



## **Proposing Conceptual Model in Assessing E-Commerce Adoption in Iraq and Malaysia**

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### **ABSTRACT**

E-commerce adoption is one of the means to remain competitive in the global market. Moreover, with the growth of information technology and suitable infrastructure, e-commerce adoption is inevitable. However, the rate of e-commerce adoption differs from one country to another. There are many factors that affect the rate of adoption. Meanwhile, many studies have concentrated in the developed and industrialized countries. Therefore, this study proposed a conceptual model of e-commerce adoption that can be applied on both Iraq and Malaysia contexts. These two countries differ in terms of governmental role, facilities available and access to internet. However, both are emerging in the quest of e-commerce transaction. The study will be underpinned by two theories, namely Diffusion of Innovation Theory (DOI) and Resource Dependence Theory (RDT). Eight factors are chosen to represent organizational, technological and environment contexts. This study offers valuable insights to managers, and policy makers who are responsible for assisting Small and Medium Enterprises (SMEs) in participating into the new paradigm business operations.

**Keywords:** Adoption of e-commerce, Diffusion of Innovation Theory (DOI), Resource Dependence Theory (RDT), Organizational Technological and Environmental (OTE) Model

## 1. INTRODUCTION

Small and Medium Enterprises (SMEs) is the engine for growth in many countries. There is a strong link between SMEs, entrepreneurs and innovation. In countries that have a high number of SMEs, there will be more innovation as it is a catalyst to remain competitive. SMEs also create more job opportunities which will lead into improvement in the standard of living. Eventually, these countries progress, hence, development gets better as compared to those with less SMEs. As such, government introduces many policies and framework to encourage entrepreneurship in respective country. Nevertheless, there are external factors that are beyond governmental control.

As SMEs have been acknowledged as one of a key contributors to the national and international economies (Dan, 2014), the number of studies in SMEs has been increasing since the last two decades. Previous studies showed that this area offers a highly heterogeneous factors with diverse findings depending on the context of the study (Bannier & Zahn, 2014). They suggest that the dimensions of heterogeneity must be explored intensively to develop a theoretical framework in the specific research context. For the purpose of this article, the authors will propose a conceptual framework for Malaysia and Iraq contexts, where the results will lead to the understanding of e-commerce adoption in different developing countries.

## 2. LITERATURE REVIEW

### 2.1. Background of Study: Iraq and Malaysia

Iraq is suffering from three devastating wars that have contributed to huge damages to the economy and basic infrastructures of the country. Apart from that, Iraq is also facing civil conflicts among ethnics since 2003 and this situation leads to a sharp decline of number of SMEs since 2013. Surprisingly, report by United Nation (UN), and Economic and Social Commission for Western Asia (ESCWA) showed that Iraq has succeeded in developing and advancing its ICT sector, especially in telecommunication area. These phenomena suggest a detailed study on the adoption of electronic commerce (e-commerce) among small medium enterprises (SMEs) in Iraq. A Global B2C E-commerce Report 2015 disclosed that global e-commerce turnover grew by 24.0% in 2014 (Europe, 2015). This report detailed out the percentage of growth based on regions, and Middle East (21.5%) was reported as a second region after Asia-Pacific (44.3%). E-commerce activities relied heavily on the internet access. However, this report appears to be very interesting because the percentage of internet users in Middle East by November 2015 was reported only 3.7% from the total of global internet users (Miniwatts Marketing Group, 2015). Despite the political instability in Iraq, the percentage of internet usage for this country reported as the third in the Middle East

after Iran and Saudi Arabia (Miniwatts Marketing Group, 2015). This situation offers opportunities to Small Medium Enterprise (SMEs) in this country to compete at global market through e-commerce and to enjoy benefits of adopting this technology (Dan, 2014).

Malaysia's history has shown that this country has faced some issues related to conflicts in terms of the international as well as domestic conflicts. Since 1949, the area of Asia and Oceania has demonstrated a series of international conflicts over territory, resources, and international power in the area of South China Sea between Brunei, the governments of the People's Republic of China (PRC) and the Republic of China (ROC), Malaysia, The Philippines, and Vietnam. Malaysia has also gone through a series of international conflicts, such as in 1963; the conflict over territories between Singapore and Malaysia; in 1998 there was a conflict on the issue of illegal immigrants between Malaysia and Indonesia as well as The Philippines. At the same time, Malaysia faced problem with Sulu Sultanate Supporters in Lahad Datu District in 2013 (HIIK, 2014). As for internal conflict, the most significant conflict happened in 1969 that related with ideology and national power conflict between various opposition groups and Malaysia's government (HIIK, 2015).

Meanwhile, Malaysia today has a different context. The economy is on the rising trend, its political situation is stable and the government is most supportive of the entrepreneurial effort. In 2014, SMEs contributed 35.8% to Malaysia GDP. However, in terms of e-commerce adoption, data shows that more than 70% of the SMEs do not use the internet for business transaction even though more than 60% has internet usage (Department of Statistic, 2014; Hamzah, Sulaiman & Hussein, 2013). In a study by Saif-Ur-Rehman and Rizwan Alam (2016), several barriers that hinder e-commerce implementation are technical, regulatory, internet security and skills development. Similarly, Rillo (2016) has also suggested on several areas which can stimulate e-commerce growth. These include the infrastructure, logistic and trade, legal framework and the knowledge management aspects especially skills development. By engaging in e-commerce adoption, SMEs can position themselves better and becomes a champion to innovation.

Based on the above discussion, it shows that these countries have similar condition. Both face conflict in some parts of time. Malaysia has recovered and started to bounce on her feet while Iraq is in still in the middle of the conflict. However, the internet users in both countries are increasing, yet the adoption of e-commerce transactions among SMEs are not encouraging. Even though both of the countries are classified as developing country, the context of the study is different. When discussing the SMEs, the characteristics of business related to e-commerce adoption are similar, but the results may vary, hence it is

important for the authors to use similar model and test it at different context for developing countries. The result of this study will enrich the understanding of e-commerce adoption in the said area.

## 2.2. E-Commerce Adoption

The information technology development has transformed the industries structure, including small medium industry, and marked a higher level of competitiveness in the market as compared to previous decades (Al-Bakri & Katsioloudes, 2015). At the same time, information technology has always been a strategic move for SMEs to formulate their competitive strategy through businesses' competitive advantages over competitors (Li, 2008; Michael, 2001; Soliman & Janz, 2004). Shah Alam, Ali and Mohd. Jani (2011) have discussed the information technology role in which SMEs have benefitted in some countries; allowing them to penetrate and compete at global market.

Diffusion of innovation happens in most organizations (Greenhalgh, Robert, Macfarlane, Bate & Kyriakidou, 2004) including SMEs (Nooteboom, 1994). It is known as an important factor for the development and expansion of SMEs (Shah Alam et al., 2011; Yeh-Yun Lin & Yi-Ching Chen, 2007). E-commerce for instance, offers a quick interaction between the seller and the buyer, and improves business's mobility through mobile access (Teoh, Chong, Lin, & Chua, 2013).

Previous studies (Araste, Mansouri, & Jafari, 2013; Awiagah, Kang, & Lim, 2015; Fawzy & Abdel Salam, 2015; Hajli, Sims, & Shanmugam, 2014; Hussein, Sulaiman, & Hamzah, 2013; Jahongir & Shin, 2014; Kurnia, Choudrie, Mahbubur, & Alzougool, 2015; Rawashdeh, Estelami, & Eriksson, 2015; Suleiman, 2015) have reported a number of benefits of the adoption of e-commerce. Among them are (a) reduction in the cost of warehousing and inventory management, (b) improvement in SMEs' ability to reach global markets, and (c) improved quality of products and services through customization that is based on the needs of the customers.

Thus, the technology offers opportunities to SMEs to revisit their business strategies to support its operations. However, most of the time the adoption rate is low as most SMEs are unable to leverage this technology due to business limitations in internal and external environment factors (Schlemmer & Webb, 2010).

### 2.3. Theoretical Background

In order to understand the situation, theories are used to explain reasons behind circumstances. Hence, this study will be underpinned by Diffusion of Innovation (DOI) Theory and Resource Dependence Theory (RDT) to explain the heterogeneous factors that influence the adoption of e-commerce.

Diffusion of Innovation (DOI) Theory was introduced by Rogers in 1962 and is widely used in the area of technology diffusion and adoption (Rogers, 1995; Sahin, 2006). Scholars of diffusion outlined that there are four main elements in the theory namely innovation, communication channels, time and social system (context) (Nooteboom, 1994; Oliveira & Martins, 2011; Sahin, 2006). Rogers spelled out five determinants of adoption and diffusion of innovation, which are relative advantage, complexity, compatibility, trialability and observability (Parker & Castleman, 2007; Rogers, 1995; Sahin, 2006). Researchers agree that this theory supports the situation where e-commerce technology must align with the heterogeneous context that leads to the decision to adopt this technology (Parker & Castleman, 2007). Many studies have been conducted using DOI to support their framework in the context of adoption of e-commerce among SMEs (Jamali, Marthandan, Khazaei, Samadi, & Fie, 2015; Scupola, 2009; Yeh-Yun Lin & Yi-Ching Chen, 2007). However, as the use of this theory is limited to the organizational and technological factors (Parker & Castleman, 2007), another theory is required to explain the external environment factors in a particular research area. Thus, resource dependency theory is proposed to explain the environmental situations.

Meanwhile, Resource Dependence Theory (RDT) is introduced by Pfeffer and Salancik (Pfeffer & Salancik, 2003; Reitz, 1979). The main focus of this theory is on environmental influences and organizations reactions to the situation (Reitz, 1979). RDT offers several strategies to handle the uncertainties due to changes of the external environment (Hillman, Withers, & Collins, 2009). Previous scholars agree with the idea of reacting to the uncertainties in the environment through negotiation with the respective parties (Davis & Cobb, 2010; Reitz, 1979).

### 3. RESEARCH FRAMEWORK

Technology, Organization and Environment (TOE) Model, which was introduced by Tornatzky and Fleischer (1990) is used to develop a proposed framework. There are eight heterogeneous factors that were identified to represent organizational, technological and environmental factors. It has been known that these factors are different from other developing countries due to political situation, therefore some

heterogeneous factors may influence the decision to adopt e-commerce technology among SMEs in this country (Harash, Al-Tamimi, & Al-Timimi, 2014; Hashim, 2015).

### **3.1. Technology Context**

Technological context is one of the elements in TOE Model that represents the variety of technologies available to firms for adoption. There are three variables proposed in this category which are relative advantage, compatibility and complexity. These three dimensions are parallel with DOI theory of determinants of innovation. These dimensions need to be further investigated as it produces inconsistent findings in previous studies.

Previous scholars agree that the adoption of e-commerce has relative advantage to SMEs in developed and developing countries including the Arab countries (Scupola, 2009). However, compatibility has mixed results in different contexts (Ahmad, Abu Bakar, Faziharudean, & Mohamad Zaki, 2014; Almoawi & Mahmood, 2012; Ifinedo, 2011; Jahongir & Shin, 2014; Venkatesh & Bala, 2012) similarly, with the complexity of technology. Even though previous study highlighted that this variable is an important variable in the adoption of technology (Venkatesh & Bala, 2012) study among Canadian and Malaysian SMEs does not recognize perceived complexity as a factor that influences the adoption of e-commerce (Ahmad et al., 2014; Ifinedo, 2011). Based on the above discussion, the researcher found that these variables in technological context must be revisited and is appropriate to be included in this study.

### **3.2. Organization Context**

Previous scholars found firm size, organizational readiness and organizational innovativeness are important variables that influence adoption in e-commerce (Gabler, Richey, & Rapp, 2015; Ifinedo, 2011; Jahongir & Shin, 2014; Kadhim & Al-Taie, 2013). Moreover, Peter Drucker has highlighted that marketing and innovation are two basic entrepreneurial functions (Moos, Beimborn, Wagner, & Weitzel, 2010). Previous study also revealed that innovation is the main non-financial goal that contribute as a competitive edge to many firms (Moos et al., 2010).

Similar with previous studies on compatibility and complexity, firm size and organizational readiness also showed mixed result between developed country such as Canada and developing countries such as Uzbekistan and Indonesia (Awa, Awara, & Lebari, 2015; Ifinedo, 2011; Jahongir & Shin, 2014;

Rahayu & Day, 2015). Hence, firm size, organizational readiness and organizational innovative are important variables in the organizational context.

### **3.3. Environment Context**

For environment context, the literature search leads to two factors that are crucial in the contexts of Iraq and Malaysia. Those factors are role of government and relational trust. As discussed under RDT, these present uncertainties in Iraq require cooperation and co-option. In Iraq, the situation is more volatile as compared to Malaysia. These current vast differences are present in terms of adoption of e-commerce. As scholars suggest government policies and initiatives through subsidies and tax incentives help to encourage the adoption of e-commerce among SMEs (Awa et al., 2015; Awiagah et al., 2015). Hence, both nations can make an effort to allocate certain amount of budget for the said purposes.

However, this variable has also presented mixed result where it appears to be significant in developing countries such as Malaysia (Ahmad et al., 2014) but not significant in the developed country such as Canada (Ifinedo, 2011). As majority of SMEs in Iraq are owned by families and characterized by religious as well as ethnic diversities (White, 2012), the relational trust with other parties is important to foster the commerce activities (Amoako & Matlay, 2015). Moreover, currently the study on relational trust has been conducted in the adoption of supply chain management (Amoako & Matlay, 2015), but less is known in the context of e-commerce.

Based on the above discussion, it is necessary to include role of government and relational trust as the environmental context in this study. Figure 1 displays the proposed research framework for this study. The TOE model is used as a platform to conduct the study as previous findings on its dimensions indicate the need for further investigation. It is proposed that all three variables of Organization, Technology and Environment have significant relationship with e-commerce adoption.

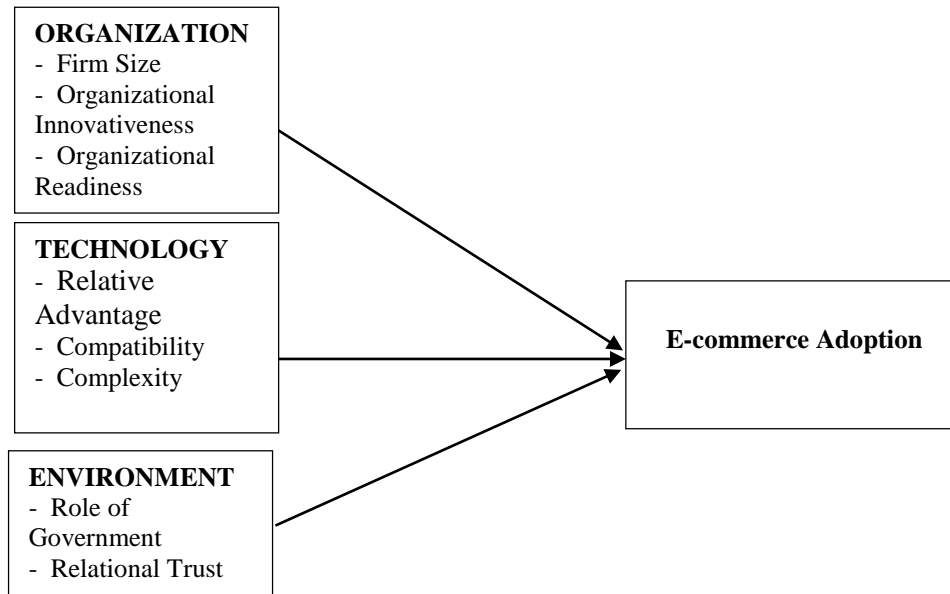


Figure 1. Proposed Research Framework

#### 4. METHODOLOGY

This study will focus on examining the determinants of e-commerce adoption among SMEs in both countries. Since the research objective is to examine the determinants of e-commerce adoption amongst SMEs, hence the unit of analysis for this study is organization. The targeted respondents are the owners of the SMEs because owners have extensive knowledge about their business operation, and have the ability to complete the questionnaire (Basu, Hartono, Lederer, & Sethi, 2002). A self-administered questionnaire is considered for the data collection. The questionnaire consists of two main parts, the first part contains the questions eliciting the basic information of the participants and the organisation. The second part of the questionnaires contains 40 questions adapted from various authors such as from Suleiman (2015), Wang, Li, Li and Zhang (2016), Ventakatesh and Bala (2012), Ifinedo (2014) and Hamad (2014). Finally, the data will be analyzed using Structural Equation Modelling.

#### 5. CONCLUSION

This paper proposes a conceptual framework to investigate e-commerce adoption among SMEs in Iraq and Malaysia with the use of Diffusion of Innovation Theory and Resource Dependency Theory. Besides, the Organization, Technology and Environment Model is also used to explain the factors that affect these relationships. Previous studies have used limited aspects of these theories which might not explain the whole situation. Thus, this paper contributes to the incorporation of all relevant variables which are



considered necessary to capture the situation of e-commerce adoption. Data will be conducted in both countries using structured questionnaires. It is posited that the findings will provide a clear understanding on the relationship between these variables. In addition, the other contribution of this paper is to identify heterogeneous factors of e-commerce adoption among SMEs. The finding of this study will facilitate the owners of SMEs and policy makers in planning strategies for SMEs to become more competitive in the industry.

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