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## The Impact of Innovation Activities on the SME's Growth Performance: A Study of Small and Medium Sized Firms in the Emerging Egyptian Market, Egypt

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### **Abstract:**

*The purpose of this study is to contribute to the literature on business management and innovation on SMEs and their innovative behaviors in the socio-economic context of Egypt. The Egyptian market is considered to be one of the fastest growing emerging markets and economies in the Middle East and North Africa and is dominated by SMEs. With the support of the government, it has reached substantial levels of modernization, industrialization, and rapid economic growth.*

*The research problem of this study is: to identify the factors that facilitate innovation practices for SMEs in the emerging Egyptian market and examine the relationship between innovation practices and business growth. Furthermore, the specific objectives of this research study are: to provide new insights into the innovation development activities of an emerging market (the macro-environmental perspective); gain a better understanding of the innovation capacities and practices of SMEs (the micro-environmental perspective); and determine the impact of innovation practices on the business growth of SMEs. The focus is on the innovation practices of SMEs and their key external and internal backgrounds, and the impact of these innovation practices on business growth in the emerging Egyptian market.*

**Keywords:** Innovation, Business performance, small and medium-sized enterprise, Growth, Egypt

### **1. Introduction**

The competitive environment in most countries and for most companies (regardless of size and sector) has changed as production has become more technology-driven and knowledge-based, and competition has increased. Globalized and has become a more innovation-driven company (Mytelka 2000; Szirmai, Naude & Goedhuys 2011). To survive in today's global market economy and achieve long-term success, companies have recognized the importance of being able to adapt and continue to innovate to overcome intense competition and meet changing market demands (Tucker 2002; Cefis & Marsili 2005; Brem & Voigt 2009; Hertog 2010; Ellonen, Jantunen and Kuivalainen 2011). The upheaval of developing markets and economies has created remarkable changes through structural reforms and investments that enhance growth and is providing businesses with more opportunities and enabling environments (Kim and Lim 1988; Arnold and Quelch 1998; Mahemba and De Bruijn 2003; Hertog 2010; Adams and Comber 2013; Hossain 2013).

The purpose of this study is to take advantage of the issues related to innovation practices and their antecedents (external-driven and internal-driven determinants) and the impact on business growth performance in small and medium-sized enterprises in the emerging market of Egypt.

It also looks for ways to encourage and support the development of small and medium-sized enterprises that lead to true diversification, technological upgrading and growth of promising business models that have mainly been limited to large companies in the local Egyptian market. However, for small and medium-sized enterprises to deliver innovation, a number of challenges and determinants must be addressed and investigated. This study focuses its research on the contexts of Egypt's emerging market, small and medium-sized enterprises, and innovation capabilities and practices. Economic experts, academics, professionals and policy makers have shown interest in small and medium-sized enterprises (SMEs), as they are seen as the backbone of any economy, the engine of economic growth, a major player in creating employment and productivity growth, and source of innovation in both developed and developing countries (Li and Rama, 2015; Love and Roper, 2015; Aceleanu et al., 2014).

Micro, small and medium-sized enterprises (hereinafter referred to as SMEs) have played an important role in the economies of every country in the world and are the focus of economic development for both developing and developed economies. SMEs are called the engine of European economic development, as they represent an important establishment

for fostering significant entrepreneurship, innovation, competitiveness and employment (European Commission, 2005; Wymenga, Spanikova, Barker, Konings, & Canton, 2012).

The growth of SMEs is the main focus of the government of each country because growth determines the success of SME enterprises and is critical to the development of any country. Companies develop various strategies to grow their businesses. Companies' growth strategies result in long-term results in the form of superior business, higher profits, and increased numbers of employees, as well as expansion of business operations.

Small and medium-sized enterprises (SMEs) are seen as the driving force behind employment growth, a source of innovation and technological progress.

Furthermore, the success of small exporters is essential for economic growth and is considered an important stage of development for many SMEs. However, its competitive advantage lies in the company's ability to innovate. SMEs play an important role in any country, contributing to economic growth, employment, and poverty reduction (Ayyagari et al., 2007). These are some of the reasons why SMEs are seen as engines of growth, especially in developing countries. One of the reasons includes promoting entrepreneurship and innovation activities that enhance competition and productivity growth.

SMEs are more productive because they are more flexible and can adapt to market changes. In addition, they mainly contribute to employment growth, although both the establishment rate and the bankruptcy of SMEs are high (Tambunan, 2007). Innovation activities try to introduce new forms of products, services, production, marketing and administration, which are difficult to imitate (Konsti-Laakso et al., 2012). Despite the growing awareness of the need for innovation activities within SMEs, few studies have examined

Growth is associated with the survival of the company and the achievement of organizational goals. It is measured in terms of employment, income, market share, and product development (Pasanen, 2007). Organizational growth has gained interest among different academics mainly because it contributes to the economy through the creation of new jobs. Growth is considered an indicator of organizational performance and is associated with the achievement of financial goals. The company's turnover is the most frequent measure of growth, which addresses tax concerns, while the number of employees is another measure of growth, which addresses employment concerns. There is an interconnection between these two growth indicators in the context of SMEs, and they are used for their visibility and ease of obtaining within organizations (Fadahuni, 2012).

## 2. Literature Review

### 2.1. Technology Orientation and Innovation

The technological capacity of a company leads to successful innovation in the creation of services and products according to the needs of consumers and markets (Zhou et al., 2005; Berkhout et al., 2010). The acceptance of technology and its adaptation allow a company to achieve high productivity and better quality of new services and products (Hjalager, 2010).

The technological position of companies determines their successes of leadership in technology, competitive advantages, differentiation of services and products and better performances (Gatignon & Xuereb, 1997; Hamel & Prahalad, 1994; Hitt et al., 1990). Companies that remain proactive in obtaining and adopting new technologies are likely to be more innovative due to their strong emphasis on technological applications for the development of new services, products, and processes (Laforet & Tann, 2006; Cooper, 1994). Firms that combine technology with innovation and customer value innovation actually enjoy more sustainable benefits (Humphreys et al., 2005; Kim and Mauborgne, 1999). The innovative behavior of SMEs is determined by the use of technology in their administrative tasks (Cumming, 1998). However, SMEs face challenges in terms of their ability to invest heavily in the development and adaptation of new technologies that may lead them to acquire technology through value chain activities or through outsourcing (Salavou et al., 2004; Mahemba & De Bruijn, 2003; Alstrup, 2000).

Technology opportunities can influence the pace and direction of innovation (Nemet 2009), whereas a company with a technology-oriented perspective has the ability to 'acquire a substantial technology base and use it in new product development' using its resources and capacities to develop and acquire new technological opportunities (Gatignon & Xuereb 1997, p.78). A technology-oriented company offers consumers, who prefer products and services of technological superiority, new and better technologies and technical solutions (Gao, Zhou & Yim 2007). For companies to explore new technologies and implement these technologies effectively, it depends on the existence of niches and marginal markets, experimental users, or both (Crane 2007; Malerba et al. 2007).

As Gatignon and Xuereb (1997) have pointed out, the technological orientation reflects a company's philosophy of how to apply and develop new technologies or products to interact with the market, through active development and incorporation of new technologies in its products. Therefore, the technological orientation guides the company's attempt to achieve a technological capacity superior to that of its competitors (Hakala and Kohtamäki, 2011). Based on a technology-oriented concept that reflects the philosophy of 'technology push', consumers prefer to choose and use technologically superior products and services (Zhou and Li, 2007).

Technological innovation derived from the idea of 'innovation', which is a process initiated by the perception of a new market and / or a new service opportunity for a technology-based invention; which leads to development, production and commercialization tasks that fight for the commercial success of the invention (see García and Calantone, 2002).

The use of technology in administrative tasks by SMEs is measured as innovative behavior (Cumming 1998). However, SMEs face the challenge of their ability to face the large investments and qualified people necessary to generate and / or

adopt new technologies that may lead these companies to seek technology through outsourcing and / or chain activities. value (Alstrup 2000; Mahemba and De Bruijn 2003; Salavou, Baltas and Lioukas 2004).

- H1: Technology orientation will have a significant positive effect on a firm's innovation practices.

## 2.2 Technology Orientation and Business Performance

Technology-oriented companies dedicate their resources to the acquisition of new and advanced technologies and the development of new processes, products and services, although the rate of technological change within an industry could affect its adoption and / or technological development (GY Gao, KZ Zhou and CK Yim, 2007). Previous studies have found positive relationships between technological orientation and business performance (Gatignon and J-M. Xuereb, 1997). The importance of technology orientation for innovation has long been recognized (P. Humphreys, R. McAdam and J. Leckey, 2005). But the relationship between technology orientation and business performance has received minimal attention in the literature (G.B. Voss and Z.G. Voss, 2000). Companies that are high-tech oriented perform better business when technology changes rapidly because they can introduce new processes, products, and services to meet customer needs (G. Hamel and C.K. Prahalad, 1994).

Technology-oriented companies that combine customer value innovation with technological innovation are more likely to enjoy sustainable profits and performance (Gatignon and JM. Xuereb, 1997). However, given technological advances in the dynamic Egyptian market, SMEs must experiment with new technologies to survive ((GB Voss and ZG Voss, 2000). Therefore, the following hypothesis is proposed:

- H2: Technology orientation will have a significant positive effect on a firm's business performance.

## 2.3. Innovation and Business Performance Innovation

It is an important determinant of business performance in a changing competitive environment (E. Bueno and P. Ordonez, 2004). Business performance is related to the ability of the company to make profit and growth to achieve its overall strategic objectives (GTM Hult, RF Hurley and GA Knight, 2004) Business performance is the result of the interaction between actions taken in relation to the competitive forces that allow the company to adapt to the external environment, thus integrating efficiency and effectiveness (D. Miller, 1988) Keizer et al. (J.A. Keizer, L.D. Johannes and I.M. Halman, 2002) emphasize that the innovation performance of the company depends on the opportunities offered by its external environment. Egypt's SMEs can use innovation as a tool to achieve better business performance (H. Forsman and S. Temel, 2011). taking into account that important innovations are those that contribute to business performance (G.T.M. Hult, R.F. Hurley and G.A. Knight, 2004).

Some studies have found a significant relationship between innovation and sales growth and profitability (H. Forsman and S. Temel, 2011). while others have found a non-significant relationship between innovation and return on investment, but the link between innovation and business performance needs to be tested in a different market context (H. Capon, JU Farley, DR Lehmann and JM Hulbert, 2007)., the following hypothesis is proposed:

- H3: Innovation will have a significant positive effect on a firm's business performance.

## 3. Conceptual Model

Figure 1 exhibits the conceptual model of the current research with the hypothesis's illustration.

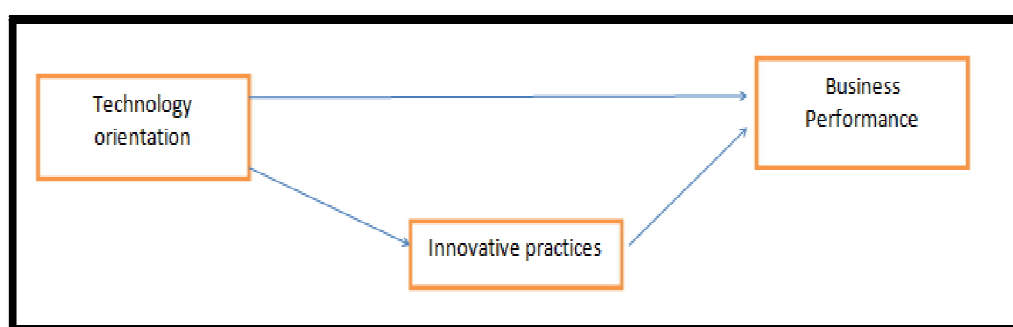


Figure 1: Conceptual Model  
Source: Developed by the Authors

### 3.1. Research Methodology

The research population was determined to include all SMEs in Cairo, Giza, as well as in the city of Ramadan 10 and October 6, where those areas represent the main industrial areas within Egypt. According to the 2017-2018 Industrial Development Authority report: technical, chemical, food and textile industries are the main industries in Egypt. The table represents the population of SMEs by industries and locations in Egypt.

	Cairo	Giza	6 <sup>th</sup> October	10 <sup>th</sup> of Ramadan
Technical industries	207	34	85	134
Chemical industries	159	48	63	101
Food industries	59	43	32	35
Textile industries	117	26	13	44
Total	542	151	193	314

**Table 1: Error! No text of specified style in document. SMEs Population by Industries and Locations in Egypt**  
Source: Industrial Development Authority (2017-2018)

The population of this study comprises SMEs in the technical industries and food industries of the manufacturing sector in Egypt

### 3.2. Sampling Type and Size

Sampling is the process of selecting enough elements of the population to study, where it is almost impossible to collect data from the entire population (Cavana, et al., 2000). 'The need to choose the correct sample for a research investigation cannot be overstated' (Sekaran, 2003, p. 267). The study population includes SMEs in Egypt. The sampling unit involves senior managers of SMEs for the following reasons: (a) senior managers represent a well-informed source of information (Semrau, Ambos & Kraus, 2016), (b) SME owners and managers have an understanding Clear of the commercial operation, connections will contribute to increase the precision of the answers and are the most knowledgeable people of the firm (Hean, Thi and Ping, 2007).

Consequently, this research follows a non-probability sampling design, where the elements or sampling units of the population are not likely to be chosen as the sampling unit. The non-probability sampling design carries the possibility of generalizing the results to the entire population, but at the same time it could offer potentially important and useful information about the population (Sekaran, 2003). The choice of subjects or companies to be included in the sample will follow judgment sampling as a type of intentional sampling in which it is important to obtain information from a specific target group. Therefore, the judgment sampling design is necessary when a certain group or category of sampling units has the necessary information so that the entire population has useless information.

### 3.3. Data Collection and Measurements

Data were collected using a self-administered questionnaire; A well-developed questionnaire provides accurate and usable data that will support data analysis and results. There are many advantages and disadvantages to using a questionnaire. It is inexpensive in time and money and is a quick way to get responses from a large number of respondents, protect the anonymity of respondents, and reduce interviewer bias (Gilham, 2000). However, data quality problems, low response rate, problems encouraging respondents to complete the questionnaire, lack of control over responses, problems verifying the seriousness or honesty of responses are considered drawbacks of using this technique (Gilham, 2000). Therefore, there is no single way to collect data; however, the use of a self-administered questionnaire helps the researcher to reach different respondents in Egypt through a personally administered questionnaire. The advantage of the personally administered questionnaire is the response rate close to 100%; while the main disadvantage is that respondents may be reluctant to provide the time necessary to complete the questionnaire (Sekaran, 2003).

### 3.4. Measurement and Scales

This section explains the measurement of all the constructs involved in the investigation. All the items of the questionnaire were adopted from published works that were relevant to this study, where it is important to reflect the questions used for each construct, number of items, number of responses (it is a 5 or 7 point Likert scale) as well as their reliability. and internal validity (Fallon, 2016). Two types of questions were used in the study: closed questions and open questions. Open questions are used only in background questions and are too difficult to analyze (Gilham, 2000). However, closed questions represent the majority in the questionnaire for the following reasons: i) they take less time to answer, ii) they facilitate data tabulation and analysis, iii) they require less time from an interviewer and iv) almost the majority Previous studies use closed questions to measure similar research variables (Sekaran, 2003). The interval scale is used with closed questions based on the information required to test hypotheses, where respondents are required to indicate their degree of agreement or disagreement on a 5-point Likert scale, which is considered common in social science studies (Cavana, et al., 2000). In this study, a five-point Likert scale is used that ranges from strongly or totally disagree to very or totally agree. Although scale questions are the most widely used and the most familiar, there are some weaknesses related to scale questions in the sense that respondents do not use the full scale and no one knows the reasons behind their answers (Gilham, 2000).

## 4. Results Discussion

First, the scales were tested for validity and reliability. Second, path analysis (smart pls) is used to test the developed hypothesis. The main objective of Smart pls is to determine to what extent the theoretical model is supported by sample data (Schumacker & Lomax, 2004, p. 2). Path analysis is used when multiple variables are observed to better

understand the phenomena being investigated 'complex phenomena need to be statistically modeled and tested' (Schumacker & Lomax, 2004).

PLS results for the structural model and summarizes the results of the hypothesis test (H1: H3). The central criterion for evaluating the structural model is the coefficient of determination  $R^2$ . Innovative practices and business growth performance with  $R^2$  values of 0.326 and 0.192 respectively, are considered evidence of the predictive accuracy of the model because they are greater than the recommended 0.10 (Falk and Miller, 1992). Following the general rules suggested by Chin (1998), the  $R^2$  values of innovative practices and business growth performance can be considered weak.

The results indicate that technology orientation has the strongest significant positive effect on business growth performance of companies (trajectory coefficient = 0.197,  $t = 2.954$ ,  $p < 0.01$ ), which supports (H2)

Under hypothesis H3, a significant positive relationship was found between technological orientation and innovation practices, which means a finding consistent with previous research studies (Ettlie & Bridges 1982; Hitt, Hoskinsson & Ireland 1990; Cooper 1994; Wilson, Ramamurthy & Nystrom 1999; Aragon -Sanchez and Sanchez-Marin 2005; Humphreys, McAdam and Leckey 2005; Tidd, Bessant and Pavitt 2005; Jeong, Pae and Zhou 2006; Yang et al. 2012). The reason for the average effect is that SMEs in the Egyptian market are likely to adopt and / or generate technology to support innovative activities and have realized that their technology policies and adaptation of new and emerging technologies play an important role in upgrading of internal processes and methods and in the allocation of resources for investments in the latest technologies to support innovation.

Technology-oriented small and medium-sized companies have a competitive advantage in terms of technological leadership and offering new and differentiated products and services (Hamel & Prahalad 1994; Gatignon & Xuereb 1997). However, SMEs are sometimes unable to respond effectively to the emergence of new technologies (Tripsas and Gavetti 2000), are unwilling to change, and may stick to dominant organizational routines that increase dependence on existing resources and capabilities. but that prevent the development of new skills. (Gilbert 2005).

When a company implements a new technology, it can first lead to quality and productivity improvements and then slowly to internal changes; however, only when a company has adapted, explored and generated this new technology (Hjalager 2010). Impacts can be enhanced if technology applications are combined with strategic and managerial measures, such as skills development. For example, social media, as a technological push, begins to have an impact on management practices, business operations, marketing methods, and subsequent innovations.

Under hypothesis H3, a non-significant relationship was found between innovation practices and business growth performance, which means a finding consistent with previous research studies (Mone, McKinley & Barker 1998; Roberts 1999; Gunasekaran, Forker & Kobu 2000; North & Smallbone 2000; Calantone, Cavusgil and Zhao 2002; Hult, Hurley and Knight 2004; Carol and Mavis 2007; Otero-Neira, Lindman and Fernandez 2009; Pett and Wolf 2011; Talke, Salomo and Kock 2011). The reason for the weak effect is that there is no supporting evidence among SMEs in the Egyptian market that innovation practices have an impact on business growth.

Innovation and its importance are recognized as having a positive impact on economic development, competitive advantage, and business growth (Heunks 1998; Parrilli & Elola 2011; Francis et al. 2012).

#### 4.1. Academic Contributions

This study presents new perspectives to build on existing knowledge of innovation practices and business growth performance in SMEs in the context of the emerging Egyptian market that includes different levels of contributions: theory, empirical.

#### 4.2. The Theory Level

It provided useful information for theory building based on previous interpretations and discussions of the findings and has examined a number of external and internal factors of innovation practices in SMEs and the impact on business growth performance, and sought opinions from approximately 200 companies. It addresses the concern of Martínez-Román, Gamero and Tamayo (2011) who are in favor of adopting a holistic approach to innovation incorporating macro (external) -and-micro- (internal) -environmental contexts, similar to this study. It can be considered as the first comprehensive conceptual model, which has investigated SMEs and their innovation practices and business growth performance in a market similar to the emerging Egyptian market and has used and incorporated newly developed measures and elements. Furthermore, this study has argued that the innovation management literature from larger companies and developed countries is the result of research on innovations in those countries that may produce different results when conducted in smaller companies and developing countries.

#### 4.3. The Empirical Level

This study empirically establishes the nature, direction and relationship of a series of factors that enable innovation practices in SMEs and their impact on business growth performance in the context of the emerging Egyptian market. The literature has neglected the role of SMEs in innovation in places like the Egyptian market and, at the same time, has not had a comprehensive study that proposed a hypothetical conceptual model for predicting innovation practices within SMEs. Furthermore, this study adopted a positivist paradigm and empirically tested a hypothetical conceptual model using cross-sectional data and questionnaire approaches from surveys of SMEs in Egypt. Thus, seven hypotheses were analyzed using a structural equation modeling technique (partial least squares technique). This study serves the research community as a significant starting point for future research and provides valuable information for companies in other countries in the Middle East and North Africa facing similar market situations.

The gap related to the lack of knowledge and empirical information on innovation and business performance within SMEs in the emerging Egyptian market is enriched by the results of this study. He has empirically demonstrated the multidimensionality of externally and internally driven constructs by showing the different effects of their components on innovation practices in different environmental contexts (i.e. the Egyptian environment).

#### 4.4. Future Research Recommendations

The study recommendations derived from the results encourage and open more avenues for future research. These suggested topics are discussed as follows:

- First, the application of a paradigm of positivism, deductive and quantitative research methodologies, and survey research strategy approaches to other states and neighboring countries, which have a large number of SMEs and are committed to promoting innovation activities with the in order to validate and generalize these results to wider audiences and situations.
- Second, comparing the innovation and growth practices of locally-operated SMEs and foreign-operated SMEs can further broaden our understanding of SME innovation practices. It will provide different practices and recommendations on how locally operated companies can improve their innovation practices and business growth performance. It is also important to distinguish between innovation that is new to a company, market or country and innovation that is new to the global market and economy.
- Third, SME resource-based innovation research needs more research in these emerging market economies where critical skills and competencies that affect sustainable competitive advantage are limited. There is an incomplete understanding of how innovation processes can be carried out, including the types of capabilities and incentives on which they are based. Furthermore, the limitations and barriers to innovation of SMEs in an emerging market can be studied in more detail in order to gain a better understanding of their limited resources and capabilities.

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