

The Impact of Internal Organization Factors on the Adoption of E-commerce and its Effect on Organizational Performance among Palestinian Small and Medium Enterprise

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Abstract: *Electronic Commerce (EC) can without a doubt help firms reduce cost, enhance efficiency, and expand their market reach. However, small and medium sized enterprises in Palestine are slow in adopting EC. As a result, it became important to analyse the situation and determine the factors affecting the implementation process. Numerous firms encounter hurdles during the EC dispersion process, thus, failing to gain any benefits from EC adoption. The paper aims to determine the technological, organizational, and information culture factors that have an impact on EC adoption process, and how EC adoption in turn affects the organization's performance. A quantitative research technique using the survey method will be used in this research. The technology-organization-environment-framework known as TOE framework is the base upon which the paper proposed an integrated model to study the effects of factors from the technological, organizational, and informational culture points of view during the EC process adoption. Information culture factors have gained more focus; as they have hardly been examined by previous literature regarding their influence on EC adoption. For the specific objective of this study, Palestine has been chosen to examine how information culture factors influence EC adoption during the diffusion process, not only providing practical guidelines for enterprises engaging in EC adoption, but also providing academics an insight on the EC adoption process perspective, particularly during diffusion of EC.*

Keywords: Electronic commerce; Information culture; small and medium sized enterprises (SMEs); TOE; Palestine.

1. INTRODUCTION

Small and Medium-sized Enterprises (SME's) have expanded rapidly and contributed to the global economy. The literature and practical acknowledgment, as well as business development sector have been key to SME's development worldwide. This fact can be seen in the 90% number of SME's representing the majority of establishment all over the globe, into addition to the importance in the offering employment opportunities (Nejadirani, Behraves, & Rasouli, 2011).

Similar to other nations, Palestinian SME's are crucial for proper development of the local economy and domestic business models, especially in the private sector as they implement innovative models of adoption to help them transform from traditional industry practices into more

contemporary models, especially in the healthcare and education sectors aiding in the growth of the Palestinian economy.

SME's also help in wealth creation; by increasing opportunities of employment and decreasing unemployment. SME's ran by families dominate the economy in Palestine, accounting for 99% of registered businesses (Wamda, 2014). SME's and micro enterprises play important roles in the economic and social development in Palestine. Approximately 85% of private sector labor force are employed by SME's, contributing to 55% of the nation's GDP. Consequently, the sector has been proved to be the most important in the Palestinian economy. Additionally, it also helped developing crucial sectors of the economy, such as: agriculture, manufacturing, and IT (PIF, 2013). For the purpose

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of this paper, an SME is defined as any business with 50 or less employees(PCBS, 2011).

EC adoption have several advantages, EC reduces costs associated with activities of the company, it also aids in streamlining processes making them smoother. EC also enhance the company's market reach and open up new business horizons, it also improves operational efficiency in the long and short terms. Furthermore, EC help companies establish stronger relationships with business partners and suppliers, as it enhances the process of selling and buying products by both the company and the consumer, which essentially affect the overall performance (Hajli, Sims, Shanmugam, Irani, & Irani, 2014; Qu, Pinsonneault, Tomiuk, Wang, & Liu, 2014; Sila, 2013).

However, EC has not been readily adopted in Palestine (Qadri, 2013). Since the majority of SME's has been left behind in EC adoption, there could be logical reasons as to why SME's should embrace EC and why they should be encouraged to do so, and the reasons why there have been a major slack in such adoption will be studied and analyzed. Thus, the overarching research question addressed in this paper is: "what are the significant antecedents of EC adoption by SMEs in Palestine?"

2. THEORETICAL BACKGROUND

Several relative studies showed that there is a wide range of factors that can affect the adoption process, and the tendency to address this complexity issue under general headings was observed. Previous studies more than often applied Roger's decision model when it came to measuring the adopter's attitude towards EC as a technological innovation (Rogers, 1995). A notable framework that classifies SME's EC adoption is one that was proposed by (Tornatzky & Fleischer, 1990). That model is comprised of three categories that have an influence on EC adoption, which are the technological, organizational, and environmental categories.

The above considerations were used as a foundation to the TOE framework used in the development of the proposed model in this paper. Factors selected according to relevance were based on studying previous literature. There are three categories of factors included in the conceptual model, they are: Technological factors, Organizational factors, and Information Culture factors (figure 1). These groups are considered internal factors which can be

controlled and monitored by the organization directly. However, environmental factors are considered external factors that can't be fully controlled or monitored by the company, and the impact of these factors is not included in this study.

Furthermore, several researchers found that the differences between behaviors of different firms during the adoption process can be fully understood only if factors that have multiple dimensions of effects are taken into consideration. Since this decision of adoption will usually incorporate a combination of technological, organizational, and information culture factors, this study will propose a multiple dimension research framework including the above aspects in an attempt to explain the key factors towards successful EC adoption by SME's.

3. RESEARCH FRAMEWORK AND HYPOTHESES

Based on the literature review, this paper will investigate factors influencing the adoption of EC by enterprises from different aspects. First, EC is viewed as a technological innovation; the paper will examine SME's adoption of EC from innovation dispersion perspective. Secondly, the success of EC may be influenced by features of the organization itself; therefore, the appropriate information culture factors have been included in the analysis based on the internal characteristics of the firm. After a thorough review of variables studied previously, a conceptual model have been constructed (See figure 1), and it is used as a guide during this research process. The three aspects of factors included in the model are: 1- Technological factors, 2- Organizational factors, 3- information culture factors. These factors are discussed individually below.

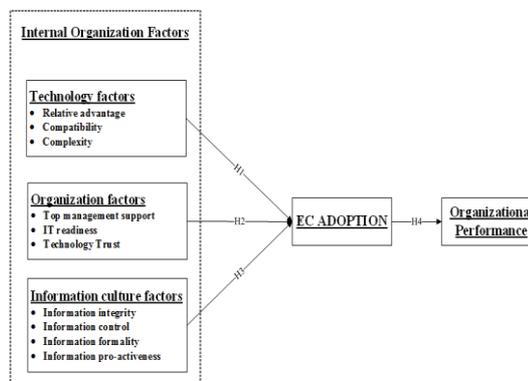


Fig. 1. Proposed conceptual model

3.1 The relationship between technological factors and EC adoption

The technological factors indicate the attributes of the technology to be adopted (Henderson, Sheetz, & Trinkle, 2012). Rogers (1995) suggested that innovation has five features which might affect the adoption; namely, relative advantage, compatibility, complexity, trial-ability, and observability. However, Kuan and Chau (2001) found that complexity, compatibility, and relative advantage were consistently significant in explaining the adoption of IT. Accordingly, in this research, the researcher considered relative advantage, compatibility, and complexity to be the key factors in the technological context.

- **Relative advantage**

Relative advantage stands for the benefits the company gains by adopting different technologies (Rogers, 1995). It was also suggested that the primary concern when making the decision to adopt technology is transitional costs, as well as the amount of benefits gained (Cho & Kim, 2002). Additionally, relative advantage is said to be the most important factor in IT adoption in previous literature and research, it was also stated that relative advantage has a positive impact on EC adoption through its effect on IT adoption as a whole (Abou-Shouk, Megicks, & Lim, 2013; Ahmad, Abu Bakar, Faziharudean, & Mohamad Zaki, 2014; Al-Alawi & Al-Ali, 2015; Aziz & Jamali, 2013; Garg & Choeu, 2015; Rahayu & Day, 2015).

- **Compatibility**

Compatibility is the degree of fitness of a certain technology to the company's existing procedures and processes through its experience (Rogers, 1995). By definition, adopting a new technology requires adopting new skills and methods to implement it correctly, as incompatibility will hinder the adoption of new technologies and slow down innovation (Cho & Kim, 2002; Chung & Snyder, 2000; Kwon & Zmud, 1987). Compatibility is also considered the strongest driver motivating adoption of technology in comparison with the other factors affecting innovation (Grandon & Pearson, 2004; Zhu, Kraemer, & Xu, 2006).

Many previous research proved that compatibility has a positive impact on EC adoption (Ahmad et al., 2014; Aziz & Jamali, 2013; Ghobakhloo & Tang, 2013). At last, Teo, Tan, and Buk (1997) stated that higher compatibility results in less resistance and

adjustments needed for the change, aiding in its success.

- **Complexity**

Complexity refers to the difficulty associated with understanding, learning, and use of technology. It was suggested that the diffusion of EC adoption is easier for thoughts and ideas that are easy to understand and apply, including the new skills demanded by the application (Rogers, 1995). Cho and Kim (2002) Found that difficulties in understanding and applying a new technology might lead to resistance; slower recognition of its value; and fear of failure.

A study conducted by Grandon and Pearson (2004) showed that SME's CEO's perception of complexity recognizes it as a detrimental factor in EC adoption. The same claim was backed up by other studies done by (Al-Qirim, 2007; Luqman, 2011; Maryeni, Govindaraju, Prihartono, & Sudirman, 2014) which suggested that complexity has a negative impact as a factor influencing EC adoption.

Therefore, the following hypothesis can be formulated:

H1: Technology factors have a positive relationship with EC adoption.

3.2 The relationship between organizational factors and EC adoption

Organizational factors refer to the firm's characteristics which may influence the adoption and implementation of EC (Maryeni et al., 2014). In addition, Kuan and Chau (2001) suggested that organizational factors' influence on EC adoption is related mainly to perceived organizational resources. The organizational factors, identified widely in the literature review, included top management support, IT readiness, and Technology trust. Accordingly, in this research, the author considered that top management support, IT readiness, and Technology trust to be the key factors in the organizational context.

- **Top management support**

Top management support is defined as the commitment of higher management in exploiting resources available towards adopting EC (Premkumar, 2003). Decision making is usually in the hands of top management, thus it is important to make sure that they are committed to correctly implementing every available resource to adopt EC successfully and overcome the hurdles present due to natural resistance of the new technology

implementation (Grover & Goslar, 1993; Teo et al., 1997).

It was also shown in previous studies that the success of EC adoption depends heavily on top management support, and that top management support has a positive effect on the success of EC adoption within SME's, making top management support a crucial factor in EC adoption (Al-Alawi & Al-Ali, 2015; Al-Dmour & Al-Surkhi, 2012; Lip-Sam & Hock-Eam, 2011; Maryeni et al., 2014; Senarathna & Wickramasuriya, 2011).

- **IT readiness**

In accordance with previous research, information technology readiness is broken down in this research into technology infrastructure and employees' IT knowledge. Technological resources (infrastructure) means all the hardware, software resources, and operating systems available to enable internet-related businesses, such as EFT, EDI, intranet and extranet (Byrd & Turner, 2001). On the other hand, employees' IT skills and knowledge refers to the amount of skills possessed by them, into addition to knowledge regarding the use and implementation of internet-related applications effectively (Huang, Ou, Chen, & Lin, 2006; Zhu & Kraemer, 2005). Knowledge of IT also includes the employees' abilities in programming, web design, internet security, and system analysis in emerging and new technologies (Wang & Shi, 2009).

The IT readiness of the organization was identified as a major factor that impacts the adoption of information systems by SME's (Grandon & Pearson, 2004; Mehrtens, Cragg, & Mills, 2001). SME's more than often lack financial support for the adoption, as well as the lack of the knowledge necessary to make the adoption successful, usually involving complex technologies (Cragg & King, 1993; Mehrtens et al., 2001). Similarly, Hadaya (2008) found that the company's technological tendency is important for firms in B2B environments, and EC to help them sell products. This result conforms to previous findings by (Iacovou, Benbasat, & Dexter, 1995; Premkumar & Ramamurthy, 1995) as they previously showed that human resources and technical factors are crucial in adopting new technological innovations. Rahayu and Day (2015), noted that organizations with more IT readiness are more likely to engage successfully in EC activities.

- **Technology Trust**

Technology Trust is defined as how much a person is willing to rely on technology, deeming themselves

vulnerable based on the projected output, such as: predictability, reliability, and utility, and how these factors are impacted by the individual's predisposition to trust it (Jianyuan & Chunjuan, 2009). Rogers (1995) mentioned that potential innovation stands for a type of uncertainty, as the organization's confidence level increases, the risk of innovation and/or new technology is decreased. It will also be easier for the organization to adopt said technology/innovation.

EC is a new technology and model innovation. For this research, technology trust presents the degree of organization's confidence in EC technology. If an organization believes that EC can improve business exchange and bring relative benefits, such as decreasing the exchange cost and providing more products alternatives, supply integrated service and so on, this means the organization has a higher trust in EC place. Meanwhile, it is more possible for an organization to adopt EC (Jianyuan & Chunjuan, 2009). Therefore, the following hypothesis can be formulated:

H2: Organization factors have a positive relationship with EC adoption.

3.3 The relationship between Information culture factors and EC adoption

Information culture was defined as the stable beliefs and behaviors (Travica, 2005), Furthermore, beliefs are defined as "values and attitudes" leading behaviour within the organisation. The definition extends to cover all practices and communication methods adapted by the organizational towards IT adoption and adaptation for ICT companies. It was also proven that beliefs influence attitudes towards behaviour (Croll, 2009). Work practices are the techniques and methods used for work and communication conduct and behaviour. These two previous definitions of Information Culture have been perceived as the most popular definitions in literature (Mukred, Singh, & Safie, 2013).

Based on the review, a healthy information culture is responsible of motivating good information management, as well as developing firm practices (Svärd, 2014a). The development of E-governments demands good information culture which encourages effective creation and effective information management. The goal should be an effective and transparent public administration for information managed by the governmental body (Svärd, 2014a). Furthermore, according to Sinitsyna (2014) information integrity, information formality,

information control, and information proactiveness were the most commonly considered factors representing the information cultural factors. Sinitsyna (2014) stated that these four factors are important for information quality, in relevance to the same four factors and tying them with the topic of this research, Cullen and Taylor (2009) stated that information quality has a strong bond with EC adoption, therefore the four factors are believed to be influential for successful EC adoption deeming them information cultural factors.

Alternatively, Choo (2013) showed that the development of information culture is positively associated with the overall success of the business; therefore, human activities regarding information culture could be either positive or negative. As a result, information culture problems are considered a challenge, which can be overcome by addressing those issues accordingly (Svård, 2014a, 2014b).

Previous research mostly discussed organizational cultural and information systems' relationships. Few articles discussed the information culture as a concept standing by itself, a crucial factor influencing EC adoption (Detlor 2001; Xiwei et al. 2009). This paper uses four informational behaviours and values that affect EC adoption, these factors are: information integrity, formality, control, and proactiveness.

- **Information Integrity:**

Information integration refers to the extent of truthfulness, objectivity, and adherence to moral and ethical standards the information possess. It also encompasses the borders of acceptable information behaviour and conduct (Marchand, Kettinger, & Rollins, 2001). Naturally, when values are corrupted or negative, people will tend to manipulate information, deeming it misleading or even useless, which by turn could negatively affect decision-making and cause information abuse for personal gains (Furness, 2010).

On the other hand, if these values are positive, information will be transparent, depicting reality and what is really happening, leading to trust in information flow and decision making, knowing that the rationale behind the decision is acceptable, both morally and practically (Marchand et al., 2001).

At last, Choo, Bergeron, Detlor, and Heaton (2008) collected information from 650 people in different organisations; the study revealed that the majority of them had information integrity implying that it is

a desired trait in managers and people in decision-making positions.

- **Information Formality**

Information formality refers to purposefully relying on institutionalized information rather than on informal sources (Marchand et al., 2001). Emphasis on formal communication could result in an extensive and elaborate documentation of procedures and processes. This increases the quality of information used and can strengthen information formality in the firm (Furness, 2010). Several factors may affect information formality as mentioned by Marchand et al. (2001), these factors are: size, geographic dispersion, and the amount of virtual interactions. It was also noted that both formal and informal information systems are necessary to group activities, however, if information formality is emphasised, the quality and consistency of information will be greatly enhanced, thus leading to more effective operations and processes (Marchand et al., 2001). Lastly, perceptions of information use outcomes are correlated significantly with perceptions of information values relating to information formality (Choo et al., 2006), and according to another source information formality has a positive effect on information quality (Sinitsyna, 2014).

- **Information Control**

Information control was defined as the use of information in particular ways to either deter or encourage certain behaviours (Marchand et al., 2001). The use of information by managers allows them to closely monitor and control operations, activities and make decisions. Those abilities are crucial for strategic planning and business performance argumentation to become better. Basically, those control mechanisms are related to the individual's performance, which in turn is connected to the organization's performance (Furness, 2010). Simons (2013) set certain rules to negative information controls, it sets boundaries for opportunity seeking behaviour, it also provides a mechanism to reward desired behaviour and achievements pre-set by the firm. He also suggested that positive information control would include inspiring employees to perform better using information resources to nurture a belief system, thus embracing the value of learning in the firm Simons (2013).

While traditionally denoting a top-down approach to management, Marchand et al. (2001) suggested that Information Control can also be enacted in a

bottom-up approach, where the focus of goal-setting is with employees rather than managers. Furthermore, Furness (2010) suggested that Information Control is influenced by Information Integrity and Information Formality.

- **Information Proactiveness**

Information proactiveness is defined as a way of thinking to gain and apply new information gained rapidly in a business environment in response to rapid changes and fluctuations in the environment, thus promoting innovation in both products and services (Marchand et al., 2001). Looking out for signs of change in the environment, and anticipating certain conditions are considered proactiveness, as it usually involves information exchange back and forth. In addition to that, readiness and capability of comprehending and responding to what has been learnt is another aspect of proactiveness. Furthermore, Furness (2010) suggested that Information proactiveness could be affected by information integrity. Consequently, the following hypothesis has been formulated:

H3: Information culture factors have a positive relationship with EC adoption.

3.4 The relationship between EC adoption and organizational performance

Organization performance is an important measure for business results; it's measured according to the projected output. Organization performance is influenced by many factors, such as: communication technologies used development of information systems, and transformations in business environment. The basis of any organization performance enhancement is attributed to the rising development of ICT, where exceptional improvements have been drawn from the growth of information and communication technologies employing both in trade and business. (Abebe, 2014; Garg & Choeu, 2015; Jahanshahi, Rezaei, Nawaser, Ranjbar, & Pitamber, 2012). This paper aims to study the effect of EC adoption on organizational performance.

Therefore, the following hypothesis has been formulated:

H4: EC adoption has a positive impact on organizational performance.

4. METHODOLOGY

A quantitative research technique using the survey method will be applied for the research. The population of interest consists of 88 ICT companies

in Palestine registered in the Palestinian Information Technology Association (PITA), and all of them are located in the West Bank (PITA, 2014). The owners-managers of these companies will be the unit of analysis. A simple random probability sampling method to reflect a true representation of the population will be adopted for the research. Unsurprisingly SEM requires a large sample size where it should be 200 or bigger in size (Esposito Vinzi, Chin, Henseler, & Wang, 2010). According to Kline (2005), we need 15 cases per predictor in general based on the proposed model, we have twelve predictor variables, in accordance with the rule, the researcher will need 180 samples (Kline, 2005), however, to run the structural equation modelling (SEM) on AMOS software; the author will need at least 200 samples.

5. POTENTIAL CONTRIBUTIONS AND FUTURE RESEARCH

The contribution of this research will be to both academic research and management practices. It provides the theoretical comprehension needed to understand what influence the adoption of EC and how it affects the performance on the organization. This paper proposed a conceptual model that has multiple dimensions to examine EC adoption, and how does that influence on the organization's performance. The dimensions are: technological, organizational, information culture factors. This paper represents a useful guide for companies already implementing EC as it aids them in business strategies and development. This paper also helps in shedding the light on areas in need of re-investigation when it comes to investing in EC and its adoption. Furthermore, the paper also tries to inspire companies which have not adopted EC yet towards that adoption, and to initiate EC as an important tool of business growth.

Opportunities for future research can include complementing it with an empirical research to validate the model into a quantifiable data source. This can be done by conducting a quantitative study on ICT SME's inside Palestine. After receiving the feedback from those SME's the model can be further modified and refined to fit the situation and represent reality. Other variable factors that may influence EC adoption can be included in future research to test other dimensions of influence on EC adoption, as they should be able to replicate processes in an EC environment, such as in B2B, B2C environment, as the author believes this research can be a foundation to build upon for more detailed

research in the future by adding an empirical study, and expanding it to cover more dimensions of influence on EC adoption.

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