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Factors Affecting e-Commerce Adoption in SMEs in the GCC: An Empirical study of Kuwait

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ABSTRACT

E-Commerce has become increasingly popular in our everyday business and personal lives. This study provided an insight about factors which led to the adoption of e-Commerce in Small and Medium-sized Enterprises (SMEs) in the GCC with an empirical study of Kuwait. The research is based on a wide literature review, focused on proposing a theoretical model of organizational, technological and environmental factors influencing e-Commerce adoption and implementation. This was achieved by distributing a questionnaire to examine the perception of e-Commerce adoption levels among SMEs from three main economic sectors in Kuwait. The results of study indicated that factors such as the organizational context (top management support), the technology context also (perceived benefits) and the environmental context (government regulations) are positively related to e-Commerce adoption. Limitations of the study include sample size preclude generalization to all SMEs in Kuwait but the trends suggest that further research should be a priority for industry, government and research academics.

Key words: E-Commerce adoption, Small and Medium-sized Enterprises, factors

INTRODUCTION

To achieve success in the 21st century and ability to facing new and more complex challenges, developed and developing countries around the world needs to develop ideas based on economy and community. This involves an economy and community that is effective in both creating and translate new business ideas into practical application. In this direction, many developed countries have concluded that their future depends on increasing investment in the underlying capability of the knowledge economy and providing a climate favorable to the rapid translation of new ideas into real business opportunities (Barba-Sanchez *et al.*, 2007). ICT has been recognized as one of four main pillars of the knowledge economy (Ceptureanu *et al.*, 2012; APEC., 2000; World Bank, 2007; OECD., 1996). Zaied (2012) indicated that the level of ICT adoption is related to e-Commerce adoption. The expansion of e-Commerce resulted increasing in the trend to analyze the effect of recent investments in information technology (Alamro and Tarawneh, 2011).

The emerging global market and spread used widely by ICT which considered critical for competitiveness of both large organizations and small and Sized Medium Enterprises (SMEs) (Harindranath *et al.*, 2008). In particular, that the SMEs play a significant role and considered to

be one of the principal driving forces in the socioeconomic development and continually creating new job opportunities, even in times of economic crisis, both developed and developing economies as that was documented by prior researches (OECD., 2010; Levy and Powell, 2004; Burrone, 2005). Consequently, "the performance of the SME sector is closely associated with the performance of the nation" (Chittithaworn *et al.*, 2011). Thus, the adoption of e-Commerce is considered to be necessary.

In this context, Cosgun and Dogerlioglu (2012) pointed out that a growing number of SMEs are adopting e-Commerce due to offering of the flexibility and ability to respond to new opportunities and innovations. Where application of e-Commerce technology has a number of different benefits, it helps the company to be communicating with customers and suppliers via Internet at anytime and anywhere, providing pre-sales technical assistance and after-sales support services to their customers and collecting market data and promoting their goods and services. In addition, Kotler and Armstrong (2010) described that the latest trend of channel disintermediation through e-Commerce enables the businesses to sell directly to the final buyers through cut out the traditional intermediaries. Gharegozi *et al.* (2011) state that the e-Commerce can help to achieve economic growth, enhanced competitiveness increased business opportunities and improve access to new markets.

Currently, the Internet has affected our day to day activities in a crucial way. It grows to be part of our routine due to the substantial yield. The majority of businesses turned into online, it alleviates the level of services by conducting business operations in an efficient way which eventually could enhance the supplier-buyer relationships (Chong *et al.*, 2001).

Additionally, use of Internet to apply e-Commerce, which includes advertising, selling, buying, distributing products and providing customer services. In addition, companies use the Internet in business-to-business and business to consumer transactions. Individuals also use the Internet for communication, entertainment, sharing information, buying and selling goods and services (Al-Alawi, 2006a). In fact, widely advantages that can offer to SMEs from e-Commerce, referred by Scupola (2009).

At present, though most small enterprises lack the knowledge of how investment in e-Commerce could benefit their businesses and assist them to reach their desired target (Gharegozi *et al.*, 2011). According to Zaiid (2012) many studies have pointed that SMEs are lagging behind to large firms in the usage and as well as adoption of e-Commerce. Kabanda and Brown (2010) mentioned that there has been limited knowledge on e-Commerce adoption by SMEs.

The effects of the successful Internet implementation, especially to smaller businesses with lack of wealth are enormous and essential (Chong *et al.*, 2001). All these reasons, including e-Commerce adoption issues explain why SMEs adoption and effective usage of e-Commerce is crucial to improve the performance of SMEs.

The purpose of this study is to identify a comprehensive set of potential factors determine influencing the adoption of e-Commerce in SMEs. The specific objective of the research is to construct a model of e-Commerce adoption and dissemination for SMEs.

DEFINITION OF SMALL AND MEDIUM SIZED ENTERPRISES

The majority of international economies depend basically on the role of SMEs in supporting the national economy in different countries. According to OECD (2009) generally there is no agreed worldwide definition of SMEs. Gibson and van der Vaart (2008) stated that there are inconsistencies among official SME definitions, with differences in SMEs definitions between one

country and another country. This is further supported by Ardic *et al.* (2011) indicated that many organizations worldwide are using the most common definitions based on sales revenue, employees or total assets or loan size. For instance, the definition by OECD (2005) which defined SMEs as enterprises that have not more than 250 employees.

Cillo *et al.* (2010) stated Italian SMEs are identified through some specific quantitative factors: Turnover, number of employees and total assets. Shaharudin *et al.* (2012) mentioned that the SMEs have a maximum of 300 employees in Vietnam, while in Germany SMEs is defined as a business with a maximum of 500 employees. In Belgium, SMEs is identified as having between 0-100 employees. Also, the Middle East and North Africa (MENA) such as Saudi Arabia, UAE, Bahrain, Egypt and Jordan are diverse in their criteria for defining SMEs (Al-Yahya and Airey, 2012; MOIC., 2013).

In Kuwait, According to (Hertog, 2010) the current definitions of SMEs in Kuwait are mainly based on share capital, while the number of employees does not appear to be used as a size criterion by the official institutions for facilitating SMEs' access to funding and administrative burden. All definitions are based on capital investment which up to KD 150,000 (\$520,000) to equal or less than KD 500,000 (\$1.7 m).

The concept of SMEs as small, medium industrial, by Industrial Bank of Kuwait, is a commercial, literal, service, intellectual or technological or any economic project contributes directly to the development and diversification of national income sources and meet the needs of the local or outside market and provide job opportunities for citizens if possible, promotes their self-employment value and self-reliance in economical activity fields.

According to the Industrial Bank of Kuwait, the small projects are projects that do not exceed the total amount invested by KD 500,000 as its primary purpose is to turn raw materials to complete products or semi-manufactured products, intermediate or convert semi-finished products or intermediate to the complete products or provide maintenance, technical, professional services and similar business as well as commercial projects.

The characterized private sector of Kuwait is very small, which the overall of the private business is nearly 25000, of which 2700 represent 1% with 10 employees, 60% have 30 employees, 15% have less than 50 employees. The SMEs with around 10 employees are highly concentrated in two sectors, the first one is a wholesale/retail trade and restaurants (40% of SMEs), while the other sector is construction activities (33% of SMEs). The remaining 27% of SMEs are divided into, industry, finance and services (Al-Saif, 2004). Stiftung's Transformation Index (BTI., 2012) reported that the government of Kuwait has been a late comer to the attention the role of SMEs can play in domestic economy. Also, SMEs lacks attraction. Thus, Kuwaitis generally work in the overcrowded public sector, employs up to 79% of the Kuwaiti workforce and they tend not to prefer employment in the private sector.

European Commission (2012) and Fong (2011) indicates that the SMEs are the main tools in solving several problems including employment creation over the future years. It would be wise to give maximum support to these entities in its infancy through development of a comprehensive framework especially the ICT infrastructure.

ELECTRONIC COMMERCE IN KUWAIT

Despite ICT adoption research represents a significant area of studies, there is a room for improving the understanding of the factors which has effect of adoption and use of ICT in SMEs and clarify the advantages it offers (Harindranath *et al.*, 2008). Ghuloum and Ahmed (2011)

pointed out that several factors such as financial factors, technological factors, human factors and cultural factors may be a barrier to adopting new ICT in the Arab world in general and in the State of Kuwait in particular.

Benchmarking the Internet situation in the six Gulf Cooperation Council (GCC) countries provides an important contribution to the understanding of the development of e-Commerce. Following statistics and reports indicate that e-Commerce is growing in GCC. According to Internet World Stat's latest data, Kuwait has relatively few Internet users; just 42.4% of its population is connected to the Web compared to 57.5% in Oman, 66.5% in Qatar and 77.0% in the Bahrain. Therefore, Kuwait is among the GCC countries with the lowest rates of Internet users. Table 1 depicts the number of Internet users by country. Hence, Kuwait was among the first countries to permit its general public access to the Internet in the GCC and the Middle East.

Weening and Andrews (2011) showed that Kuwait has ranked in some global indexes linked with e-Commerce adoption such as: ICT development: 65 of (159); logistics index: 36 of (155); ease of business: 74 of (183); e-readiness: 75 of (138) and e-government: 50 of (192), which is considered a low ranking compared to other GCC competitor countries such as Qatar, UAE and Bahrain. For instance, Zaiied *et al.* (2007) mentioned that conducting the e-readiness assessment which refers to the degree to which a society is willing to participate in the information age, a previous step to promoting e-government.

According to Stiftung's Transformation Index (BTI., 2012) reported that the government of Kuwait has been a late comer to the attention the role of SMEs can play in domestic economy. Also, SMEs lacks attraction. Thus, Kuwaitis generally work in the overcrowded public sector, employs up to 79% of the Kuwaiti workforce and they tend not to prefer employment in the private sector. Oborah (2011) indicated that the private sector includes both large firms and SMEs in the developed countries have adopted the new marketing innovation (e-Commerce) more than the public sector.

In this context, Gharegozi *et al.* (2011) mentioned that the current e-Commerce emerging as a new tool that assists competitive firms in the market, thus contributing to economic success. Furthermore, they can provide economic growth, increased commercial opportunities, promote competitiveness and improve market access; However, most SMEs lack the knowledge of how to invest in e-Commerce which can benefit their business and assist them develop the competitiveness though improved access to technical infrastructure and communications. In fact, the issue of e-Commerce is still a relatively new concept in Kuwait. Drawing from literature, an integrated model of e-Commerce adoption in Kuwaiti SMEs will be developed.

E-COMMERCE ADOPTION

Emergence of the Internet, particularly "Electronic Commerce" application brings new landscape in conducting business. E-Commerce is becoming an important factor in developing

Table 1: GCC countries' statistics and population Internet use

Country	Size (Sq. Km)	Population (Latest)	Internet users	Internet penetration (%)	Data date
Bahrain	694	1,248,348	961,228	77.0	Jun/2012
Kuwait	17,818	2,595,628	1,100,000	42.4	June/2010
Oman	309,500	3,027,959	1,741,804	57.5	Dec/2011
Qatar	11,521	848,016	563,800	66.5	Mar/2011
Saudi Arabia	2,149,690	26,131,703	13,000,000	49.7	Dec/2011
UAE	77,700	8,264,070	5,859,118	70.9	June/2012

Source: <http://www.Internentworldstats.com/list2.htm>

business domestically or internationally (Mohamad and Ismail, 2009). Zerenler and Sahin (2013) refers that the e-Commerce concept has been broadly defined in various ways. Laosethakul and Boulton (2007) defined it as one of the most visible examples of the way in which ICT can contribute to economic growth, it helps countries improve trade efficiency and facilitates the integration of developing countries into the global economy, also allows businesses to be more competitive.

World Trade Organization (WTO., 2002) defined e-Commerce "as to a wide array of commercial activities carried out through the use of computers, including online trading of goods and services, electronic funds transfers, on-line trading of financial instruments, electronic data exchanges between companies and electronic data exchanges within a company". In addition, Oborah (2011) and Laudon and Traver (2011) refers to e-Commerce as conducting business transactions over the Internet and the web involves exchange of information of value in the form of products and services as well as payments between and among organizations and individuals. Shaharudin *et al.* (2012) described that e-Commerce is utilize electronic means for the production, distribution, marketing, sale or delivery of goods and services via the Internet and the World Wide Web (www). Jelassi and Enders (2008) wrote that e-Commerce refers to e-trading activities of both digital and physical goods which often include online marketing, online ordering, e-payment and distribution after-sales support services. According to Aghaunor and Fotoh (2006) the process of buying, selling, transferring, or exchanging products, services and/or information through computer networks, principally the Internet is description of e-Commerce. George *et al.* (2013) described that e-Commerce can be considered as a package of innovations. E-Commerce on four perspectives defined by Kalakota and Whinston (1997). These four perspectives are present in Table 2.

However, e-Commerce is not just about using new technologies. E-Commerce offers a wide range of services and opportunities for electronic trading in the international marketplace. The use of information technology does help business organizations to improve their overall business process and enhance the communication effectiveness with their trading partners (Shaharudin *et al.*, 2012).

According to Mohamad and Ismail (2009) issue of e-Commerce in SMEs need further highlighting as SMEs plays crucial roles toward nation's growth as they usually represent the largest proportion of established businesses in most countries. Huff and Yoong (2000) mentioned that the number of e-Commerce issues studies in developing countries can be completely different from developed countries where that is the issues faced by small firms. Several SMEs in developing countries does not even achieve minimum levels of e-Commerce adoption. Furthermore, the adoption of transaction processing on the Internet enabling small businesses are not so much widespread as expected (Zaied, 2012).

Table 2: E-Commerce definition

Perspective	Definition
Communication	E-Commerce is the delivery of information, products/services or payments over telephone lines, computer networks or any other electronic means
Business process	E-Commerce is the application of technology towards the automation of business transactions and work flows
Service	E-Commerce is a tool that addresses the desire of firms, consumers and manages to cut service costs while improving the quality of goods and increasing the speed of service delivery
Online	E-Commerce provides the capacity to buy and sell products and information on the Internet, as well as other online services

Thus, it is important to note that the term "e-Commerce" in context of most studies refers to use of the Internet and the World Wide Web to transact business more formally, digitally enabled commercial transactions between and among organization and individuals inside or outside the country.

In fact, the benefits of e-Commerce is emphasized by most literatures, which are classified in two main categories: (1) Tangible benefits: Business efficiency, increased automation of processes, transformation of traditional market chain, retained and expanded customer base, reduced operation costs and acquisition of a niche market and (2) Intangible benefits: Enhancing well-being and education of customers, consumer loyalty and competitive advantage and convenient shopping (Kuzic *et al.*, 2002). However, the adoption of e-Commerce by organizations requires a business environment encouraging, open competition, trust and security, interoperability and standardization and the availability of finance for ICT (Ashrafi and Murtaza, 2008).

A THEORETICAL MODEL

The study is based on a wide literature review and number of researches conducted in this area in different developed and developing countries, focused on proposing a theoretical model of technological, environmental and organizational factors that would possibly affect the e-Commerce adoption. The model examines several factors to assist in the selection of the most significant variables for e-Commerce adoption by SMEs. Theoretical model is shown in Fig. 1.

The technological innovation literature has not resulted a consistent set of factors that affect organizational adoption. However, the diffusion of innovation theory is related to the study of e-Commerce due to the technical components of e-Commerce. It has technical components, similar to other IT innovations. But that e-Commerce has unique features, which distinguish it from other types of innovations (Sparling *et al.*, 2007).

According to Alamro and Tarawneh (2011), Shaharudin *et al.* (2012), Wang and Hou (2012) and Sparling *et al.* (2007) in their studies have investigated that significant major factors in three contexts influencing e-Commerce adoption by SMEs. They're organizational readiness, external pressures (environment) and perceived advantages of the technology. Scupola (2009) shared the same opinion when they found that technological, environmental and organizational factors influencing e-Commerce adoption and implementation in SMEs.

Bagale (2014) stated that the process by which a firm adopts and implements technological innovations is impacted by the technological context, the organizational context and the environmental context. Many of previous studies variables are grouped in organization, technology and environment framework as following:

- The organizational context refers to some characteristics and resources of the firm include; amount of slack resources (level of availability of a resource), the degree of centralization, managerial structure, human resources and linkages among employees

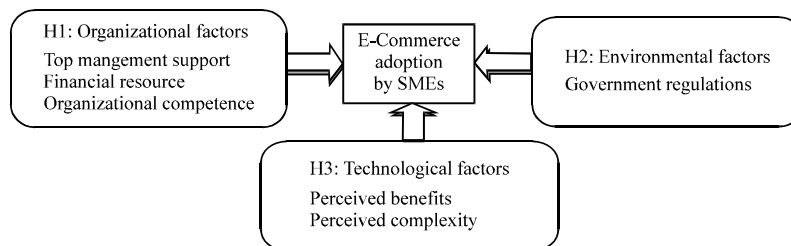


Fig. 1: A proposed model of e-Commerce adoption in SMEs

- The technological context includes the internal and external technologies that related to the firm. Technologies may include both equipment as well as processes
- The environmental context includes the size and structure of the industry, the firm's competitors, the macroeconomic context and the regulatory environment

ORGANIZATIONAL CONTEXT (READINESS)

The organizational context refers to the internal factors to an organization that influence an innovation adoption (Bagale, 2014). According to Turban *et al.* (2004), the organizational readiness measures whether the organization's attributes are sufficient enough in adopting the e-Commerce.

Top management support: The organizational readiness refers to enough of organization attributes to adopting e-Commerce, which indicates that top management support is the most important factor to determine the company is ready to adopt the e-Commerce and commitment to support it in all levels of the organization (Chong *et al.*, 2009). If the organization have limited resources and many competing firms, thus they support e-Commerce by top management ensures that they will get the required capabilities resources, Al-Alawi (2006b) indicated in his study that management commitment and support is crucial for developing successful system. It also indicates the positive effect of leadership support on innovation adoption in the organization (Aghaunor and Fotoh, 2006).

Kuzic *et al.* (2002) identified the e-Commerce challenges such as people and organizational issues, including the obtaining senior management backing. Epstein (2004) mentioned the potential influence of e-Commerce on the organization's competitive position and its business relationships, so top management need to get a good understanding of the issues around the e-Commerce. In regards to small businesses, Mirchandani and Motwani (2001) showed that the top management supports as an important factor in differentiating adopters and non-adopters of e-Commerce.

Financial resource: Organizational readiness also consists of organizational resources such as financial resources. Cost is considered an important factor influencing activities of firms due to the high investment requirements in hardware, software and employee training stated by Bagale (2014). Nelson and Shaw (2003) stated adoption of e-Commerce is influenced by financial feasibility. According to Zerenler and Sahin (2013) and Shaharudin *et al.* (2012) the organizational financial resource referred to the level of financial and technological resources that firms gain as a critical factor affecting e-Commerce activities of SMEs. Nelson and Shaw (2003), showed that financial feasibility affected on the rate of e-Commerce adoption, also they added that financial resources are the level of the available funds which used for installation, promoting, purchasing, delivery and continuous expenses during the usage of the e-Commerce.

Organizational competence: Edgar and Lockwood (2008) refers to perspective proposes that organizational competence includes usually integration of technology and skills. Molla and Licker (2005) stated that the organizational competency refers to the availability of staff with sufficient experience and exposure to information and communications technology and other skills. The management must have the level of understanding of and support for using IT to meet organizational objectives which may influence the adoption of IT innovation (Clarke, 2001).

TECHNOLOGICAL CONTEXT

The technological context represents the pool of technologies available to a firm for adoption, which can be both the technologies available on the market and the firms' current equipment. The decision to adopt a technology depends not only on what is available on the market but on how such technologies appropriate with the technologies that a firm already possesses (Scupola, 2009).

Perceived benefits: Scupola (2009) who mentioned in his study that perceived relative advantage were important technological factors influencing the e-Commerce adoption decision in SMEs. Mehrtens *et al.* (2001) stated the perceived benefits as direct benefits and indirect benefits, those benefits can impact the business processes. Perceived benefits are the benefits that are offered by e-Commerce in comparison to the traditional way of doing business defined by Cosgun and Dogerlioglu (2012). Ratnasingam (2002) expressed that perceived benefits as the gains or improvements derived from existing methods of operating business transactions using e-Commerce applications, which include profits and establishing positive trading partner relationships including satisfaction and commitment.

In addition, Sparling *et al.* (2007) described perceived benefits as one of the most commonly used innovation characteristics in adoption research. Examples of benefits often associated with the adoption of e-Commerce are: Increased sales and profits, reduced costs, improved customer service and relationships, development of new markets and streamlined business processes. According to Alamro and Tarawneh (2011) the major benefits of e-Commerce adaptation include improving customer service, inventory control and lower marketing and distribution costs, reduce both cycle time and operating costs.

Perceived complexity: Beatty *et al.* (2001) and Bagale (2014) defined complexity as a degree of difficulty to understanding and use of an innovation. Perceived complexity refers to the degree to which an innovation is perceived as difficult to understand and use. New ideas that are simpler to understand are adopted faster than those requiring the adopter to develop new skills and understanding (Rogers, 1995). In addition, complexity is a strong inhibitor innovation, maybe the introduction of new technology that requires employees to develop new skills for use of technologies (Chwelos *et al.*, 2001). The complexity of the technology has a significant impact on the e-Commerce adoption decision (Akbulut, 2002). Complexity has a negative association with e-Commerce utilization (Wang *et al.*, 2010).

ENVIRONMENT CONTEXT (EXTERNAL PRESSURE)

The environment is the arena in which a firm conducts its business and in the specific context of e-Commerce adoption in SMEs (Scupola, 2009). Generally the external environmental context includes market conditions such as government laws and regulations (Sparling *et al.*, 2007). A thorough literature review shows that important external factor that might affect SMEs' e-Commerce adoption and diffusion are role of government involvement in fostering e-Commerce adoption (Wang and Hou, 2012).

Government regulation: According to Bagale (2014) stated that the effect of government policies has been shown to have direct and indirect stimulation to the supply of information which provides faster dissemination of technology. In addition Molla and Licker (2005) described the government e-readiness as the organizations' assessment of the preparation of the nation state and its contribution to encourages, support, facilitate and organize e-Commerce and its many requirements.

Table 3: Research model for e-Commerce success factors

Categories	Factors affecting adoption of e-Commerce	Supporting references
Organizational context	Top management support	Mirchandani and Motwani (2001), Epstein (2004), Aghaunor and Fotoh (2006) and Chong <i>et al.</i> (2009)
	Financial resource	Nelson and Shaw (2003), Shaharudin and <i>et al.</i> (2012), Zerenler and Sahin (2013) and Bagale (2014)
	Organizational competence	Clarke (2001), Molla and Licker (2005) and Edgar and Lockwood (2008)
Technology context	Perceived benefits	Mehrtens <i>et al.</i> (2001), Ratnasingam (2002), Sparling <i>et al.</i> (2007), Scupola (2009), Alamro and Tarawneh (2011) and Cosgun and Dogerlioglu (2012)
	Complexity	Rogers (1995), Beatty <i>et al.</i> (2001), Chwelos <i>et al.</i> (2001), Akbulut (2002), Wang <i>et al.</i> (2010) and Bagale (2014)
Environment context	Government regulation	Molla and Licker (2005), Kamal (2006), Bagale (2014) and Wang and Hou (2012)

Enhance and dissemination of the benefits of e-Commerce of society is main responsibility of the government. Kamal (2006) stated to provide a favorable environment by governments in e-Commerce, factors can realize its full potential. They can help address the problems and challenges of awareness, appropriate infrastructure, local content creation, depending on languages used and cultures prevailing in the local environment. Many previous studies confirmed that government support had a positive association with e-Commerce adoption (Bagale, 2014). Past literatures at large, have mentioned similarity studies on the e-Commerce adoption models. Table 3 shows the summary from the some past review of literatures.

Examples are finding by some studies such as Shaharudin *et al.* (2012) indicated that adoption factors such as organizational readiness, external pressure and perceived benefit are positively related to e-Commerce adoption in Malaysia SMEs. Another study by Looi (2005) explored that the owner characteristics like lack of perceived benefits, lack of knowledge and skill, perceived lack of trust are significant inhibitors while environment characteristics like competitive pressure, government support and infrastructure are significant motivators of e-Commerce by SMEs in Brunei Darussalam. Also, the results of research by Scupola (2009) provided indication that both corroborate previous results about significant factors affecting e-Commerce adoption and implementation has provided new interesting insights among SMEs in Denmark and Australia.

The research objectives can be translated into the following research questions:

What factors influence the extent to which e-Commerce is adopted by SMEs in Kuwait?

By choosing the most researchable determinants from the previous literature presented above, the factors influencing e-Commerce adoption on SMEs in Kuwait can be summarized into three contexts were found to be dominant in the research model from studies identified and reviewed, these factors are: The organizational factors (3 factors and 10 items), the perceived technology factors (2 factors and 9 items) and the perceived external factors (1 factors and 5 items). The literature provides both supporting and denying evidence about the influence of factors in the Fig. 1 model.

METHODOLOGY

Hypothesis development: Given the preceding discussion, the following hypotheses are proposed:

- **H1:** There is no significant relationship between top management support and the adoption of e-Commerce

- **H2:** There is no significant relationship between financial resource and the adoption of e-Commerce
- **H3:** There is no significant relationship between organizational competence and the adoption of e-Commerce
- **H4:** There is no significant relationship between perceived benefits and the adoption of e-Commerce
- **H5:** There is no significant relationship between perceived complexity and the adoption of e-Commerce
- **H6:** There is no significant relationship between government regulations and the adoption of e-Commerce

Research design: The main objective of this study is to investigate the factors affecting to e-Commerce adoption by SMEs in Kuwait. In order to answer the research questions and fulfill the study objective, a model for e-Commerce adoption in SMEs was used and the survey questionnaire was designed on the basis of a related previous studies to collect the required data.

This research is a quantitative research where two sources of information are collected from: (1) Questionnaires and (2) As well as expert opinion, the questionnaire has been revised by the consultant. The consultant was selected based on experience and knowledge of e-Commerce issues. He was asked for judgment the items in the preliminary questionnaire to check the validity of the content and constructs.

To test the adoption model shown in Fig. 1. The questionnaire consists of two parts. Part A the participants were asked to five demographic questions as general information. Whereas in part B, considered as the main questions groups. They were asked to possible factors and its items that affecting e-Commerce adoption in SMEs, within their firms on the Likert five point scale ranging from "1 as strongly disagree" to "5 as strongly agree" was used. This scale has been used in previous e-Commerce adoption research (Molla and Licker, 2005; Teo *et al.*, 1999). This measurement scale is consistent with similar studies (Sparling *et al.*, 2007).

This study is a descriptive study, which is interested in describing the characteristics of a population or phenomenon. This study also made use of hypotheses testing to determine the influence of the three contexts: The organizational factors (top management support, financial resource, organizational competence), the technology (factors of perceived benefits and perceived complexity) and finally, the environmental factors (government regulations) towards the adoption of e-Commerce adoption on SMEs in Kuwait. Pre-testing of the questionnaire was made during the pilot study.

Questionnaire distribution and research sample: Two methods were utilized for questionnaire distribution. First, questionnaires were personally distributed via "e-mail" and text messages of smart-phones. The questionnaire link was sent out to the targeted firms through published questionnaires on the website of (SurveyMonkey Enterprise) for online surveying applications. The recipients can access the questionnaires and fill required data. To assure the participants quick, correct response and easy to data collection online. Second, the questionnaire hard-copies were sent directly to the respondents (one copy for each firm).

The study population comprised of SMEs in Kuwait that are listed in the website of Kuwait Chamber of Commerce and Industry (KCCI), up to the end of 2012. The conditions were applied when choosing the sample: Experience with e-service applications or at least has initiatives to using

e-Commerce in all or part of their business. The selection criteria were the firms had to have KD 500,00 or less as a current definition of SMEs in Kuwait are mainly based on share capital which used as a size criterion by the official institutions.

The type of sampling is probability sampling. Data collected were based on simple random sampling. Around 100 small business owners/managers have been contacted by email and mobile number. The sample contains (58) firms working in several sectors such as industrial, trading and services. The result of the demographic profile shows that the majority of the respondents were services sector (26) firms, trading sector (21) firms and industrial sector (11) firms. In determining the sample size for this study, sample size selected were based on the criteria set according to Roscoe's rule of thumb (Sekaran, 2003), i.e., a sample that is larger than 30 and less than 500 are appropriate for most research. The first response was received on November 25, 2012. On December 24, 2012 the data collection stage was concluded.

The questionnaires were used to determine factors affecting the adoption of e-Commerce by dividing it into two parts. On part A the purpose of these questions was to gain general information that dealt with the firm's owners/managers or individuals in each company who are best qualified such as: Job's title, qualification, years of experience, specific company activity and age. Part B focused on identifying the effect of organizational factors to the adoption of e-Commerce, the impact of perceived technology factors on adoption e-Commerce and a measure of environmental factors as positively related to e-Commerce adoption.

Data analysis method: For the purpose of this study, the researchers used the Statistical Software Package for Social Sciences (SPSS) version 22 to compute all the data gathered from the questionnaire. The techniques of analysis used in this study were descriptive (mean, standard deviation) and inferential analysis (regression) to sum up the data collected.

The result of the demographic profile shows the study is focused on private companies. A significant majority of 28 respondents (owners/managers) less than (50%) were administrative and around (21%) were represented an top management in terms of job title. It is also provides information to help understand how experience of the study sample, 22 respondents (37.9%) have 6-10 years of business experiences with only 26 respondents (44.8%) who have 11 years and more than year 15 of business experiences. In terms of age, the basic characteristics of 58 respondents revealed that most of them are over 31 years of age. This indicates that most the respondents are adult and matured people and hold various responsibilities of SMEs owners/managers. Table 4 illustrates the demographic information of the respondents.

Descriptive analysis: Table 5 shows the results obtained from the questionnaire have been assessed depending on mean (\bar{X}) and Standard Deviation (SD) in order to determine the respondent's score level of factors towards the adoption of e-Commerce. The respondents were asked with options ranging from a five-point scale, the study has taken a position that any mid-point value for the 5-point scale was 3.0 of interpretive scales mentioned; however, most of the respondents were above that value. The results show that the ranges of the mean values vary between 3.23 and 3.68. The average response was 3.49. It can be explained as; in overall the respondents perceived the predictors (top management support, financial resource, organizational competence, government role, perceived benefits, perceived complexity) as a "agree" or "support the statement" and it is essential towards the adoption of e-Commerce.

Table 4: Part A; the demographic information of respondents (n = 58)

Variables	n	Percentage
Job		
Top management	12	21
Administrative	28	48
Technical	5	9
Accounting	4	7
Engineering	9	16
Experience		
Less than a year 5	10	17
6-10	22	38
11-15	17	29
More than year 15	9	16
Qualifications		
Graduate	8	14
Bachelor	36	62
Diploma	7	12
High school	7	12
Age		
less than a year 25	5	9
25-30	12	21
31-35	15	26
36-40	15	26
41-45	6	10
More than year 45	5	9

Table 5: Respondents score level of factors toward the adoption of e-Commerce

Variables	Factor	M	SD
V1	Perceived benefits	3.23	0.86
V2	Financial resource	3.63	0.78
V3	Government regulation	3.51	0.69
V4	Top management support	3.68	0.74
V5	Organizational competence	3.50	0.83
V6	Perceived complexity	3.44	0.79

Factor analysis: To determine the appropriateness of factor analysis, examining the correlation among all of the questionnaire items is essential which can be obtained through the Bartlett's test of sphericity. It was utilized with the result which indicates a highly significant result with $p = 0.000$ ($p < 0.05$) and therefore the factor analysis is appropriate and accepted. Kaiser-Meyer-Olkin (KMO) the measure of sampling adequacy test as another indicator of factor analysis appropriateness, which ranges from 0-1. According to Pallant (2007), factor analysis is acceptable if the value of KMO is greater than 0.6. As Table 6 indicates, it has been verified that factor analysis in this study is appropriate as KMO measure of sampling adequacy = 0.767.

The factor analysis technique was applied to isolating and identifying key factors that are deemed to be successful in enhancing the adoption e-Commerce in SMEs in Kuwait through reduce a number of variables in order to a lower set of primary factors that summarize the essential information contained in the variables. Further, to priorities the importance of these factors based on their loading values (Coakes and Steed, 2007).

Table 6: Factor analysis result

KMO and Bartlett's test result	Result
Kaiser-Meyer-Olkin measure of sampling adequacy	0.767
Bartlett's test of sphericity (sig.)	0.000

Table 7: Main component matrix showing variance values of the variables

Item		Component				
		F1	F2	F3	F4	F5
A1	We believe that there are effective laws to combat cyber crime	0.834				
A2	We believe the legal environment is conducive to conduct business on the Internet	0.833				
A3	We believe there are effective laws to protect consumer privacy	0.784				
A4	We believe that the government demonstrates strong commitment to promote e-Commerce	0.698				
A5	Government regulations allow electronic settlement of e-Commerce transactions	0.507				
B1	Management is supportive of the use of e-Commerce in business operations		0.888			
B2	Management is interested in the use of e-Commerce		0.817			
B3	Our vision of e-Commerce activities is widely communicated and understood throughout the organization		0.786			
B4	Our business has a clear vision on e-Commerce		0.486			
B5	We have a good understanding of e-Commerce application solutions that are applicable to our business			0.944		
B6	Our organization has a good understanding of electronic commerce business models that are applicable to our business			0.934		
B7	Our organization has a positive attitude towards e-Commerce			0.840		
C1	Improve customer service				0.877	
C2	Reduce cost of business operations				0.866	
C3	Increase ability to compete				0.816	
C4	Reap operational benefits				0.812	
C5	Improve distribution channels				0.763	
C6	Interacting with e-Commerce is/would be flexible					0.888
C7	Learning to operate e-Commerce is/would be easy					0.817
C8	It would be easy for me to become skillful at using e-Commerce					0.486
C9	My interaction with e-Commerce is/would be clear and understandable					0.786
	Percentage variance explained	45.1	8.7	7.6	5.9	5.2
	Percentage cumulative variance explained	45.1	53.8	61.4	67.3	72.5

The principal-components analysis was conducted on all the variables to assure that the concepts have been correctly measured with the right variables loading on each factor. Factor analysis with a varimax rotation procedure was employed to identify the underlying dimensions of product quality. In Table 7, the load values of the factors are shown. From the results obtained in the rotated matrix all five factors can be accepted for the rotation component matrix. In confirmatory factor, being 0.50 or a higher of the factor load value is a good criterion for selection. Therefore, twenty one items can be accepted. Three items with the result of less than influence of other attributes.

From the result of the factor analyzing, it can be seen that the eigenvalues of the scale factors are varied between 5.2 and 45.1% and ten factors have explained 72.5% of the total variance. The factors are; the first factor consisted of five items is government regulations, the second factor consisted of four items is top management support, the third factor consisted of three items is organizational competence; the fourth factor consisted of five items is perceived benefits and the fifth factor consisted of four items is perceived complexity. The factor consisted of three items is financial resource were disregarded from being analyzed.

RESULTS AND DISCUSSION

Reliability tests result: For the purpose of determining the internal consistency or average correlation of items in a survey instrument to measure its reliability and internal consistencies of the scales used, therefore the Cronbach’s alpha has been utilized (Santos, 1999). Cronbach’s alpha can be interpreted as a correlation coefficient, it ranges in value from 0 to 1 (Coakes and Steed, 2007). The closer value of reliability coefficient gets near to 1.0 are better the result of reliabilities that are less than 0.6 is considered to be poor. While those in the range of 0.7 the result can be accepted and those over 0.8 as good and high levels of internal reliability (Sekaran, 2003). From the reliability analysis in Table 8, all factors were found including independent and dependent variables were found to be good reliability with all the Cronbach’s alpha results above 0.6. Thus, the result was exploratory factor analysis, all factors can be accepted.

Regression analysis: Multiple regression analysis (or predictors) is considered a powerful technique utilized for predicting the unknown value of a variable from the known value of two or more variables. For this study, multiple regression analysis was applied to develop a model which can establish the relationship between independent variables (from the six identified predictors) and a dependent variable (e-Commerce adoption) based on collected data in this study. In the other word, it is to determine which independent variable is significant to predict the outcome of the dependent variable (Abdi and Jalali, 2013). This is essential as the result of regression is an equation that represents one of the best statistical approaches predicating explanatory relationships between several independent variables and one dependent variable (Leech *et al.*, 2005).

Table 8: Reliability tests result

Variables	Cronbach's alpha	Result
Top management support	0.755	Good scale
Financial resource	0.627	Good scale
Organizational competence	0.755	Good scale
Perceived benefits	0.774	Good scale
Complexity	0.885	Good scale
Government role	0.785	Good scale
E-commerce	0.824	Good scale

Table 9: Adjusted R-square and Durbin-Watson test

Test	F	Result
ANOVA	15.181	0.000
R-Square		0.744
Adjusted R-Square		0.713
Durbin Watson		2.155

In order to evaluate the above model, the multiple regression analysis revealed the following: The adjusted R-square test was conducted to determine the proportion of mean variance of the dependent variable that is explained by the independent variables. Table 9 shows the adjusted R-square and Durbin-Watson test. Adjusted R-square test result of 0.713 shows a strong predictive power of independent variables on the dependent variable. The auto-correlation with residuals Durbin-Watson test results of 2.155 indicated sign of non-autocorrelation is almost present. This is due to the fact that an ideal result suggested for Durbin-Watson is little exceeded to 2; however, it is enough for the statistic ranges in value that located between 1 and 3 to implicate significant difference which exists between the dependent and independent variables (no autocorrelation).

From the ANOVA in Table 9, it appears that the six predictor variables are not all equal to each other and could be used to predict the dependent variable, e-Commerce adoption as is indicated by an F value of 15.181 and strong significance level of 0.000 ($p < 0.05$). Furthermore, the results show that out of three factors, perceived benefits, top management support and government regulations are significant ($p < 0.05$) influence towards e-Commerce adoption with high beta 0.549, 0.529 and 0.084, respectively. However, organizational competence, financial resource and complexity are less significant impacted ($p > 0.05$) with low beta of -0.071, -0.062 and -0.026, respectively.

According to Hair *et al.* (2010) point out that the suggested VIF value of less than 10 for all variables with tolerance level above 0.10 shows that the problem of multi-collinearity have not existed and all the data are mutually exclusive. The results show that the values of VIF ranged from 2.222-3.286 and the values of tolerance range from 0.982-0.946.

As for the interpretation, the result of the regression analysis shows that out of the six indicators, only three are significant as shown in Table 10. The three significant factors are perceived benefits work with p-value = 0.000, government role with p-value = 0.043 and top management support with p-value = 0.000. Therefore, this was the most important independent variables and had the highest impact on e-Commerce adoption. While, the other three are not significant factors are financial resource is not significantly different from 0 because its p-value = 0.527, which is ($p > 0.05$), organizational competence is not statistically significantly different from 0 because its p-value = 0.297 is definitely ($p > 0.05$) and perceived complexity is not statistically significantly different from 0 because its p-value = 0.613 which is definitely larger than 0.05 alpha level. By examining the t statistic for all the independent variables it has apparently confirmed that perceived benefits, top management support and government regulations have significant relationship due to strong significant level ($p < 0.05$) with e-Commerce adoption, indicating that the null hypotheses for H1, H4 and H6 which representing are top management support, perceived benefits and government regulations wrong and can be rejected. On the other hand, the null hypotheses for and H2, H3 and H5 which representing other three not significant factors mentioned above are correct and can be accepted.

Table 10: Result of coefficients

Variables	Standardized coefficients			Collinearity statistics variable	
	Beta	t	Significance	Tolerance	VIF
Perceived benefits	0.549	6.506	0.000	0.976	2.293
Financial resource	-0.062	0.633	0.527	0.982	2.959
Government role	0.084	2.024	0.043	0.976	3.286
Top management support	0.529	6.291	0.000	0.962	2.590
Organizational competence	-0.071	1.043	0.297	0.972	2.222
Complexity	-0.026	0.506	0.613	0.946	2.796

CONCLUSION

This study has investigated factors affecting adoption of e-Commerce in SMEs in Kuwait. The statistical results show that within the organizational context, one factors (top management support); the technology context also one factor (perceived benefits) and the environmental context, one factor (government regulations) have importance in e-Commerce adoption, whereas low level of importance on organizational competence, financial resource factors of organizational context and perceived complexity factor of the technology context toward the adoption of e-Commerce activities.

Regarding the organizational context, the top management support has been found as the most significant factors influencing e-Commerce adoption in Kuwait in SMEs agreed by many other studies on e-Commerce adoption in SMEs. Local firms with a support and commitment to e-Commerce from top management are more likely to adopt e-Commerce. There are a number of previous studies searching for the success factors of e-Commerce. Where showed that financial resource affected on the rate of e-Commerce adoption. However, the financial resources are not major determinants in e-Commerce adoption, which is discussed by Scupola (2009) and Mehrtens *et al.* (2001). In this study, financial resources provided additional evidence to literature by showing financial resources plays a non significant role on the level of e-Commerce adoption among SMEs in Kuwait. The organizational competency has been found as the limited factors influencing e-Commerce adoption. Although content is found to be a significant factor affecting success of e-Commerce adoption in the literature, in this study, content is observed to have a negative effect of perceived compatibility on e-Commerce adoption.

Regarding the technological context, the study found that studied firms consider the benefits as determinant factors in the decision to adopt and implement e-Commerce. Among the new benefits mentioned among companies, there has been online customer service support, the possibility of reducing costs, increased ability to compete and online training in the company. Usually, the SMEs, owners/managers decision is based on the perception of return on investment of the firm and the perceived benefits of e-Commerce. Therefore, the perceived benefits are the most essential factors to motivate SMEs to adopt the e-Commerce. The case of perceived complexity factor provided additional evidence to literature by showing complexity has a negative association with e-Commerce utilization among SMEs in Kuwait.

The results show that within the environmental context, one factor has importance in e-Commerce adoption in Kuwait: Government regulations. This study has found that the influence of government regulations significant positive on e-Commerce adoption. This could be due to different government policies regarding the ICT infrastructure and e-Commerce activities. The SMEs managers/owners said that governments could influence the adoption of e-Commerce among local SMEs by offering legal environment required to conduct business on the Internet. Using study results, the revised model of significant e-Commerce adoption factors is shown in Fig. 2.

The results of this study could have significant implications for owners/managers of SMEs that have not yet adopted e-Commerce and for providers of e-Commerce technology and support. Owners/managers of SMEs that have not yet adopted e-Commerce will need to become knowledgeable about e-Commerce and potential competitive advantages they can derive from it utilize, what their competitors are doing in this field. SMEs will need to become more technology-savvy.

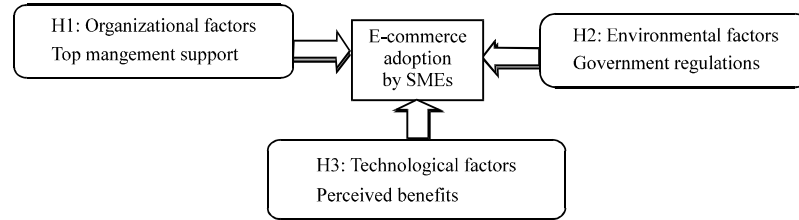


Fig. 2: Revised adoption of e-Commerce model

It is recommended that SMEs' should be ready in term of organizational factors. They will need to become more aware of and begin merging technologies available for their business. Resources must be devoted to this field, including the training and development of employees or the use of external specialists. Support for e-Commerce, in the form of allocation of resources and integration of e-Commerce in the strategic planning process, must come from a clear vision for e-Commerce by the owners of these SMEs.

In terms of perceiving benefit, when the owners/managers of SMEs discovered more benefits of using e-Commerce. Such adoption of e-Commerce can be used by SMEs as value added tools in order to gain a competitive advantage in the their activities. The level of perceiving benefit can be reduced to a level where the confidence towards the traditional method are no more attractive and encouraging. Among the benefits that can be enjoyed from e-Commerce applications such as to enable the firms to accomplish specific tasks more quickly, improve functions performance, increase productivity, increased the effectiveness of the job performance and reduce the operation cost.

The importance of external environment from government laws and regulations. The government organizations could encourage the use of e-Commerce by to protect consumer privacy; strong commitment to promote electronic commerce. This might involve working with combat cyber crime to ensure that the legal environment is conducive to conduct business on the Internet is appropriate and safe for SMEs customers. Also, local civil societies can play an important role in facilitating adoption. SMEs are needed to adopt e-Commerce in their business routine due to the pressure from the government.

Like other empirical studies, this study is not without its limitations. Limitations of the study are sample size. Due to the sample size of 58, it precludes generalization to all SMEs in Kuwait but the trends suggest that further research should be a priority for government, industry and research academics. The study can be strengthened by increasing the sample size and including participants in other business activities.

Furthermore, this study examined e-Commerce adoption by SMEs. This is no single definition exists that is universally acceptable for the terms SME, including SMEs in Kuwait lacks of a single definition. Where most of SMEs in Kuwait is being operated in small scale, such as workshops, offices and shops are not covered by current definitions. Thus, it's difficult to defining the SMEs based on clear criteria and comprehensive.

It is recommended that future research should take into consideration other determinants towards the adoption of e-Commerce among SMEs in Kuwait; for examples, supporting industries availability of consultancy, prioritization of e-Commerce to the enterprise, perceived risk, market e-readiness. It would be advisable to expand the sample size to increase significantly the accuracy and generalizability of the study.

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