign VC mother tongues, foreign VC distance, and foreign VC cultural distance on the IPO premium suggests that, although increasing the distance between the IPO firm and the VCs at first offers access to better growth opportunities, beyond a certain distance (i.e., 2 or more foreign languages, 3,000 miles or more, and a cultural distance above 1.671) there are increasing inefficiencies, and hence reduced ability of the VCs to monitor effectively.

Further, regressions (2a) to (2f) in Table 3 test Hypothesis (3) and control for the potentially positive effect on the IPO premium of the interaction between foreign VC presence or distance and the proportion of foreign sales. The results show the existence of a positive effect on the IPO premium of the interaction between the proportion of foreign sales and most of the measures of the foreignness of the VC syndicate, specifically foreign lead VC ownership ($p=10\%$), the proportion of foreign VCs within the VC syndicate ($p=5\%$), foreign VC ownership ($p=10\%$), and the average foreign VC distance ($p=5\%$). Overall, Table 3 supports Hypothesis (4) and provide partial support for Hypothesis (5). This suggests that both the presence and distance of foreign VCs support IPO firms by increasing their foreign business opportunities, thereby creating value as reflected by a greater IPO premium.

In terms of the control variables, the IPO premium is positively related to firm size ($p=1\%$), the hi-tech dummy ($p=1\%$), firm age ($p=10\%$ or better), the size of the VC syndicate ($p=5\%$ or better), and the bubble period dummy ($p=5\%$ or better).

Panels B and C present the equivalent regressions using the proportion of foreign assets and the proportion of foreign income, respectively, as proxies for foreign business activities. Although slightly less significant, the overall findings remain consistent with the results in Panel A and they support Hypotheses (1) to (5).

5. ROBUSTNESS TESTS: DIVERSIFICATION, ALTERNATIVE PERFORMANCE MEASURES, AND SELECTION BIAS

This section contains two different types of robustness tests. The first type of robustness tests examines the effect of international diversification – using the number of countries in which the IPO firm is present – as a proxy for foreign business activities, and checks whether our results are upheld using both the IPO premium and IPO underpricing as a measure of IPO performance.

The second type of robustness tests adjusts in a different way from the above 3SLS models for the possibility that foreign VCs select portfolio companies with existing foreign business activities. They do so by adopting a Heckman procedure that controls for the potential endogeneity arising from VC firms selecting firms with existing foreign business activities, proxied by *Foreign Business Activities dummy*. In what follows, we motivate these robustness tests and then discuss the results obtained from these tests.

5.1. IPO performance, foreign VCs and international diversification

Prior research documents that higher levels of geographic diversification increase firm performance (e.g., Delios and Beamish, 1999; Bodnar et al., 1997; Errunza and Senbet, 1981). International diversification adds value since it increases revenues by expanding the firm's market power (Kogut, 1983), reduces the fluctuation in revenues as the firm spreads its investment risk across many countries (Kim et al., 1993), allows the firm to exploit and augment resources in foreign markets (Strange et al., 2009), and lowers costs as the firm benefits from the arbitrage opportunities of price differences across various national input and output markets (Hennart, 1982).

Table 4 investigates the effects of diversification, using the total number of foreign countries in which the IPO firm has subsidiaries, on both the IPO premium and underpricing. Given that we do not have access to data on the percentage of sales per country, we use the total number of foreign countries where the firm has a physical presence, i.e. has a subsidiary, as a measure of diversification. This is consistent with Hitt et al. (1997) who define international diversification as the number of different foreign markets in which a firm operates. Moreover, in addition to the IPO premium, underpricing may be used as a proxy for the risk premium required by investors to participate in the IPO (see Benveniste and Spindt, 1989). Hence, we use underpricing as an alternative dependent variable. Underpricing is equal to the difference between the closing price on the first day of trading and the offer price expressed as a proportion of the latter. As international diversification may reflect the ability of the firm to diversify economic risk, it may result in a lower risk premium, i.e. lower underpricing. Although not reported in tabular form, the average underpricing of the sample is equal to 18.5%, with a median of 7.5%.

The regressions in Table 4 are based on an instrumental variable (IV) regression model, which corrects for a potential selection bias whereby foreign VCs select IPO firms with existing foreign business activities. Regressions (7a) to (7f) are the first-step regressions. More specifically, they are Poisson regressions, using the various proxies for VC foreignness, from which we extract the predicted value of the number of countries where the IPO firm has a subsidiary. This predicted value is then used in the second-step regressions, in regressions (8a) to (8f), to explain the IPO premium, and regressions (9a) to (9f) to explain IPO underpricing.

Table 4 – Diversification, IPO Premium and IPO Underpricing: IV Regressions

This table examines the effect of IPO firms' internationalization on IPO performance by controlling for the likelihood of foreign VCs selecting IPO firms with foreign business activities using the total number of countries where the IPO firm has foreign subsidiaries as an alternative measure of internationalization. The regressions are estimated using the instrumental variable (IV) method. The first stage regression, regression 7, is a *Poisson* regression from which we extract the predicted value of the number of countries where the IPO firm has a subsidiary at the time of going public. The second stage regressions, regressions 8 and 9, represent the OLS regressions of the IPO premium and IPO underpricing, respectively, where we use the predicted value of the number of countries where the IPO firm has a subsidiary as a regressor in addition to the other explanatory variables defined in Table 2 (market capitalization, a hi-tech dummy, IPO firm age, length of the lock-up period, underwriter reputation, a bubble dummy, market return, industry and year dummies) and in addition to the *Price Revision*, defined as the IPO offer price minus the initial mid-file price range stipulated in the IPO prospectus to the mid-file price range. ***, **, * stand for statistical significance at the 1%, 5%, and 10% level, respectively. The figures in italic are the White heteroskedasticity-consistent standard errors. The number following subscripts ^a, ^b and ^c helps identify the pair of coefficients with a significant Wald test statistic at the 1%, 5%, and 10% level, respectively.

	<u>Lead VC Ownership</u>	<u>Proportion VC</u>	<u>VC Ownership</u>	<u>Number of Foreign VC Mother Tongues</u>	<u>LnAverage VC Distance</u>	<u>Average Foreign VC Cultural Distance</u>
<i>Panel A – Number of Number of Countries where the IPO Firm has Foreign Subsidiaries</i>						
	(7a)	(7b)	(7c)	(7d)	(7e)	(7f)
Constant	-3.255*** <i>0.158</i>	-3.464*** <i>0.159</i>	-3.320*** <i>0.158</i>	-3.417*** <i>0.157</i>	-3.460*** <i>0.160</i>	-3.436*** <i>0.158</i>
Foreign VC Presence & Distance	1.362*** <i>0.310</i>	1.006*** ^b <i>0.136</i>	0.851*** ^b <i>0.063</i>	0.198*** <i>0.050</i>	0.088*** <i>0.009</i>	0.563*** <i>0.055</i>
Domestic VC Presence & Distance	1.282*** <i>0.088</i>	0.519*** ^b <i>0.044</i>	0.481*** ^b <i>0.247</i>		0.000 <i>0.000</i>	
Foreign CEO dummy	0.596*** <i>0.037</i>	0.520*** <i>0.037</i>	0.579*** <i>0.037</i>	0.533*** <i>0.037</i>	0.530*** <i>0.037</i>	0.518*** <i>0.037</i>
Firm Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R2	0.258	0.257	0.256	0.242	0.256	0.248
Log likelihood	2903.110	2894.600	2888.410	2726.580	2888.130	2791.400
Prob > chi2	0.000	0.000	0.000	0.000	0.000	0.000
<i>Panel B – IPO Premium, VC Foreignness, and the Number of Number of Countries where the IPO Firm has Foreign Subsidiaries</i>						
	(8a)	(8b)	(8c)	(8d)	(8e)	(8f)
Constant	0.146* <i>0.082</i>	0.135* <i>0.082</i>	0.144* <i>0.082</i>	0.145* <i>0.082</i>	0.168** <i>0.084</i>	0.142* <i>0.082</i>
Foreign VC Presence & Distance	2.065*** <i>0.366</i>	0.947*** <i>0.184</i>	1.403*** <i>0.241</i>	0.135*** <i>0.042</i>	0.017*** <i>0.005</i>	0.254*** <i>0.070</i>
Foreign VC Presence & Distance Squared	-3.333*** <i>1.092</i>	-0.721*** <i>0.214</i>	-2.156*** <i>0.623</i>	-0.033* <i>0.018</i>	0.020*** <i>0.006</i>	-0.033* <i>0.019</i>

Foreign VC Presence & Distance x Predicted Number of Foreign Countries	0.040* 0.024	0.014 0.019	0.061** 0.030	0.010* 0.005	0.002*** 0.001	0.006* 0.003
Domestic VC Presence & Distance Predicted Number of Foreign Countries	0.067 0.000	0.034 0.006*	-0.001 0.006**		0.000 0.008**	
	0.057 0.003	0.021 0.003	0.036 0.003		0.000 0.004	0.000 0.003
Firm Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R Squared	0.150	0.159	0.1509	0.147	0.146	0.1491
F-Statistics	7.200	7.650	7.27	7.280	7.020	7.37
Prob > F	0.000	0.000	0.000	0.000	0.000	0.000

Panel C – IPO Underpricing, VC Foreignness, and the Number of Number of Countries where the IPO Firm has Foreign Subsidiaries

	(9a)	(9b)	(9c)	(9d)	(9e)	(9f)
Constant	0.406** 0.195	0.417** 0.196	0.410** 0.195	0.402** 0.194	0.449** 0.197	0.413** 0.194
Foreign VC Presence & Distance	-1.263* 0.756	-0.174 0.385	-0.716** 0.336	-0.094* 0.055	-0.012 0.011	-0.147** 0.072
Foreign VC Presence & Distance Squared	0.341* 0.205	0.188 0.444	0.184* 0.107	0.023* 0.013	0.011 0.013	0.081* 0.048
Foreign VC Presence & Distance x Predicted Number of Foreign Countries	-0.090 0.099	-0.036 0.040	-0.082* 0.043	-0.021* 0.012	-0.004** 0.002	-0.013* 0.007
Domestic VC Presence & Distance	-0.078 0.123	-0.041 0.053	0.001 0.080		0.000 0.000	
Predicted Number of Foreign Countries	-0.005* 0.003	-0.005 0.004	-0.006* 0.003	0.009 0.008	-0.021 0.011	-0.007 0.008
Firm Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R Squared	0.235	0.232	0.232	0.232	0.234	0.236
F-Statistics	7.770	7.660	7.680	7.880	7.770	8.020
Prob > F	0.000	0.000	0.000	0.000	0.000	0.000

The Poisson regressions (7a) to (7f) show that international diversification is positively related to the various proxies for both foreign VC presence and distance ($p=1\%$). In contrast, only domestic VC presence, but not domestic VC distance has a significant and positive effect on international diversification. Importantly, the effect of foreign VC presence is significantly higher than that of domestic VC presence in the case of ownership and the proportion in the VC syndicate ($p=5\%$). International diversification also increases for firms with a foreign CEO ($p=1\%$) which is in line with our initial prediction when we discussed the validity of our instrumental variable. Although not tabulated, international diversification is positively related to firm size ($p=1\%$) and firm age ($p=1\%$).

Regressions (8b) to (8e) show the existence of a positive relationship between the IPO premium and the number of countries where the IPO firm is present ($p=10\%$ or better), thus indicating that international diversification adds value to US IPO firms. In addition, the IPO premium first increases with the foreignness of VC firms ($p=1\%$), and then decreases beyond a certain level of foreign VC presence and distance ($p=10\%$ or better). The IPO premium is also positively related to the interaction between foreign VC presence or distance and international diversification, which is consistent with our previous findings. In contrast, domestic VC presence and distance does not have a significant effect on the IPO premium.

Moreover, regressions (9a) and (9c) show that the IPO underpricing decreases with the number of countries where the IPO firm has a subsidiary ($p=10\%$). Also, regressions (9a), (9c), (9d) and (9f) indicate that underpricing first decreases, and then increases above a certain level of VC foreignness ($p=10\%$ or better), this is the case for foreign lead VC ownership, foreign VC ownership, the number of foreign VC mother tongues and foreign VC cultural distance, respectively. Further, regressions (9c) to (9f) show that IPO underpricing decreases in the interaction between VC presence or distance and international diversification ($p=10\%$ or better). Similar to what was observed in Panel B for the case of the IPO premium, domestic VC presence and distance does not have any significant impact on IPO underpricing.

To sum up Table 4, international diversification, as proxied by the number of foreign countries where the IPO firm has subsidiaries, provides growth opportunities as well as mitigates part of the risk faced by IPO investors.

5.2. Endogeneity of the choice of the IPO firm

In this section, we adjust for the possibility that foreign VCs may invest in IPO firms with existing foreign business activities in a different way, i.e. by using a two-step Heckman selection procedure. *Foreign Business Activities dummy*, which proxies for foreign business activities, takes the value of one if the IPO firm is involved in any form of foreign business activities, i.e. foreign sales, foreign assets, or foreign net income, and zero otherwise. The Heckman procedure includes the following two steps. The first step consists of a probit regression, the selection equation (1), estimating the probability that the IPO firm has foreign business activities as well as the inverse Mills' ratio. The second step consists of an OLS regression, equation (2), which includes the Mills' ratio in addition to the variables of interest affecting the IPO premium. The inverse Mills' ratio (*Lambda*) is included in the second-step regression to obtain unbiased coefficient estimates for *Foreign Business dummy* and the other explanatory variables.

Table 5 – Foreign VC, Foreign Business, and IPO Performance: A Heckman Two-Step Model

The table examines the effect of foreign business on the IPO premium by controlling for the likelihood of foreign VCs selecting IPO firms with foreign business activities. In the first step of the Model, regressions (10a, 10b, 10c, 10d, 10e, and 10f), probit regressions are used to estimate the inverse Mills' ratio that accounts for the correlation between the error terms of firm performance at the IPO, i.e. the IPO premium, and the decision to have foreign business activities. In the second step, regressions ((11a), (11b), (11c), (11d), (11e), and (11f)) include the inverse Mills' ratio (*Lambda*) as an additional regressor to obtain unbiased coefficient estimates for the *Foreign Business Activities dummy* and the other explanatory variables. Each regression uses different proxies for the foreignness of the VC syndicate, including *Foreign Lead VC Ownership*, *Proportion of Foreign VCs*, *Foreign VC Ownership*, *Number of Foreign VC Mother Tongues*, *LnAverage VC Distance*, and *Average Foreign VC Cultural Distance*. *Foreign CEO dummy* is used as an instrument in the first step of the Heckman procedure. Control variables include market capitalization, a hi-tech dummy, IPO firm age, length of the lock-up period, underwriter reputation, a bubble dummy, and market return. All variables are defined in Table 2. ***, **, * stand for statistical significance at the 1%, 5%, and 10% level, respectively. The figures in italic are the White heteroskedasticity-consistent standard errors. All of the regressions contain industry and year dummies. The number following subscripts "a", "b" and "c" helps identify the pair of coefficients with a significant Wald test statistic at the 1%, 5%, and 10% level, respectively.

	Lead VC Ownership	Proportion VC	VC Ownership	Number of Foreign VC Mother Tongues	LnAverage VC Distance	Average Foreign VC Cultural Distance
<i>Panel A – Foreign Business Activities and VC Foreignness: A Probit Regression</i>						
	(10a)	(10b)	(10c)	(10d)	(10e)	(10f)
Constant	-2.616*** <i>0.314</i>	-2.782*** <i>0.316</i>	-2.633*** <i>0.314</i>	-0.616** <i>0.274</i>	-2.750*** <i>0.317</i>	-0.635** <i>0.275</i>
Foreign VC Presence & Distance	2.195** <i>1.069</i>	1.464*** <i>0.434</i>	2.246*** <i>0.963</i>	0.446*** <i>0.172</i>	0.187*** <i>0.027</i>	0.495* <i>0.278</i>
Domestic VC Presence & Distance	1.848*** <i>0.337</i>	0.891*** <i>0.137</i>	1.229*** <i>0.225</i>		-0.003** <i>0.001</i>	
Foreign CEO dummy	0.899*** <i>0.103</i>	0.877*** <i>0.103</i>	0.911*** <i>0.103</i>	0.779*** <i>0.101</i>	0.888*** <i>0.103</i>	0.786*** <i>0.101</i>
Firm Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Pseudo R2	0.211	0.220	0.211	0.185	0.227	0.183
LR Chi2	339.690	353.510	340.290	298.080	364.650	294.340
Prob > chi2	0.000	0.000	0.000	0.000	0.000	0.000
<i>Panel B – IPO Performance, VC Foreignness and Foreign Business Activities</i>						
	(11a)	(11b)	(11c)	(11d)	(11e)	(11f)
Constant	0.140 <i>0.089</i>	0.135 <i>0.093</i>	0.159* <i>0.089</i>	0.153* <i>0.089</i>	0.149 <i>0.100</i>	0.142 <i>0.089</i>
Foreign Business dummy	0.035** <i>0.015</i>	0.034** <i>0.015</i>	0.038** <i>0.015</i>	0.032** <i>0.015</i>	0.025* <i>0.015</i>	0.037** <i>0.015</i>
Foreign VC Presence & Distance	1.467*** <i>0.453</i>	0.508** <i>0.207</i>	0.917*** <i>0.329</i>	0.077** <i>0.033</i>	0.011* <i>0.006</i>	0.187** <i>0.093</i>
Foreign VC Presence & Distance Squared	-2.079*** <i>0.770</i>	-0.407* <i>0.239</i>	-1.065* <i>0.422</i>	-0.031* <i>0.018</i>	-0.002** <i>0.001</i>	-0.033* <i>0.020</i>
Foreign VC Presence & Distance x Foreign Business dummy	0.372* <i>0.221</i>	0.095* <i>0.052</i>	0.180* <i>0.098</i>	0.084* <i>0.050</i>	0.007* <i>0.004</i>	0.044 <i>0.097</i>
Domestic VC Presence & Distance	0.031 <i>0.054</i>	0.002 <i>0.028</i>	-0.049 <i>0.037</i>		-0.000 <i>0.000</i>	
Lambda	-0.010* <i>0.120</i>	-0.010* <i>0.125</i>	-0.010* <i>0.118</i>	-0.013** <i>0.121</i>	-0.011* <i>0.118</i>	-0.010* <i>0.123</i>
Firm Characteristics	Yes	Yes	Yes	Yes	Yes	Yes
Industry dummies	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R2	0.165	0.167	0.161	0.158	0.150	0.162
F-Statistics	7.580	7.660	7.410	7.410	6.860	7.640
Prob > F	0.000	0.000	0.000	0.000	0.000	0.000

Panel A of Table 5 presents the results of the first-step regressions. Specifically, regressions (10a) to (10f) are based on the selection equation (1), using the probability of having foreign business activities as the dependent variable. The independent variables include the instrumental variable, *Foreign CEO Dummy*, as well as the variables measuring the presence and distance of foreign and domestic VCs, respectively, namely foreign lead VC ownership, domestic lead VC ownership, the proportion of foreign VCs within the VC syndicate, the proportion of domestic VCs within the VC syndicate, foreign VC ownership, domestic VC ownership, as well as the number of foreign VC mother tongues, the average foreign VC distance, the average domestic VC distance, and the average foreign VC cultural distance. The results indicate that the likelihood of foreign business activities is positively and significantly (p=1%) related to our instrumental variable, *Foreign CEO Dummy*. The likelihood of foreign

business activities also increases with the various proxies of foreign VC presence and distance ($p=1\%$). Foreign business activities are also more likely in the presence of domestic VCs, but less likely for firms with geographically closer domestic VCs ($p=5\%$ or better).

Regressions (11a) to (11f) in Panel B of Table 5 examine the effects of the foreign business activities dummy and the presence and distance of foreign VCs on the IPO premium. The inverse Mills' ratio is negative and significant ($p=10\%$ or better) in all the regressions, thus suggesting that there is a selection bias. Furthermore, the IPO premium is positively related to the foreign business activities dummy ($p=10\%$ or better), thus supporting Hypothesis (1). Additionally, the IPO premium first increases with foreign VC presence and distance ($p=10\%$ or better), and then once a certain level has been reached it decreases with further foreign VC presence and distance ($p=10\%$ or better). This supports Hypothesis (2).

Moreover, the IPO premium increases with the interaction between the foreign business activities dummy and foreign VC presence and distance ($p=10\%$), except for the average foreign VC cultural distance, which does not affect the IPO premium. Our results thus suggest that the IPO premium has an inverted U-shaped relationship with the presence and distance of foreign VCs. Overall, the results support Hypotheses (1) to (5).

6. CONCLUSION AND DISCUSSION

This paper investigates the effect of foreign business activities and the foreignness of the VC syndicate, measured by foreign VC presence and distance, on the IPO premium of US VC-backed IPO companies. In line with the resource-based view, we find that the IPO premium is positively affected by foreign business activities. We also find that, after controlling for the VC selection bias, foreign VC presence and distance in US IPO companies at first positively affect the IPO premium, thus suggesting that foreign VCs create value added for US IPO firms. However, past a certain level, foreign VC presence and distance negatively affect IPO performance. To sum up, our results suggest that there exists an inverse U-shaped relationship between foreign VC presence or distance and the IPO premium. Further, foreign VC presence and distance strengthen the association between the IPO premium and foreign business activities.

The results of this research have important implications for IPO firms as well as for VCs, and in particular foreign VCs. They suggest that the IPO premium increases with the firm's ability to operate in foreign environments and its ability to attract foreign investors that can strategically support its future operations, notably in terms of international activities. Given the superior IPO performance of firms backed by foreign VCs, our research suggests that VC syndicates in the US benefit from foreign VCs, as VC syndicates formed of both US VCs and foreign VCs are likely to better monitor and assist the future development of their investees. However, the right balance between foreign and domestic VCs in the syndicate is important. Indeed, at first foreign VC presence (as measured by foreign lead VC ownership, the proportion of foreign VCs, and foreign VC ownership) and distance (as measured by the number of foreign VC mother tongues, as well as geographic and cultural distances) have a positive effect on the IPO premium. However, beyond a certain level the effect of foreign VCs on the IPO premium becomes negative.

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Protection of fair competition A study under the rules of Jordanian unfair competition Code no (51) of the year (2000) and competition Code no (33) of the year (2004)

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Introduction

The unfair competition, is every breach to any legal or contractual obligation, or to economical public order which it occurs, harms the clients of the third person or his competitive efficiency.

After Jordan became a member of the world trade organization on 11th April of the year 2000, Jordan's government adopted a new economic strategy, in a way that Jordan's legal system has developed in the ten years since then. Jordan political system, originally undertook the economic reforms to bring the economic and the trade regime in a compliance with the world trade organization (WTO) agreements²¹.

Moreover, as an outcome of joining the (WTO) Jordan has liberalized its trade and services sectors, providing market access to foreign investors and service providers of WTO members according to the law and regulations of Jordan.

Therefore, there is a strong demand for a well-organized market-place which aims to offer business environment and a consumer who is well-informed. Obviously, the impact of Globalization is now leading to increase the activity of marketplace in Jordan. This increase in activity has manifold sources, such as cross-border investment by multinational firms, privatization of state-owned entities, lowered trade barriers, and government downsizing²².

Nonetheless, the Jordanian code of competition was issued by the Jordanian government on August, the 15th of the year (2002) then approved by the parliament on 1st Sept. of the year (2004), which is called competition law No: (33) of the year (2004)²³.

The Law of competition main purpose is to establish the necessary mechanism to ensure the proper functioning of markets in Jordan, besides that, to protect and promote competition widely in Jordan²⁴.

The competition Law intend to expand to cover all goods, services and commerce in Jordan, in addition to any economic activities that occur in foreign countries but have an effect inside Jordan²⁵.

²¹ Haytham Hani Abu Karaky, Competition Policy and Consumer Protection Policy in Jordan, Penn State International Law Review, Vol. 29, Fall 2010.

²² Derek Irland, Competition Policy and Consumer Protection, Policy Options Oct. 1997, at 27-28.

²³ Competition Law, No. 33, AL-Jarrida Al-Rasmiya (Official Gazette), No. 4673 at 4157 (Sept. 1, 2004), Jordan.

²⁴ Ruba Qalyoubi, Competition Law in the Arab Countries-Jordan as a case study 42, cited by Hetham H. Abu Karky, Op. cit, P. 337.

²⁵ Article (3) of Competition Law.

In fact, the competition gains its existence from the principle of trade liberty. Therefore, it may be said that it is so necessary to ensure practicing the market mechanisms to an extent that does not harm or even touch public interest²⁶.

Theoretically, there is no any sort of authority rules the prices in the market order, but one authority, which organizes the trade relations, it is the authority of offer and demand. In this article I will elucidate the subject of organizing competition as a first step to adjust market competition among commercial enterprises, then this must be followed by preventing persons of power and influence from taking advantage of their position.

The protection of competition cannot fly over competitive market without too means, firstly: organization of competition, secondly: preventing any abuse to the controlled position.

Outline of the article:

- i. Determination of competition rules upon which the competition is organized.
- ii. Fixing the rules concerning prevention of monopoly practices.

i) Determination of Rules of Competition:

Undoubtedly, the corner stone of protecting competition is relied on figuring out the rules which aim to organizing competition. These rules form the legal system that adjust transaction under the market order. If that so, we should deals with this matter in two aspect, they are as follows:

- 1- Fixing the competitive markets.
- 2- Rules adjusting these markets.

1-1) Fixing the Competitive Markets:

There are two kinds of competitive markets, one of them is qualitative markets and the other is Geographical. Concerning the qualitative markets. These markets acquire two elements, they are certain products and Geographical scope¹.

While concerning the Geographical markets means the Geographical area that the competition circumstances are in incompliance. Then may take in to consideration the chances of probable competition.

1-2) Rules Adjusting Competitive Markets:

Under the market order the role of the state in commercial activity if we have admitted that trade must be free of any barriers, consequently we admitted that markets must be free.

Freedom of markets means that competition between producers and merchants must be taken care of and preserved.

1-2-1) Agreements or Practices Prejudice to Rules of Fixing Prices:

In markets order, fixing prices of the producer is affected strongly by the powers of offer and demand. Every seller wishes to sell his commodities or services with the highest prices in order to achieve high standard of profit. Whereas, in alternative every purchaser wishes to buy in a lowest prices, then they meet at certain price agreed upon by them.

The way that the producer or the wholesale merchant regarding determining the price of re-sale production, may be considered as a prejudice agreements or prejudice practices to competition.

While/ there is no harm to competition rules granting low prices or setting different commissions.

²⁶ Hussein Mahi, Protection of Competition, 1st ed. Modern library, 2007, P. 5.

¹ Hussein Almahi, Competition Protection, Op-cit, P. 21-23.

Furthermore, it may be considered as a breach to the rules of competition, the distinction in the price of the product between different purchasers.

1-2-2) Agreements of Practices Prejudice to Rules of Interring and staying in competition Markets, Investments and Manufacturing:

There are many agreements considered as causing harm and prejudice to competition for they aim to obstacle people from interring competition markets, for examples, the agreement between many distributors of pharmaceutical production, which aim to reject the sale to pharmacies those dealing with a new competitor in the market, despite the better commercial conditions¹.

The Jordanian law was very keen to provide on such a statement that include, prevention of production in market, totally or partially from certain person.

ii) Fixing the Rules Concerning Prevention of Monopoly Practices:

2-1) Concept of Monopolization:

Monopolization is the willful acquisition or maintenance of monopoly power in a relevant market as opposed to growth as a consequence of superior product, business acumen or historical accident².

This means that to be liable for Monopolization, a defendant must have possessed not only monopoly power but also an intent to monopolize³. Monopoly power is usually defined for antitrust purposes as the power to fix prices or exclude competitors in a given market. Such power is generally inferred from the fact that a firm has captured a predominant share of the relevant market. Although the exact percentage share necessary to support an inference of monopoly power remains unclear and courts often look at other economic factors (such as the existence in the industry of barriers to the entry of new competitors).

The way leads to achieve balance between encouraging enterprises to become stronger against the foreign enterprises and not to breach the free competition rules, is enacting legal rules which guarantee the fair and equal competition, they are under the code calls, the law of unfair competition and commercial secrets.

2-2) Unfair Competition:

Article (2) states, that “Any act is considered as an act of unfair competition, if is opposed with honorable practices in commercial and industrial affairs especially, as follows:

- 1- Acts by its nature cause ambiguity with an enterprise of one of the competitors, his products or his commercial or industrial activities.
- 2- Any claims various to the fact in practicing trade...”
- 3- Any data or claims cause by its use in trade misleading the public regarding the products or the way of manufacturing such a products...”.

2-3) Consumers and Competition Policy:

Competition Policy and consumer protection have a deep impact on the functioning of markets. The goal the competitive law is to preserve and to enhance the competitive structure of markets for commodities and for services. Proper competition helps to ensure that all consumers who need a certain good or service will be able to obtain it at a price which reflects the real coast of the commodity or service⁴.

¹ <http://www.finances.gouv.fr/reglementation/avis/consei/concurrence>

² United States U. Grinnell Corp. U.S. sup 1966, cited by Mallor, Barnes, Bowers, Langvard, Business Law, 12 ed., 2005.

³

⁴ see: Hetham Hani Abu Karaky Op-Cit., P. 341. See also, Fernando Gomez Pomar, EC Consumer Protection Law and EC Competition Law, Cited by Hetham, Abu Karaky, Op-Cit., P. 341

The term “Protection of Competition” refers to the prevention of private restrictive practices that might hinder or block competition, those in the form of anti- competitive cooperation between markets participants as well as unilateral abuse of market power⁵.

The main objectives of competition policy to some extent will intersect with consumer - Protection policy. While competition policy pursues the efficient functioning of the market, consumer protection works to ensure that consumers can make will informed decisions and sellers will perform the promises they have undertaken about the products they offer¹.

One objective of the competition law is to create a climate conducive to businesses through the stimulation of business by preventing anti- competitive business practices. Ultimately, practice will safeguard the public interest, improve the efficiency of Jordan’s economy, and increase the consumer welfare².

Another objective of the competition law is to preserve and promote competition as a means of ensuring the efficient allocation of resources, which in turn results in better quality products and services, more choices and lower prices for consumers³.

Several provision of the competition law embrace the promotion of consumer welfare, for instance:

- 1- Article 7(B) requires enterprises seeking to exempt an agreement or a practice from the requirements of article 5 and 6 to show that the agreement or the practice in question achieves certain benefits to consumers⁴.
- 2- Article 11(A) (1) entrusts the minister of industry and trade with clearing concentration transactions if their competitive effects out weight their anti-competitive effects, for instance, when they lead to lower prices.
- 3- Article 17(A) states that private-sector enterprises, licensed consumer-protection association, and any group of at least five consumers who have suffered harm can directly complain to the public prosecutors regarding to any violation of the competition law.

Conclusion:

Protection of fair competition plays a key role in Jordanian economic policies. Therefore, must many factors be arises, they are as follows:

- 1- It must be not to leave the market uncontrolled by rules of competition and consumer protection.
- 2- The purpose of legal organization to the rules of competition is not only to face the prejudice acts and transactions, but to organize these action and to adjust these practices in order to protect competition.
- 3- Competition policy and consumer-protection policy have a deep impact on the functioning of markets for perfect competition ensures that all consumers who need certain commodities or certain services will obtain it at the prices which reflects it real costs.
- 4- In front of continuous changes all over the globe in the circus tenses of the world trade and following up to the international obligation relating to provide a legal climate which is suitable to competition and free trade, and to achieve adjustment to Jordanian market, we hope that the law of unfair competition, and the law of competition have full application in reality in order to organize competition and monopoly in a way which may serve trade and economy.

⁵ Hetham, Hani Abu Karaky, Op-Cit., P. 342.

¹ Daniel Agustino, Competition, consumer protection, and objective of competition Law, commission for the supervision of business competition, 1,3, (Aug. 2006).

² Hetham Abu Karaky, Op-Cit., P. 343.

³ Qalyoubi, Supra, note q at 57.

⁴ Hetham Abu Karaky, Op-Cit., P. 343.

The impact of Synergy on Teamwork Performance: Group Analysis Perspective

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Abstract:

The research aim is to investigate the operational concept of synergy. Through critical reviewing to the relative literature, the theoretical gap found; many authors generated a theoretical clarification to synergy. This research investigated the operationalization of the concept; the theory is important but not enough value to the team work and group formation based on definitions. This research is questioning the possibilities of transmitting the synergy concept into an objective explanation; using mathematical calculation and statistical investigation of the correlation and impact of synergy on teamwork and group performance. However, research objectives and hypothesis are stated based on the inductive research approach. Research data has generated based on virtual group performance and fed the statistical analysis with what have been calculated through mathematical formulas. Research outcomes are interpreted according to the statistical context.

Key Words: Synergy, Teamwork, Group Work, Performance, Group Formation.

Introduction

The original generation of the term synergy is derived from the Greek word synergos, which means "working together." In business usage, synergy refers to the ability of two or more units or companies to generate greater value working together than they could working apart (Goold, M., & Campbell, A. 1998). Therefore, it is used within its context in all forms of group work.

Teamwork also is an old term, it has been founded since 1934 which is considered as attributes of sociable work in the United States. Therefore, synergy, teamwork and groupwork are used interchangeably towards the same end, which is improving the performance of a groups and teams in the organization.

The above concepts were not understood technically until recent theories grouped under the area of organizational behavior.

Furthermore, the emergence of the new extended concept of what has been used extensively in managing work groups which are reflecting the interaction and cooperation in the team members or groups. The term synergy is widely used with the above concepts. French, et al 2008, defined synergy to have in mind the conception of a whole that is larger than the total of its components. (Chen 2016).

However, synergy is the process of interaction or cooperation of two or more organizations, substances, or other agents to produce a combined effect greater than the sum of their separate effects. The above terms (teamwork, group work and synergy) had been considered in the organization behavior literature as ultimate factors toward excellence organizational performance. Synergy driven approach to make teams and workgroups and to assign tasks are strategically demanded in creating competitive advantages.

Consequently, through reviewing literature in this area of research nothing found about how the mechanism of synergy is objectively assessed related to the group performance and achievement. This research sought to create the mechanism for assessing the synergy linked to the different teams and groups work.

Research Background and literature review

Critical stance has been taken in reviewing relevant literature that highlighted the importance of synergy in assessing the teamwork performance and group work in different organizations. The review map provided rational steps in highlighting the definitions, impact, relationships of relevant concepts of synergy and teamwork/group work concepts.

Business dictionary defines the synergy as “A state in which two or more things work together in a particularly fruitful way that produces an effect greater than the sum of their individual effects. Expressed also as "the whole is greater than the sum of parts."

Synergy is a term that is most commonly used in the context of mergers and acquisitions. Synergy, or the potential financial benefit achieved through the combining of companies, is often a driving force behind a merger. Shareholders will benefit if a company's post-merger share price increases due to the synergistic effect of the deal. The expected synergy achieved through the merger can be attributed to various factors, such as increased revenues, combined talent and technology, or cost reduction (Amabile, 1993).

However, Literature on synergy provided many definitions to synergy as a system concept which highlighted the collaborative, interactions, knowledge sharing, experience exchange and value added to the group performance (Wagner, G., Schramm-Klein and Steinmann, 2016). Against this background synergy is an objective based calculation of the quality of team performance which should focus on the qualities of team formation based on skills, experience, qualifications, and area of specialization for those who are committed to the assigned tasks by an organization (Larsson& Finkelstein1999); this need to be elaborated on an inductive approach how this work?

However, based on reviewing the literature and current research theme the conceptual model is promoted. Teamwork, on the other hand is linked to the concept of synergy, the concepts presented by many authors focused on team formation and promoted some insights to improve team cooperation, interactions and leadership in the team. The focal point has got to build cohesive efforts to reach the intended group goals (Gnizy,Shoham& Asseraf 2016).

Group work based on a team concept and synergy should be supported by a healthy environment; if the teamwork confronted by many obstacles which limit the group work performance the synergy outcome will be affected as well. However, a synergistic and collaborative team should consider in forming a group work instead of just forming groups based on the mechanistic group concept (Silber and others, 2016). In this research, we propose that group work is formed according to the team spirit which the objective perspective model is considered.

Conceptual Model

Established in the research concept which is brought forth through the literature review, the model constructed as in figure (1) to reflect the abstractions of research variables which support the research propositions and objectives.

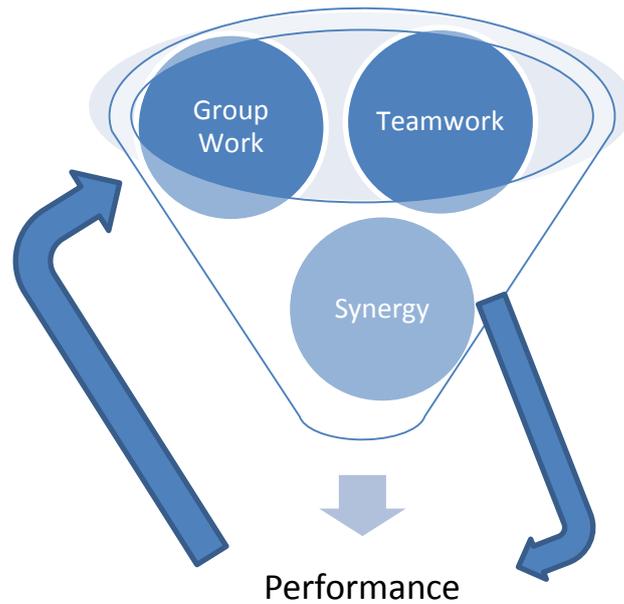


Figure (1)
Conceptual Model

Research Methodology

- This research paper is an exploratory type which is used to find out what is happening if the synergy concept applied on team/group work? New insight will be approached to the group work behavior.
- Participants

This case of exploratory research needs to target focus groups and purposeful research sample. The groups have been chosen based on the similarities in their assignments and assigned jobs to them.

Those groups have agreed to grant access to their estimated data outcome. So, ten observations for ten paired groups have been chosen. The total observations are ($2 \times 10 = 20$).

The paired groups have been assigned to them technical tasks which need to be performed within a time span. The different time spans were determined according to the group skills and experiences.

Research Objectives

The research aims to assess the way of teamwork performance calculation and to set up the group work paradigm which reflects the intended purposes from using such concepts in organizations.

Nevertheless, the research will bring into consideration the following sub- objectives:

- To place the mechanism of synergy linked to the group performance.
- Assess the individual, group performance and the performance of groups based on the synergy concept.

- To find the impact of synergy concept implementation of the group work performance.
- To explore the new paradigm within the context of synergy variables.

The above objectives will provide a clear understanding the real meaning and expected management intended outcomes which improve the organization performance through group management.

Research Questions

Based on the above literature review an idea is generated and flowed from research objectives which addressed the following questions:

- 1- What is the context of synergy mechanism which leads to leveraging the group work performance measures?
- 2- How the group work performance should be directed in terms of individual group work compared to the group work governed by synergy context?
- 3- What is the impact that synergy will make changes in the outcome of group work performance?

Research Significance

This research provides a clear insight to those who are responsible for group formation/ Team building and the team leaders in any organization.

Many other justifications stand behind this research; promoting objective assessment of the expected outcome from the group work and team performance.

Research Hypothesis

The following hypotheses are considered:

- H1: There are significant differences between individual group's outcome in performing similar tasks.
- H2: Performing tasks within the context of synergy has significant impact on the group achievement

Purpose and Aims

The above research hypothesis will be tested statistically to achieve the research

Research Instrument and Data Gathering

The research data gathering has approached the simulation perspective which focuses on virtual group task performance based on the task assigned to the group. The timely completion of the task is determined according to the completion expected a due date. The variation among selected groups is determined based on the task schedule which is performed by different groups with the same task through a series of actions.

Mathematical calculations used as a tool to get the synergy effects as follows: (Mathportal.org)

A System view is taken to make an inductive insight to generate data linked to the research problem. The following diagram clarifies this approach:



Figure (2)
System Simulation Perspective

(*) Where:

t_1 is the time taken by the first group,
 t_2 is the time taken by the second group,
 tb is the time taken by both groups.

Explanation

The formula for group work problem is:

$$1/tb = 1/t_1 + 1/t_2$$

All observations and synergy calculations are generated based on the above formula. Nevertheless, calculations provided primary data that applied in the quantitative approach for analysis, the qualitative approach also used for check purposes.

Research Validity and Reliability

A Discussion group has been conducted with the colleagues from who have had deep experience and skills in math's and statistics and management area of specializations to run face validity for the research tool and measurement. Their views and feelings have been needed which led to using the query tool in generating research data.

Reliability also computed through SPSS V.17 which is important to yield consistent findings and analysis output. Cronbach alpha for this measurement is 74%, which is accepted in this type of research.

Data Analysis

This section indicates the analysis for generating data in the table (1).

Table (1)
Estimated Time needed to accomplish the team work task by days

Observations	Team/ Group 1 ET Days= t_1	Team/Group 2 ET Days= t_2	Team/ Group tb Days Synergy
1	30	40	17.14
2	25	50	16.67
3	40	70	25.45
4	25	50	16.67
5	66	48	27.79
6	55	60	28.7
7	37	39	18.99
8	80	66	36.16
9	39	45	20.89
10	70	72	35.49

Below are the methods used in statistical analyzes for the data in table (1):

1. Descriptive Analysis

The average time span of individual groups, both groups and synergy output to find the variations in performance for the same task. These descriptive parameters will show the importance of objective calculations toward factual based evidence of accurate time span for any teamwork, performance based on group formation which should match the group member's efficient nomination and skills needed to be in the group. This concept will eliminate the variance of time span gap among groups performance. Moreover, the standard deviation parameter will be calculated to prove that the objective method as a rational process to generate undebatable parameter reflected in the synergy formula.

However, table (2) presents the descriptive findings from the input data of this research.

Table (2)
Descriptive Statistics: T1, T2 and Synergy

	N	Mean	Std. Deviation
T1	10	46.70	19.75
T2	10	54.00	12.16
Synergy	10	24.40	7.50
Valid N (listwise)	10		

The findings presented in table (2) provide clear gaps between group time span in individual groups and dual groups, the mean and SD for team team1 46.70 and SD 19.75. The gap found in comparing these figures with the means and standard deviations of the team 2 and the parameters of synergy calculations.

This gap proves the context of hypothesis one in this research.

2. Simple regression and correlation analysis

- Looking at the correlation and impact that synergy has an impact on rationalizing group work efforts toward efficient teamwork, performance, the correlation and linear regression have implemented for analysis.

The correlation between groups - teams included in this research and the synergy is calculated through transforming the observed figures for all teams and the synergy parameter table (3) presents the output statistical analysis.

Table (3)
Correlation between Synergy and Teamwork Groups

		Teamwork Groups	Synergy
TG	Pearson Correlation	1	.993**
	Sig. (2-tailed)		.000
	N	10	10
Synergy	Pearson Correlation	.993**	1
	Sig. (2-tailed)	.000	
	N	10	10

** Correlation is significant at the 0.01 level (2- tailed).

The correlation is 99% and significantly correlated at 0.01 significant levels, which show that the synergy concept is an important factor related to the teamwork group formation, and therefore, the required performance level.

- Regression analysis based on the preposition that the synergy as independent variable has an effect on group team work performance as a generic theoretical concept, this concept changed over into this research in terms of objective based calculation, table (4) presents the regression parameters which are applied to look into the context of the second hypothesis of this inquiry.

Table (4)
Regression Model Summary

Model	R	R Square	Adjusted R Square	Std Error of the Estimate
1	0.99a	0.98	0.98	1.75

a. Predictors: (Constant), Synergy

Regression analysis presented in table (4) shown the value of $R^2 = 98\%$ significant at 0.000 which means that there is an impact of synergy on teamwork groups. The results, support for accepting the second research hypothesis.

ANOVA analysis findings in the table (5) shown that the value of F test is 589.887 significant at 0.000.

Table (5)
ANOVA^b Analysis

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1819.844	1	1819.844	589.887	.000 ^a
	Residual	24.681	8	3.085		
	Total	1844.525	9			

a. Predictors: (Constant), Synergy

b. Dependent Variable: TG

The research regression model is defined and constructed according to regression analysis and the findings of the table (6). Variance inflation factors (VIF) measure how much the variance of the estimated regression coefficients is inflated as compared to when the predictor variables are not linearly related., In this context the collinearity statistics, the tolerance value is 1.00, and the VIF value is 1.00 which means that there is no multicollinearity problem existed on this model.

Table (6)
Coefficient^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	4.094	1.984		2.064	.073		
	Synergy	1.896	.078	.993	24.288	.000	1.000	1.000

a. Dependent Variable: TG

Regression Model as constructed based on the above analysis is as follows:

$$Y = 4.094 + 1.896 * X$$

Conclusion

The current research focused on the functionality of the term synergy, it does not stand for a generic concept, but it stresses the employability of the interaction context of the term synergy.

Approaching this topic from the organization behavior area intends to generate new concepts for the group work formation and teamwork mechanism within well-defined tasks and responsibilities attached to the teamwork.

The value of this approach will create a priority foundation planning platform to determine required timeline for achieving teamwork task based on selecting suitable skilled, experienced, dedicated, self-mastered, and visionary people to be in the squad.

Investigations and elaborations to the generated statistical facts proved that synergy concept provides a new measurement for teamwork performance which could be reached through the current research way of calculating which highlighted the gap between objective based task planning and classical approach used for group/ teamwork formation.

Recommendations

In order to follow a rational step in forming a group work and team work spirit, management should consider the logical clarification to the task load that the team will perform. The generic concept of synergism is not enough to make a more outcome of group work unless the concept attached to a mathematical calculations which accounts threshold point of time line needed for teamwork achievement.

Clear selection criteria should be taken on to appoint the team members in terms of real prior experience, skills and member profile behavior; investigation of past accomplishment and commitment are vital to integrating the selection process into group and team formation.

Recent focus on team leader and management should be considered in targeting synergy outcome and group performance.

Current research generates transformation view toward an integrated sequence of synergy input; linked to the quality of group and team formation.

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