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THE EFFECT OF ORGANIZATIONAL INNOVATION AS A SOCIO-TECHNICAL INNOVATION ON MARKETING PERFORMANCE AND COMPETITIVENESS

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Abstract

Organizational innovation OI, a success driver of organizations, is considered vital for firms survival and competitiveness. It helps organizations to take advantage of their core competencies and transform them into a high level of performance and competitiveness. Although efforts are dedicated to clearly explore the importance of organizational innovation, there still more efforts needed to be dedicated to explore its importance and effects which make experts believe that organizational innovations receive lower priority than technological innovations This study investigates the importance and effects of organizational innovation on organizations performance and competitiveness. Inspired with the main typologies for organizational innovation, the study accept the idea of OI as an output which is the combination of the new practices, techniques, processes which take place in either technical or social core. First, the study starts with an introduction where the scope and purpose are concisely stated. Second, a theoretical background and prior researches related to the subject matter are introduced. Third, the research hypotheses and methodology are presented. Finally, research discussion and data analysis are illustrated to conclude the study findings. The study is a descriptive -survey research. The descriptive part was to collect data related to theoretical background and literature review about the topic. A survey study was conducted to test the research hypotheses. The statistical population consists of a sample of 226 banks drawn randomly from the Egyptian market and collected data were subjected to correlation and regression analyses in pursuance of the study's stated objectives. The results indicate that there are significant relationships between organizational innovation and banks marketing performance and competitiveness.

Keywords:

Organizational innovation, Banks competitiveness, Banks marketing performance.

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1. Introduction

Innovation is a significant factor in determining organizations success and development as it is positioned as a driver of organizations growth and a mechanism by which companies introduce new goods and services. Innovation helps organizations to take advantage of their core competencies to transform them into high level of performance and to create a sustainable competitive advantage.

The realities of competition in the competitive landscape of the twenty-first century suggest that companies must regularly develop innovative products and services desired by customers, as well as new process and administrative practices. Hage (1999) points out that innovation can be either a new product, a new service, a new technology, or a new administrative practices. Damanpour and Gopalakrishnan (1999) state that innovations can be implemented in the organization's outcomes, it's structure , and it's processes in order to maintain or to improve the level of performance and effectiveness.

Developing successful technological innovations is crucial for creating and sustaining an organization's competitive advantage (Martin-de Castro et al ,2013). As organizations performance and competitiveness are determined by the ability to innovate new products and services, organizational innovation OI is also considered central to organizations survival and competitiveness.

Most research has focused on technological innovation and much less attention has been paid for organizational innovation. Freeman (1995) argues that the efforts to implement technological innovation will face only limited success unless joined by organizational change and vice-versa as they are in fact interdependent. The Oslo Manual (OCDE, 2005) ascertains the need to expand the concept of innovation to include non-technological innovations, such as organizational and marketing innovations. As research starts to shed light on organizational innovation, as an under investigated topic, it gives more concern of the relationships between technological and non-technological innovations. Damanpour and Aravind (2012) illustrate the importance of both parts of innovation and the related need for their coexistence and co-evolution for firm performance. Research uses the terms "organizational innovation",

"management innovation", "administrative innovation" interchangeably (Damanpour et al , 2009).

There are several definitions for organizational innovation that consider it as the adoption of an idea or behavior that is new to the organization (Damanpour 1988,1991, Daft &Becker 1978, Hage 1980,Hage&Aiken 1970, Zaltman, Duncan & Holbeck 1973, Oerlemans et al 1998, Wood 1998, Zummato & O'Connor 1992). Armbruster for the intra-firm diffusion of different organizational practices. Organization for Economic Co-operation and development (2005) agrees that organizational innovation is the successful implementation of a new and creative organizational method in a company's business practices, workplace organization or external relations. Gumusluoglu and Ilsev (2009) define organizational innovation as "the tendency of the organization to develop new or improved products/services and its success in bringing those products/services to the market. Several studies examine the effects of organizational innovations on organization performance and effectiveness (Caroli and Van Reenen, 2001; Damanpour et al , 1989; Greenan, 2003; Piva and Vivarelli, 2002; Womack et al, 1990; Hammer and Champy, 1993; Goldman et al 1995). However, there have been few conceptual and methodological contributions to the monitoring of organizational innovations so far (Armbruster et al, 2008).

Following the "Dual-core model" of Daft (1978), organizational innovation takes place in either technical and social system, and each system and core affects the other. The author adds that OI is more successful when the technical core is tightly coupled with the administrative core . Van de Ven (1986) confirms this view by clarifying that organizational innovation involves new technical and administrative components. This study emphasizes the importance of organizational innovation for organizations performance and competitiveness.

2. Theoretical background:

Innovation is one of the most complex phenomenon researchers face and it is influenced by different variables. Organizations rely on R&D and consider it as the driving force of innovation. The term innovation was used for the first time by Schumpeter at the beginning of the 20th century. Schumpeter (1934) defines innovations as product, process and organizational changes that do not necessarily originate from new scientific discoveries. He distinguishes five different

types of innovation: new products, new production methods, new markets, new sources of supply and new forms of organization (Zizlavsky, 2011 in Hana,2013). Lawson and Samson, (2001) opine that innovation is the mechanism by which organizations produce new products, processes and systems required to cope with the changing markets, technologies and modes of competition (D'Aveni, 1994; Dougherty &Hardy,1996; Utterback, 1994). Hult et al (2004) describe innovation as the introduction of new processes, products, or ideas in the organization. Wolfe (1994) points out that there is no single theory of innovation and there is a lack of consensus among scholars regarding this terminology. Innovation is seen as being context-dependent and influenced by environmental, organizational, and individual level of antecedents (Russell, 1990; Wolfe,1994).

A vast body of academic research was on technological innovation, whilst a relatively under-researched form of innovation is for organizational innovations. Dobouloz (2012) has observed the inadequate attention to Organizational Innovation in academic research. As organizational innovation is a complex phenomenon, there is no consensus on a definition for the term. Researchers clarify that the literature relevant to the topic went through three strands. Armbruster et al (2008), summarize these three strands as follows: (1) the first strand focuses on the identification of the structural characteristics of an innovative organization and its effects on product and technical process innovations (e.g., Mintzberg, 1979;Teece,1998).(2) the second strand focuses on establishing theories of organizational change and development (e.g., Hannan and Freeman, 1977,1984; Levy and Merry, 1986). (3) the third strand focuses on how organizational innovations emerge, develop and grow at the micro-level within the organization (Argyris and Schon,1978; Amabile,1988).

The best known typology of innovation proposed by Abernathy & Utterback (1978) is product and process innovation. As product innovation refers to the production of new products and services, it has an external focus that aims to meet and satisfy customer needs. It has been also recognized as a primary means of corporate renewal (Dougherty, 1992). Dannels (2000) argues that product innovation contributes to the renewal of the firm through exploiting and exploring firm competencies. Bento et al (2004) opine that firms have to rely on product innovation to gain sustainable competitive advantages. Process innovation focus on how work is done within the

organization. It refers to the new elements introduced into an organization's production process. It has an internal focus that aims to increase the efficiency and effectiveness of the organizational process (Utterback & Abernathy, 1975). Damanpour and Gopalakrishnan (2001) demonstrate that there is a relationship between product and process innovations. Another eminent typology of innovation is proposed by Evans (1966) as technical (technological) and administrative (social) innovations. Technical innovation occurs in the organization technical system (new product, service, or process). Administrative innovation occurs in the organization social system (authority, tasks structure, communication and interaction,…).

Armbruster et al (2008) aver that referring to Schumpeter and other innovative researchers (e.g., Anderson and King, 1993; Damanpour and Evan, 1984; Totterdell et al, 2003) innovation could be classified as technical (e.g., new products, new production methods) and non-technical aspects (e.g., new markets, new forms of organization) as well as product innovation (e.g., new products or services) and process innovation (e.g., new production methods or new forms of organizations). The authors further distinguishe four types of innovations: (1) technical product innovations, (2) non-technical service innovations, (3) technical process innovations, and (4) non-technical process innovations, understood to be organizational innovations. Edquist et al (2001) have proposed the same classification. Moreover, Armbruster et al, 2008 have distinguished between structural and procedural OI. They illustrate that structural organizational innovations influence change and improve responsibilities, accountability, command lines and information flows as well as the number of hierarchical levels, the divisional structure of functions (research and development, production, human resources, financing, etc..) or the separation between line and support functions. The authors state that the shift from an organizational structure of functions (production, finance, marketing, etc..) into product or customer oriented (line, segments, etc..) is an example of structural OI. The authors further clarify that procedural organizational innovations affect the routines, processes, and operations of a company that may affect the speed and flexibility of work or the quality of production (teamwork, continuous improvement process, etc..)The authors mention that the distinction between them is inconsiderable in some cases and many organizational concepts compile both aspects at the same time.

Inspired by the mixed typology proposed by Edquist et al (2001) that juxtaposed the product/ process and technical or technological/ organizational typologies and proposed an integrated one, Dubouloz(2012) proposed new typology for organizational innovation. The typology positions the two types of OI : output and process. The typology reflects the main existing typologies of innovations. The first one proposed by Abernathy & Utterback (1978) as technological innovations and organizational innovations , and the second one proposed by Evan (1966) as product and process innovations. Thus Dubouloz (2012) positions two types of organizational innovations: organizational innovation as an output , and organizational process innovation as it is shown in the following figure.

Innovations		**Abernathy & Utterback typology (1978)**	
		Technological	**Organizational**
Evan typology (1966)	**Product**	**Product**	**Organizational Innovation as an output**
	Process	Technological process Innovation	**Organizational Process Innovation**

Figure (1) Organizational innovation in the main existing typologies. Dubouloz ,(2012) P: (8).

Accepting the idea of OI as an output which is the combination of new practices, techniques, processes which take place in either technical and social core, Dubouloz (2012) suggests that OI could be more technically-oriented or more socially oriented or mixed. The author further analyzes organizational innovations as a result or an output (new practices, new working concepts, new forms , new processes, new structures) by focusing on clarifying how OI is associated with performance. The author argues that according to the Dual-core model (Daft, 1978), OI as an output is a combination of new practices, techniques, processes which take place in either technical or administrative (social) cores or sub-systems and each system or core can affect the other. Daft, (1978) points out that OI is more successful when the technical core is

tightly coupled with the administrative core. Van de Ven, (1986) highlight that OI involves new technical and administrative components. Emery & Trist, (1969) report that OI can be considered as a socio-technical system with some practices taking place in the social system and others in the technical system. The author moreover analyzes OI as a process by examining its sequences and their corresponding activities in order to explore this poorly understood complex of social process (Birkinshaw et al, 2008) in order to give coherent advice to managers.

Tornatzky & Fleischer (1990) proposed a life cycle of innovation as two main sub-processes. The first one is the prenatal process which results in innovation as outcome that may be product, service, or process. The second one is the postnatal process (or adoption-or user-based process) which delineates how the adopting organizations assimilate these outcomes. This study notices that there are similarities between the prenatal process proposed by Tornatzky & Fleischer (1990) and organizational innovation as an output proposed by Dubouloz (2012). Inspired by Dobouloz (2012) typology, this study will focus on the organizational innovation as an output that refers to the combination of new practices, techniques, process in the socio-technical system that reflects the technically-oriented and socially oriented natures of it.

Armbruster et al (2008) state that the differentiation between structural and procedural organizational innovations is rather inconsiderable in some cases of organizational concepts. This study tries to categorize the structural and procedural organizational innovations into social-technical categorization of organizational innovation as it is shown in the following table.

Table (1): The Socio-Technical nature of organizational innovation as an output

	Structural	**Procedural**
Technical	• Cross Functional teams • Cross functional product designs • Product orientation lines, segments, divisions, or business unit. • Customer orientation	• Team work in production • Job enlargement • Job enrichment • Job rotation • Continuous improvement processes • Quality circles • Quality audits • Technical training for

		employees • Preventive maintenance
Social	• Reduction of hierarchical levels • Decentralization of planning, operating, and controlling functions. • Retaining employees • High management support for innovation(unit of innovation related directly to top management • Culture support for innovation • Vision and values of top managers committed to innovation • Information and knowledge sharing between employees.	• Effective rewards systems • Incentive pay systems • Effective communication and interaction between employees • Effective communication and interaction between managers and followers • Self management work groups • Employees involvement • Employees empowerment • Delegation of authority • Supportive climate for innovation (coaching).

Adopted from Armstrong et al (2008) p:647.

3. Research Problem:

Due to great technological and organizational innovations recently emerged, organizations changed dramatically. These innovations have their effects on organizations performance and competitiveness. Moreover, limited resources make organizations more anxious towards their resources and trigger them to search for innovative ways to perform and compete. Although the literature proposes several efforts and explore clearly the importance of technological innovations, there still less efforts are dedicated to explore the importance and effects of organizational innovations which make experts believe that organizational innovations receive lower priority than technological innovations. What confirms the researcher point of view is that few conceptual and methodological contributions are there to monitor organizational innovations and their effects. Moreover, this type of innovation is rarely observed in organizations to understand how it is associated with the organizations performance and competitiveness. Accordingly, Oslo Manual (OCED, 2005) and CIS surveys chose the term organizational innovations consensually to devote more efforts and priority for it. According to Keupp et al (2011), only 25 published articles out of 342 on innovations handle OI.

This study investigates the potential of organizations enrolled in organizational innovations to have a higher level of performance and competitiveness. More precisely, the study examines the relationships between the organizational innovation components of the socio-technical system and organizations performance and competitiveness.

4. Research Hypotheses:

1. There is no significant relationship between the socio-technical innovation as an output of organizational innovations and banks marketing performance.
2. There is no significant relationship between the socio-technical innovation as an output of organizational innovations and banks competitiveness.

5. Methodology

This study measures four constructs: 1.the technical (technologic) system as an output of organizational innovation, 2.the social (administrative) system as an output of organizational innovation, 3.banks marketing performance, 4. banks competitiveness. All items were operationalized using a five-point-Likert-type scale. Questionnaire survey took place over three months period during June to August 2016.

In order to fulfill the work and meet the goals of the study an analysis of secondary resources has been carried out that helped to understand the theoretical points related to the topic. Moreover, a primary survey has been conducted to achieve and test the objectives and hypotheses as well as to find answers for the developed research questions. A survey study was undertaken and the data are collected by using simple structured questionnaire. The response format is rating from completely disagree to completely agree.

There are 39 different banks working in Egypt and registered with the Central Bank of Egypt (Central Bank of Egypt, control and supervision sector), the researcher receives responses and willingness to cooperate from only 22 banks of them. Based on previous studies that showed that such high-level executives are generally reliable in their evaluations of their firm's activities and performance (Hooleyand Greeley, 2005) the researcher has conducted the survey to managers in different departments who were asked to provide the researcher with their responses. In practice,

the problem of non-response was arisen since 43.3% completion questionnaires were returned. Nevertheless, reasonable representative sample was obtained to continue the study. Dealing with bounded population, the researcher draws a systematic random sampling of 226 branches of the 22 banks who are willing to cooperate.

Working banks in Egypt consist of governmental and private banks. The number of employees working in these banks differs. Determining the number of distributed questionnaires for each bank was calculated based on the number of employees in each bank. Taking into consideration the sample representing the population of the banks working in Egypt and using an equation that divide the number of employees in all branches of a given bank by the total number of employees of the sample times 100, the researcher could identify the suggested number of questionnaires for each bank. However some slight modifications have been made for the suggested number of distributed questionnaires due to their demands. The items in the questionnaire were distributed as follows: the items from 1 to -18 to measure the technical part of innovation in banks, the items from 19 to 39 to measure the social part of innovation, the items from 40 to 55 to measure banks performance and the items from 56 to 67 to measure banks competitiveness.

Coefficient of reliability (Cronbach's alpha) was used to measure the internal consistency of the items used in the questionnaire. Descriptive Factor analysis was used to represent the results of the mean and standard deviation of the items used in the questionnaire. Correlation relationship and linear regression analysis (LRA) was used to examine the effects of the organizational innovation: technical (technological) and social (management)parts on banks performance and competitiveness.

6. Data analysis and discussion:

This study examines the relationship between organizational innovations as a socio-technical innovation and banks marketing performance and competitiveness from managers perspective. By reviewing the values of reliability coefficients of internal consistency, the results of Cronbach's alpha for the organizational innovation, banks performance and banks competitiveness are 0.717, 0.787 and 0.834 respectively. The results show that the values are

statistically acceptable and reflect consistency in a good degree which reflects the stability of the study.

The following table proposes the means and the standard deviation of organizational innovations (Independent variables) and banks marketing performance and competitiveness (dependent variables).

Table (2): Results of descriptive factor analysis of independent and dependent variables

Variables	Independent Variables		Dependent Variables	
	Technical Innovation	Social Innovation	Banks Marketing Performance	Banks Competitiveness
Means	3.779	3.672	3.909	3.860
Std Deviation	0.574	0.597	0.444	0.506

The following table proposes the results of Pearson correlation matrix of organizational innovation components : technical - social and banks performance.

Table (3): Correlation matrix for organizational innovation and banks marketing performance.

Variables	Technical Innovation	Social Innovation	Banks Performance
Technical Innovation	1		0.651*** (0.000)
Social Innovation		1	0.489** (0.000)
Banks Performance	0.651*** (0.000)	0.489** (0.000)	1

** denote to Pearson correlation significance at 0.01.

Evidence in this study suggests that significance correlations coefficient exist among the components of organizational innovation (technical -social) pursued by the banks and their marketing performance as follows: both technical (technological) and social (administrative) have positive relationships. A key empirical finding in this study which represents the most significant and highest correlation coefficient exists between the technical (technological) part of the organizational innovation pursued by the banks and the banks marketing performance 0.651

Pearson correlation significance at 0.01 and 0.000significance <0.01 which implies significant correlation. Another empirical findings in this study that exists between the social (administrative) part of the organizational innovation pursued by the banks and the banks effectiveness 0.489 Pearson correlation significance at 0.01 and 0.000significance <0.01which implies significant correlation.

Table (4): Results of regression analysis of banks marketing performance.

	Unstandardized coefficients		Standardized coeffients	t	Sig
	B	Std.Error	Beta		
Constant	0.488	0.394		1.239	0.218
Perfomance	0.842	0.100	0.651	8.401	0.000

Because correlations coefficients exist between the two components of organizational innovation: technical and social (independent variables) and banks performance (dependent variables), the researcher uses linear regression analysis and proposes the following equation:

Y1= 0.488 + 0.842 Z1+ E

Y1 represents the banks marketing performance

Z1 represents the level of technical innovation pursued by the banks.

E represents standard error.

The following table represents the results of regression analysis of banks marketing performance.

Table (5): Results of regression analysis of banks marketing performance.

Variable	Banks marketing perfomance (P value)	Banks marketing perfomance (T value)	Coefficient
Technical innovation	0.000*	8.401	0.651

***P<0.01**

Results of the linear regression analysis shows that $R^2 = 42.4\%$ which implies that the technical part of the organizational innovation used by the banks affects the banks marketing performance by 42.4%.

Consistent with the above findings and according to the result of (P value) = 0.000P<0.01 the study don't accept the first null hypothesis that denotes that there is no significant relationship between socio-technical innovation as an output of organizational innovations and banks marketing performance and accept the alternative one saying that "***There is a significant relationship between the socio-technical innovation as an output of organizational innovations and banks performance".***

The following table proposes the results of Pearson correlation matrix of organizational innovation components: technical - social and the banks competitiveness.

Table (6): Correlation matrix for organizational innovation and banks competitiveness

Variables	Technical Innovation	Social Innovation	Banks Competitivness
Technical Innovation	1		0.667*** (0.000)
Social Innovation		1	0.679** (0.000)
Banks Competitivness	0.667*** (0.000)	0.679** (0.000)	1

** denote to Pearson correlation significance at 0.01.

Evidence in this study suggests that significance correlations coefficient exist among the components of organizational innovation (Technical -Social) pursued by the banks and their competitiveness as follows: both technical (technological) and social (administrative) have positive relationships. A key empirical finding in this study which represents the most significant and highest correlation coefficient exists between the social (administrative) part of the organizational innovation pursued by the banks and the banks competitiveness 0.679 Pearson correlation significance at 0.01 and 0.000significance <0.01 which implies significant correlation. Another empirical findings in this study that exists between the technical (technological) part of the organizational innovation pursued by the banks and the banks

competitiveness 0.667 Pearson correlation significance at 0.01 and 0.000significance <0.01 which implies significant correlation.

Table (7): Results of regression analysis of banks competitiveness.

	Unstandardized coefficients		Standardized coeffients	t	Sig
	B	Std.Error	Beta		
Constant	0.582	0.344		1.692	0.094
Competitivness	0.801	0.088	0.679	9.055	0.000

Because correlations coefficients exist between the two components of organizational innovation: technical and social (independent variables) and banks competitiveness (dependent variables), the researcher uses linear regression analysis and proposes the following equation:

Y2= 0.582 + 0.0801 Z2 + E

Y2 represents the banks competitiveness

Z2 represents the level of social innovation pursued by the banks.

E represents standard error.

The following table represents the results of regression analysis of banks competitiveness

Table(8): Results of regression analysis of banks competitiveness.

Variable	Banks competitiveness (P value)	Banks competitiveness (t value)	Coefficient
Social Innovation	0.000*	9.055	0.679

***P<0.01**

Results of the linear regression analysis shows that R^2 =46.1% which implies that the social (administrative) part of the organizational innovation used by the banks affects the banks effectiveness by 46.1%. Consistent with the above findings and according to the results of (P value) = 0.000 P<0.01 the study don't accept the second null hypothesis that denotes that there is no significant relationship between socio-technical innovation as an output of organizational innovations and banks competitiveness and accept the alternative one saying that "***There is a***

significant relationship between the socio-technical innovation as an output of organizational innovations and banks competitiveness".

Stowe and Grider (2014) state that most research suggests that there are at least two dimensions to advancing innovation:1)increasing an individual's ability to innovate (Kaufman, 2010), and 2) improving the organizational environment to foster innovative behaviors that accelerate innovation(Carlo, Lyytme & Rose, 2012; Dagyte,2010; Thursby, Fuller& Thursby, 2009). Steiber and Alange (2013) study organizational characteristics for continuous innovation in rapidly changing industries and consider similar characteristics for continuous innovation in more slow-moving industries would be compatible (Rosha and Lace, 2015). Steiber and Alange (2013) further suggest that these key organizational characteristics compose:" ***Key drivers*** for innovation (culture focused on innovation and competent individuals committed to innovation ; ***facilitators*** (empowering and coaching leaders removing obstacles for innovation); ***factors to facilitate innovative behavior***(semi-structured, non- bureaucratic organization, recognition system for innovative behavior, continuous organizational learning) and ***foundation*** (innovative-oriented and change- prone top-management and board, internal innovative process supplemented by external innovation, open innovation)"(in Rosha and Lace, 2015).

Based on Steiber and Alange(2003) work and inspired by Armbruster et al (2008) typology of organizational innovation, this study suggests the following figure that summarizes how the socio-technical innovation with its structural and procedural perspectives could be presented.

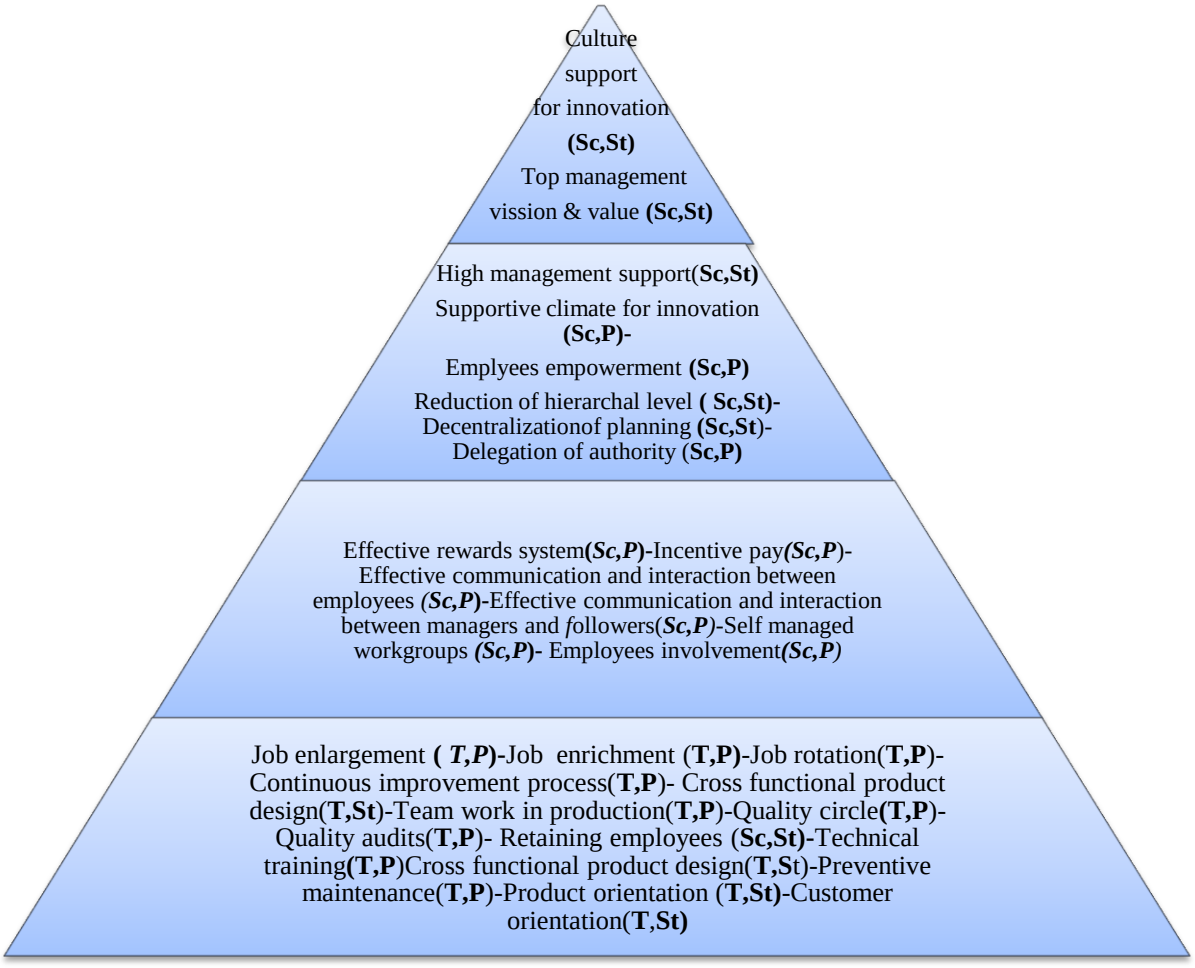

Figure 2: Socio-Technical innovation in a structural procedural perspective.

Sc: refers to social or administrative **T:** refers to technical or technological

St: refers to structural **P**: refers to procedural

Regarding the social (management) innovations, the structural perspective has its footprints. Molina-Morales et al, (2011) assert that the internal environment of an organization needs to support and backup the innovative culture the organization adopt. Such type of culture which is characterized by temporary organizational structures, utilization of specialists and temporary teams, mobile offices, the necessity of speedy and flexible changes responding to new opportunities, increases the possibility to innovative in such organizations. Pettigrew (2003) confirms this view and states that " more flexible cultures of learning are needed as organizations

seek to become more innovative in its forms and processes." In his view, innovation involves changes in processes, structures and boundaries of the firm. Wang et al (2010) aver that studies that investigate the relationship between organizational culture and innovation have typically concentrated on the culture of innovation which has an explicit relationship with innovation (Fitzgerald et al, 2008; Lau & Ngo, 2004; Smith et al, 2005). The authors further note that in a study that asked 800 executives across 20 countries what they believe to be the most significant barriers to innovation (IBM Global Business Services, 2006), an unsupportive culture was reported as a top barrier. Vision and values of top management should support and be committed to innovation. These variables represent key drivers of OI. High management support for culture is central for OI and represents one of the most crucial facilitators for it. When the unit of innovation is directly related to top management this facilitates OI.

The supportive climate for innovation that emphasis employees empowerment and coaching is regarded as one focal point of OI. Empowering employees and giving them more responsibilities and control is positively related to OI. Increasing employees empowerment imposes changes in hiring and training policies as well as changes in the incentive structure of the firm (Chung, 1996; Sun & Gertsen,1995).

Pettigrew (2003) illustrates many examples for process change. They include increased vertical and horizontal interaction, new human resources practices, and integration of information technology. Changes in the structure involve the reduction and decentralization of hierarchy levels. Changes in the boundaries of the firm include outsourcing and strategic alliances (Martins, 2012).

A recent study by Chen & Huang (2009) used a sample of 146 firms to test the hypothesis that human resource management practices are related to innovation. Their findings indicated a positive relationship for staffing (how selective the firm is in hiring), participation (degree to which the firm allows employees to make decisions and suggest improvement) and performance appraisals (result-based performance) for administrative innovation; while for technical innovation, staffing, participation and compensation (profit sharing, incentive pay) were significant (Cozzarin, 2015).

Information and Knowledge sharing between employees increases innovations as well. Wang et al (2010)point out that innovation is rooted in the creative minds of humans, thereby raising the question of whether a social context exists that encourages creativity and innovativeness (e.g., Amabile et al 1996; Chandler et al., 2000; Damanpour, 1991; Jassawalla &Sashittal, 2002; Lyons et al., 2007). The authors have further decided to focus on three dimensions that they believe to facilitate innovation: team, innovation, and outcome orientations. Regarding the team-oriented culture, organizations with such a culture are those in which members work together and are concerned about one another, and collaborate to achieve goals (O'Reilly et al.,1991). The authors claimed that organizations with such a culture emphasizes teamwork, and financial investment in R&D are more likely to be used effectively and even efficiently because of the interpersonal communication and collaboration between employees that enable innovation. Concerning the innovation-oriented culture, the authors argue that organizations which are considered to be innovation-oriented are valuing behaviors that promote exploring and developing new ideas that are new and risky and have the potential to be turned into new products and services. In respect to outcome-oriented culture, organizations value performance assessments that focus on results as well as organizational members to be result-oriented. All these factors represent important factors that facilitate innovative behavior.

Moreover, the results demonstrate that technical innovations from their structural perspective have their positive effects through their cross functional teams and cross functional product design that facilitate creating new ways to provide new products for customers. Shifting from function to product or customer orientation is another aspect of OI. Taking into consideration customers and their preferences set the stage for open innovations and external interactions. Adapting a customer value creation emphasis the firm to learn extensively about its markets and target customers, and managers must translate this intelligence generation capability into the key business and superior performance with customers (Woodruff 1997; Flint et al 2002). On the other hand, from the procedural perspective, technical innovations such as applying new organizational concepts such as team work, job rotation, job enlargement, job enrichment, continuous improvement process, quality circles, quality audits, preventive maintenance all have their significant effects to achieve higher level of performance.

Armbruster et al (2008) state that the adoption and implementation of concrete organizational concepts has a paramount impact on the ability of a company to improve its performance (e.g., Caroli and Van Reenen. 2001; Damanpour et al.,1989; Greenan,2003; Piva and Vivarelli,2002). Employees technical training is an essential factor for banks success to improve productivity and profitability. It creates opportunities for career development and personal growth, and it is considered as an important factor to retain employees and to teach them how to use technology effectively. Bartel (1989) claims that formal training has a positive effect on labor productivity, especially in those business that evaluated their training programs based on productivity indicator. All these technical innovations (structural and procedural) represent the foundation for OI.

7. Conclusion:

This study helps to clarify how the technical and social nature of OI could be classified and categorized into the structural and procedural perspectives. As a conclusion to the above findings and discussion we can state that an analysis of the socio-technical organizational innovation from its structural and procedural perspectives has shown that it is positively related to organizations performance and competitive advantages.

Armbruster et al (2008)stated that there are many studies on innovation that noted that increased R&D activities lead to innovative products which enable companies to achieve competitive advantages and to gain market shares (e.g., Freeman and Soete, 1997). The effects of innovation on organizations performance and competitiveness has been examined extensively in prior research and notable empirical evidence of direct effects have been spotted. (Hult et al., 2004; Thornhill,2006; Helfat and Reteraf, 2003; Keskin,2006).

Porter (1985) has considered innovation as one of the main drivers of competition. Artz et al (2010) opine that because of the increasing levels of competition and decreasing product life cycles, a firm's capability to produce a continuous flow of innovations may be more important than ever in allowing a firm to improve profitability and maintain competitive advantage . To conclude the above discussion, banks are often introducing new products and services to customers to gain a valuable market share, continuously improving their products and services to

meet customer expectations and to gain customers satisfaction and loyalty and market competitiveness.

8. Research limitations and future research directions:

Several limitations to the study can be noted and other relevant issues which have not been analyzed but which have been arisen during research and should be taken into consideration in future researches. First , the comparison between the governmental and private banks in their capacity to innovate and searching for differences in this capacity. This capacity is influenced by the employees abilities to innovate and create new ideas which reflect their professionalism, education, experiences, knowledge, and also personality. It is also influenced by the organization environment to foster innovative behaviors. Stowe and Grider (2014)state that many researchers in the field point out that there are at least two dimensions to advance innovation: 1) increasing an individual's ability to innovate (Kaufman, 2010), and 2) improving the organizational environment to foster innovative behaviors that accelerate innovation (Carlo, Lyytinen & Rose, 2012; Dagyte,2010; Thursby, Fuller & Thursby,2009). The authors further claim that teams are employed to handle issues and solve problems and the creative part could be rotated among members in successful teams.

Second, another comparison between governmental and private banks should be taken into consideration which reflects the priority of technical or social (management) innovations in these banks. Price (2007) pointed out that leaders of innovative organizations tend to have a clear picture of the results they wish to achieve, explain and share clearly their vision such that they are motivated to do more than just "get by". Third, another dimensions should be taken into consideration which are the age, size, and structure of banks and searching for relations between these dimensions and the capacity to innovate. All these axes of research have their effects on the performance and competitiveness. Fourth, the sample was from a single country, which limits the ability to generalize from the findings. Future research using data from other countries overcome this limitations. Fifth, the study focused on organizational innovations as an output which is according to the dual-core model (Daft, 1978) is a combination of new practices, techniques, processes which take place in either technical and administrative (social) cores or sub-systems, leaving the organizational process innovation for future research. Finally, other variables are not

investigated in this study such as learning orientation and total quality management and have been theorized as drivers of innovation and business performance and competitiveness that should be taken into consideration in the future research.

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