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## Developing a model of E-business implementation for SMEs in Libya

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### Abstract

The main purpose of this paper is to conceptualize the implementation of e-business system in Libyan small and medium enterprises (SMEs). SMEs in Libya are still far behind in the implementation of e-business despite of the offered benefits and proliferation of e-business because they consider it an emerging phenomenon. This paper therefore develops a framework for e-business implementation which is composed of internal and external factors. The proposed framework is then used to guide future study in exploring its implementation. The proposed framework will be empirically validated by self-administered survey questionnaire among small and medium enterprises of Libya.

**Keywords:** E-business, Technology Acceptance Model, Libya

### 1. Introduction

The role of SMEs is crucial in the growth of global economy, where, the share of SMEs is above 90 percent of the total businesses in any country generally (Janita and Chong, 2013) [9]. However, the number of Libyan SMEs who have implemented e-business are still considered very low, which is a crucial issue to be addressed for improving Libyan share in international trade and its economic growth. In Libya, though there are series of efforts to improve and standardize the acceptance and implementation of e-business by Libyan government but the implementation of e-business faces series of setbacks; one of which is the total control that the government has over the media which limits the exploration and web surfing.

Electronic business focuses on the use of ICT to enable the external activities and relationships of the business with individuals, groups and other businesses. Electronic business methods enable companies to link their internal and external data processing systems more efficiently and flexibly, to work more closely with suppliers and partners, and to better satisfy the needs and expectations of their customers. E-business seeks to add revenue streams using the Web or the Internet to build and enhance relationships with clients and partners and to improve efficiency using various forms of E-business strategies.

It is evident from the reviewed literature that though there is no market for e-business but the innovation in technology generated great market opportunities for businesses especially for the financial institution, limiting the risk, reducing the waiting time of transacting business and at the same time traditional geographical barriers are reduced (Ahmed and Hawedi, 2012) [1]. To mere imaginary. In addition to this production or operating cost are drastically reduced with effective implementation of e-business (Chhabra, 2012) [3], but can also leads to greater debt if e-business practices is not properly implemented. Moreover, Kaynak and Tatoglu (2005) [10] noted that new carrier opportunities among others; emerged with e-business which is a good indicator of contributing to a nations GDP (Gross Domestic Product) in terms of personnel or human factor.

Thus, the economy of Libya still needs a great improvement and the adoption of electronic means by business companies, thus, improving the economic health of the country. A detailed study is required in order to examine the risks, issues and problems and addressing the question of why Libyans are still behind in implementing e-business practices. Thus the main research question arises are as follows:

- What are the internal factors that could influence the implementation of E-business system in Libya?
- What are the external factors that could influence the implementation of E-business system in Libya?
- What is the relationship between internal and external factors, and implementation of E-business system?
- What is the E-business model for implementation of E-business in SMEs?

The research objectives of this study are as follows:

- To identify the internal factors that could influence the implementation of E-business system in Libya
- To identify external factors that could influence the implementation of E-business system in Libya
- To examine the relationship between internal and external factors, and implementation of E-business system
- To improve an E-business model for the SMEs in Libya.

## 2. Significance of the study

The present research study presents many significant contributions to the field of e-business. As the very first contribution is building a model that can report to the adoption and implementation of e-business in the context of developing countries like Libya. Moreover, as this study focuses on the identification of gaps existing between efforts of the businesses for the implementation and diffusion of e-business and the expectations of the citizens for the use and adoption of e-business. In addition to this, the policy makers can identify the key organizational issues with the help of conceptual model given proposed in present study. Furthermore, this research categorizes the major organizational, political, technological and social themes and challenges related to it influencing the adoption and implementation of e-business.

Setting the right and achievable goals for the provision of secured Information Technology (IT) facilities as the result of which business activities will get great support. Before the arrival of the internet, Libyan companies used to rely on personal systems like electronic information exchange for their marketable transactions and business, which was not only costly to set up but also hard to maintain (Chhabra, 2012)<sup>[3]</sup>. However, Libyan people began using the channels of e-business with the arrival of the internet because of its open standards and low cost.

The challenges and barriers faced by business in the adoption and implementation of e-business are also highlighted in present research in context of Libya that would be helpful for the government for designing its policies by giving top priority to urgent issues and hurdles that are slowing down the pace of adoption of e-business channels by local companies in Libya. Chhabra (2012)<sup>[3]</sup> writes that the execution of e-business can be facilitated by making effective policies and offering incentives at government level as it encourages firms and organizations to offer as well as to secure business transactions by electronic means. However, (Kaynak & Tatoglu, 2005)<sup>[10]</sup> suggest that the favorable environment for e-business cannot be achieved without encouraging the mass usage of IT tools for business transactions. Mass usage of IT tools has numerous advantages to the society, example of such study carried out by on librarians, concluded that Librarians choose to offer research journals and periodicals through electronic

resources face many determinants that affect the satisfaction with the project, moreover, under this study he affirms that using IT tools is cost effective. In addition to this, both government, and non-governmental organization would get huge benefit because in the long run, the national barriers will be reduced with the introduction of e-business making information available for both the society and the government at a very cheap cost and in no time.

## 3. Literature Review

E-Business is defined as an emerging concept portraying the exchanging process or the process of selling and purchasing goods and services through internet using a computer or mobile. Moreover, all types of commercial actions and activities using the platform of computer and its related applications come under the umbrella of e-business implementation.

The acceptance of electronic business (e-business) has facilitated strong business connections between producers and consumers by modifying new roles that are also to business operation which offers consistent assistance that brighten its technological attributes. E-business is currently in the emerging stages in Libya with few players in the industry. There is only single provider of internet services in Libya with only two mobile connection operators (a total of nine telecommunications operators). Despite these challenges, Libya asserts high access rates of mobile and the Internet i.e. 201 percent mobile penetration rate and 15 percent internet. argued that Libya has a lot of potential for e-business and e-commerce as it has not been fully implemented in the country. Though businesses are being run smoothly without technological factors, but researchers argued that regardless of the size of the organizations or operations scope; due to the fact that current economic climate is becoming more competitive in the adoption of e-business, it will strategically empower such organization who adopt or wishes to engage in e-business technological changes, to be highly competitive as compared to the competitors who failed in the adoption of such technology of e-business.

Electronic business focuses on the use of ICT to enable the external activities and relationships of the business with individuals, groups and other businesses. Electronic business methods enable companies to link their internal and external data processing systems more efficiently and flexibly, to work more closely with suppliers and partners, and to better satisfy the needs and expectations of their customers. According to a comprehensive e-business model is composed of the following six elements:

- A description of the *customers* to be served and the company's relationship with these customers, including what constitutes value from the customers perspective (customer value proposition)
- A description of all *products* and services the business will offer
- A description of the *business process* required to make and deliver the products and services
- A list of the *resources* required and the identification of which ones are available, which will be developed in house and which will need to be acquired
- A description of the organization *supply chain*, including *suppliers* and other *business partners*

- A description of the revenues expected (revenue model), anticipated cost, sources of financing, and estimated profitability (financial viability).

In Libya, the government is encouraging its citizen to conduct their business transaction online. Conducting this study on Libyan soil will add to existing of literatures on e-business and will give more insight on factors that influence e-business operation as per on Libyan context.

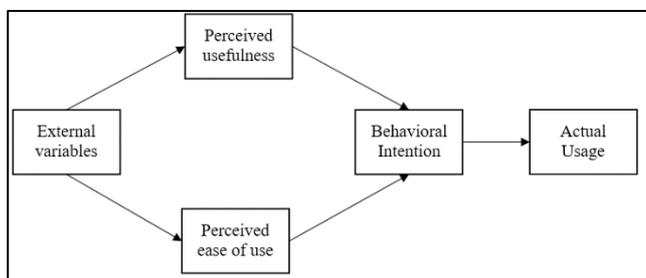
**3.1. Underpinning theories**

Despite the challenges facing adoption and implementation and execution of e-business, firms who try to manage the risk well and implement it has high survival rate than their competitor feel reluctant to adopt e-business to aid their traditional business practices. This study adopts technology acceptance model to fulfill the business strategies to successfully implement e-business in Libyan SMEs. The main purpose of the theory is to attempt an approach of the literature and understand its essential philosophical concepts. In order to explain the implementation of e-business, technology acceptance model (TAM) is discussed critically.

**Technology Acceptance Model (TAM)**

TAM is considered as an adapted model of reasoned action theory as stated by. TAM is deliberated as a model that is intention-based. Attitudes are affected by beliefs in reasoned action theory, that shows intentions and behavior is developed. Two factors are presented in TAM i.e. the ease of use and the perceived usefulness; these two factors are considered to be the main primary relevance in affecting IT acceptance behaviors. Davis *et al.*, (1989) [4] stated that perceived usefulness mediates the impact of perceived ease of use on attitudes and full usage. In summary, perceived usefulness gets directly effects attitude and full usage.

Perceived usefulness (PU) is the extent to which individuals expected the implementation of a certain technology would improve their job performance. Perceived ease of use (PEOU) as the extent to which individuals thought that using a certain technology would be simple. PU and PEOU affect the attitude of individuals regarding the use of a particular technology, as attitude and PU indicate the individual’s behavioural intention (BI) to adoption the technology.

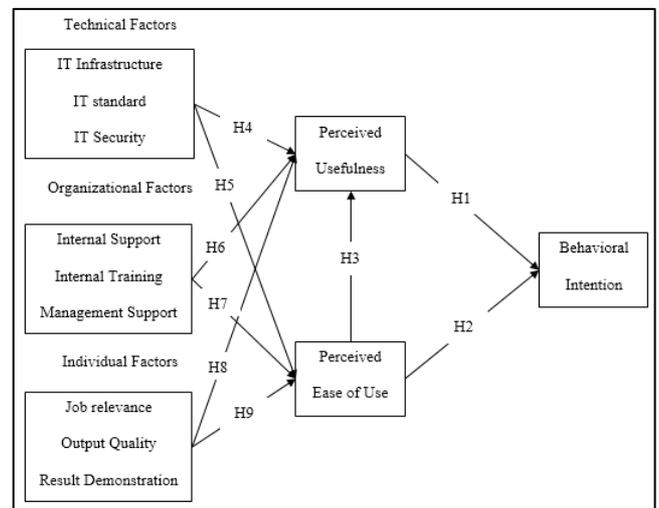


**Fig 1:** Technology Acceptance Model (Davis, 1989) [4]

Figure 1 illustrates Davis’ original edition of TAM. A heavy body of the literature on e-business adoption has consternated on the acceptance of e-business technology. E-business technology acceptance and success have been submitted to study at both institutional and individual level. The most familiar model which is used for technology adoption is the Technology Acceptance Model (TAM).

Based on the above discussion, the TAM model is appropriate to this study as previous studies used TAM model based on individual's prediction to use particular system such as e-business, thus this study adopted three major constructs of TAM, namely, perceived ease of use, perceived usefulness and full usage, to reflect user’s adoption of e-business.

TAM model by Davis, *et al.* (1989) [4] suggested that the behavioral intention of the users can be evaluated by PU and PEOU. But the most influenced factor found from the previous studies was the external factors. TAM that is adopted from Davis *et al.* (1989) [4] is heavily demanded by researchers for an effective decision making process. The conceptual framework of the study is grounded by the TAM model that was suggested by. The TAM, suggested by, generally elaborates the computer acceptance determinants and examine the effects of external factors on internal intentions, attitudes and beliefs.



**Fig 2:** Proposed model of e-business implementation by SMEs

Therefore, by examining the internal and external factors in this study, the innovation decision of implementing e-business in Libyan SMEs can be fulfilled by increasing the technological awareness and attitude of the users. Based on the literature review, the proposed model in Figure.1 captures the potential factors that influence behavioral intention of the managers to implement e-business system. A discussion on each construct is provided in the next section.

**Factors affecting e-business implementation**

External factors involved, Technical variables like (IT Infrastructure, IT standards, IT security). Organizational variables like (Internal support, internal training, management support) and individual variables like (Job relevance, Output quality, Result demonstration).

**Technological factors**

This study used IT infrastructure, IT standards and IT security as the three key technological factors that influence behavioral intention of the SMEs to implement e-business system. Role of IT is very crucial in the organization. Before the emergence of internet in 1980s, the firm in order to improve their internal communication and internal efficiency were pursuing actively for IT.

The development of the IT based system of e-business is essential that has a significant role. The multiple services access is also allowed by the Internet as a base for supporting the system of digital broadcast for the application of global digital network. The determination and monitoring of the quantity and quality of the telecommunication network is the responsibility of the firms for handling the new internet traffic. The development of the IT based system of e-business is essential that has a significant role. The multiple services access is also allowed by the Internet as a base for supporting the system of digital broadcast for the application of global digital network. The determination and monitoring of the quantity and quality of the telecommunication network is the responsibility of the firms for handling the new internet traffic.

IT Standard is the factors that describes some IT system components because at the same time many users can access many offerings from different vendors and sources. Due to the technological motives, many efforts are primarily initiated. The role of IT Standards is vital in assisting people in managing and using technology. The life of the standards is useful and long in many technology fields making the development of long-lived and timely IT standards difficult due to rapid and continuous change.

Claimed IT security as the most important divisions of the security of information. The protection of information is the main objective of information security thus, guaranteeing the honesty and privacy. A large amount of personal and private information is dealt with the services of the e-business making the IT security the most crucial factors that influence the implementation of E-business, therefore, IT security has to be given great importance in E-business to guarantee the E-business services security.

### Organizational factors

This study used internal support, management support and IT training as the three key organizational factors that influence behavioral intention of the SMEs to implement e-business system. Internal support can be defined as the technical support offered by the groups and individuals with knowledge of the computer inside the organization (Allahyari and Ramazani, 2012) [2]. Igbaria *et al* (1997) [7] explored the factors that influence personal acceptance of computers in small organizations. They found that the intra and extra organizational variables significantly affect the adoption by the people and the organizations as well. Igbaria (1995) [6] claimed a significant association between PU and MS. Moreover, they stated that MS can guarantee adequate resource allocation and can create a better environment for the success of IT. But, the lack of MS can pose negative effects on the computers utilization (Davis, 1989) [4]. The pivotal component in starting an e-business is learning, asserted that the governments usually argue that their employees are not properly skilled in IT and this produces change resistance in them.

### Individual factors

Individual factors are also included in the category of external variables. Venkatesh and Davis (2000) [13] stated these individual factors as cognitive factors. The result demonstrability, output quality and job relevance are some of significant factors among individual factors to explain the acceptance of technology and its influence through PU (Venkatesh and Davis, 2000) [13]. The impact of result

demonstrability on PU is positive (Ramazani *et al*, 2012) [11]. Moreover, they claimed a positive association between individual factors and PU and PEOU and personal factors as well. Job relevance can be elaborated as the perceptions of individuals about the amount to which the system is appropriate and applicable to their job (Ramazani *et al*, 2012) [11]. In other words, it related to the suitability of technology and goals of a specific job of the individuals.

Output quality is the perception of individuals about the performance of the system or technology (Ramazani *et al*, 2012) [11]. Venkatesh and Davis (2000, p.192) [13] proposed that decrees about the output quality is like the profitability test, "in which, given a choice set containing multiple relevant systems, one would be inclined to choose a system that delivers the highest output quality". The demonstrability of results refers to the degree of the beliefs of the user that technology or system results are apparent and clear (Venkatesh & Davis, 2000) [13]. This has widely been discussed in the research studies about adoption of technology (Ilie *et al.*, 2005) [8].

### Perceived usefulness (PU)

The perceived usefulness of a system can be defined as the degree of the beliefs of individuals about the use of new technology regarding its role in improving their job performance. Many studies had presented support regarding PU is considered to be the main factor of IT usage (Davis *et al*, 1989) [4]. PU in context of SMEs can be defined as the amount to which SMEs think that the use of the E-business can improve their business performance, so PU can affect their intention to adoption and implement the E-business in a direct or indirect way.

### Perceived ease of use (PEOU)

The PEOU of a system means the extent to which individuals think that the use of a certain technology could be effort-free. In term of E-business, PEOU can be described as the extent to which SMEs think that using e-business could be effort-free and easy to use so SMEs interaction with the e-business is understandable and clear (Davis *et al*, 1989) [4]. PEOU can influence in the same way SMEs intention to adoption the ELS in a direct or indirect way through PU.

### Behavioral Intention (BI)

There are many models which have been improved to analyze and predict user's intention toward e-business. Moreover, Tung *et al*, (2008) [12] had improved integrated model for illustrating and predicting teacher implementation of web-based business systems by interrelating the concepts of user intention/behavior, information system success, and psychology. The TAM has been applied by many researchers in studies focusing on e-business and they found a significant effect of perceived usefulness and perceived ease of use on the behavioral intention of an individual towards using the system of e-business (Elkaseh *et al*, 2016) [5].

## 4. Research Methodology

### Research Approach

There are two important schools of thoughts with respect to methodology in the area of theory development and knowledge building. These are deductive and inductive research methods. The present research is follow the

deductive research because it's seek to develop some hypotheses based on the literature review then test these hypotheses.

### The research instrument

This research is quantitative in nature. Questionnaire is used as the data collection instrument and is adopted from other researchers who measured the scale in different studies. The questionnaire was adopted from the previous studies. The questionnaire involves eight sections 1- background information 2- full usage 3- Behavioral Intention 4- Perceived ease of use 5-Perceived usefulness 6- individual factors 7- organizational factors 8- technical factors. The items were measured using 5-point Likert scale (1 is Strongly Disagree to 5 is Strongly Agree).

### Population and sample

All SMEs (industrial firms) in Tripoli city of Libya are considered as the target population for present study. As per Ministry of industry and trade in Libya, the number of SEMs is 700. Therefore, the population of the study is 700 SEMs (Industrial firms). According to Sekaran table (see appendix B), if the population of the study is 700 then the sample of the study is 248. The random sampling technique will be used in present research.

### Data Analysis Techniques

The data will be analyzed using SPSS and AMOS virgon21.

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