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E-Commerce Adoption by Small Medium Enterprises: An Extensive Literature Review

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Abstract: This study aims to review academic research work carried out in the field of e-commerce adoption. The e-commerce area has been classified into three broad categories, namely technological context, organizational context and environmental context. Finally, this study identifies the important role of SMEs, an overview of e-commerce technology and the adoption of e-commerce. This study collected 52 research studies in the field of e-commerce. This research provides a systematic review of the above studies. This study classifies 3 important factors in e-commerce adoption, namely technology, organization and environmental factors. This study identifies that to increase the success of e-commerce, it is necessary to consider the determinants of e-commerce adoption so that e-commerce players can excel in the competition. This study will make a positive contribution to understanding e-commerce adoption for academics, industry, regulators, and other e-commerce users.

Keywords: *SMEs, E-commerce Adoption, Determinant Factors.*

1. Introduction

E-commerce, one of the advances in information technology, has undoubtedly become very prevalent in recent years, not just among academics but also among professionals. Four distinct innovation attributes are linked to its success: the opportunity to enter markets and worldwide expertise directly; industry expeditions; the ability to transform business processes; and a shift in the power balance between suppliers and customers as knowledge becomes easier to access (Bohme et al., 2008). While e-commerce research started in the 1990s, this topic is still an important subject to be studied today. Most e-commerce studies were conducted from the 1990s to 2008 in developing countries. Based on an exhaustive analysis of 345 IT innovation-related papers published by Williams et al. (2009) in 19 peer-reviewed journals between 1985 and 2007, 82.7% of IT studies are performed in developing countries, in developed countries, there are few IT studies. In recent years, e-commerce studies have been performed in developing countries, but primarily for African and Arab countries along with China.

It is, therefore, no surprise that e-commerce has become common in recent decades. In2009, based on the IDC report (2011), 624 million web users made online transactions with gross revenues of approximately $8 trillion (B2B and B2C), and this figure is expected to rise to more than $16 trillion in transactions by the end of 2013. According to Statita, B2B transactions were $1,058 trillion worldwide for B2C alone in 2012 and by the end of 2015, this figure is estimated to hit $1.92 trillion. In Asia, the data released by World Statistics Internet (2015) also shows substantial growth in e-commerce which is 1.56 billion Internet users in Asia as of June 2015, while the number of Internet users in 2000 was just 114 million. Nevertheless, the increasing use of e-commerce by companies is mostly seen by big corporations. Compared to large businesses, the adoption of e-commerce by SMEs is considered to be relatively slow (Alam et al., 2011; Govindaraju et al., 2015; Chiliya et al., 2011). In addition, the objectives of this analysis are what factors influence the adoption of e-commerce by SMEs.

2. Important Role of SMEs

It cannot be denied that in terms of economic development, SMEs play an important role. On average, 95% of the world's companies are SMEs; they consume up to 65% of employment (Kotelnikov, 2007). These SMEs allow an immense contribution, not just in terms of numbers, in almost every country in the world, but also in terms of work provision. In the United States, for example, a statistical study from the Office of Small Business Administration (SBA) Advocacy (2011) reported that 99.7 percent of all hiring companies serve small firms. They hire about 49.6 percent in the private sector of all workers and have created 60 to 80 percent of the net new employment every year over the past decade. In the United Kingdom, the Federation of Small Business Reports (2012) estimates that SMEs account for 99.9 percent of all private sector companies and employ

more than 14 million employees (59.2 percent). While the EU Annual Report on SMEs (2011/12) refers to the European Union, approximately 99.8% of businesses are small and medium-sized enterprises, which provide 67.4% of all jobs and contribute 58.1% of the gross value added. In developed countries, as well as in developing countries, such as the Philippines, Indonesia, Thailand and Malaysia. A large number of SMEs (97% of all enterprises on average) also exist and account for more than 60% of the workforce. For more information, Table 1 below indicates the contribution of SMEs in selected developing countries in Asia.

Table 1: Role of SMEs

NO	Country	Number of units	Employment	Value Added
1	China	99.7	74	60
2	India	95	80	40
3	Indonesia	99.9	99	63.1
4	Malaysia	94.5	40.4	26
5	Philippines	99.6	69.1	32
6	Thailand	98	55.8	47
7	Vietnam	96.8	96.8	39

Ayyagari et al. (2011) would also have supporting evidence. They found that SMEs made a major impact in terms of jobs and job growth, Based on a 2006-2010 survey of 104 countries. The findings show that SMEs contribute 47.94 percent of employment on average. UKM contributed 75.6 percent to job growth as well. This contribution is very high in relation to large corporations. This study collected 52 research studies from Google scholar, the social science research network, and the research gate in the area of Small Medium Enterprises. This study presents the systematic review of the above studies.

3. Overview of E-Commerce Technology

E-commerce defines by Turban (2010) as “the process of purchasing, selling, transferring, or sharing goods, services and/or data over computer networks, often the Internet and intranets." Clarke (2005) provides a more comprehensive element of the e-commerce feature to describe e-commerce, which is "commerce support services. It encompasses inter-organizational e-mail, databases, commodity trading support systems, goods, personalized goods and services, knowledge management and statistical reporting systems. Then, e-commerce is described by Govindaraju et al. (2012) as the process of exchange of information and transactions involving products and services through information technology such as networks, software, non-wireless equipment and electronic wireless equipment". Besides, all internet-based economic activities have been reported to be called e-commerce (Tagliavini et al., 2001). E-commerce differs from the traditional approach in terms of using the Internet in business processes. The business process usually begins with the client manually drafting the purchasing document, printing the paper and sending it via fax or courier service to the supplier.

In e-commerce, on the other hand, certain conventional steps can be performed electronically, such as filing documents manually, faxing or couriering documents and entering documents, so they can be removed. As a result, transactions are done more quickly and economically. Abell and Lim (1996) found that in New Zealand, SMEs use the internet to connect with internal and external parties, obtain supplier information, provide data, conduct market and product analysis, position supplier orders, and accept customer orders. Drew (2003) discovered that the internet is used for advertising and marketing of SME products, sales to end consumers, sales to distributors, while e-mail and intranet systems are used for internal correspondence. In line with this, Daniel and Wilson (2002) claim, summarizing from previous research, that e-commerce technology helps SMEs in various activities, namely: providing knowledge about companies, Providing details on the products and services provided, acquisition and placement of orders, receiving payments, selling products and services, contacting service or after-sales, finding suppliers, supplies and non-inventory sales, interacting with both internal and external parties.

Exchanging customer or supplier documents and designs, finding information, advertisement and hiring activities. The above description demonstrates that the technology of e-commerce is also appropriate for SMEs, it can be used in many business operations, and it also allows them to do so. In addition to allowing

SMEs to carry out different tasks, e-commerce also offers several benefits for SMEs. The study of 118 SMEs in Sweden conducted by MacGregor and Vrazalic (2006) found seven benefits for SMEs through e-commerce. Reducing costs, reducing stock overhead, increasing load times, improving control, enhancement of the standard of knowledge, increasing sales and improvements in e-commerce adoption partnerships with business partners experienced by SMEs. These advantages are categorized into two important classes by MacGregor and Vrazalic (2006), in which "internal performance" factors are five advantages, and "marketing benefits" factors are the last two advantages. Daniel and Wilson (2002) found that six advantages recognized by SMEs in relation to the adoption of e-commerce have been established, centered on a study of the UK's 678 SMEs.

There are enhanced internal information sharing, enhanced competitive position, better and productive operation, attracting new customers, increased supply and workers recruited online. Santarelli and D'Altri (2003) found, in the Italian context, that e-commerce allows SMEs to increase customer numbers, broaden markets and improve communication. Meanwhile, Wade and Johnston (2007) discovered in three EU countries (Germany and, UK, and France) E-commerce continues to fuel revenue growth for SMEs, increase the cost of goods sold and reduce the cost of goods sold. Another research by Tan et al. (2009) conducted the study on Australian small businesses facing the problem with the launch of internet commerce. After using e-commerce, a participant in this study was twenty-three small businesses. They find new customers, for example, become part of a new business network, and while some businesses also have reduced time to search and retrieve data, especially if they know the exact address. Some organizations have also achieved cost savings by using e-commerce. Furthermore, Jahanshahi and Zhang (2013) found that five key significant benefits of e-commerce identified by SMEs have also been revealed such as Iran, India, Malaysia and Iran, are improved corporate and brand image, reduced costs, improved customer support, improved business process flow, increased productivity.

4. E-Commerce Adoption

In political social, educational, legal and infrastructure matters, developed countries vary greatly from developing countries. These gaps would restrict the use of emerging technologies, including e-commerce technologies, which were originally made in developing countries based on developed countries' conditions (Kartiwi, & MacGregor, 2007; Tan et al., 2007). There are also political, socioeconomic, cultural, legal and infrastructural inequalities between developing countries, but not as high as developed countries and developing countries. Also, it could be argued that it is not possible to generalize the study results obtained in some developed countries to other developing countries. Certainly, the absence of EC studies focused on developed countries provides researchers the ability to do so. This research was therefore carried out in the developing world, Indonesia in this case, to fill this void. Some studies are in the field of e-commerce, which focuses on big business (Daniel & Grimshaw, 2002), and fewer researches are in the field of SMEs (Parker & Castleman, 2007). Just 120 journals on the adoption of e-business/e-commerce in SMEs were found in their systematic search of 51 journals published between 2003 and 2006. Big business, or vice versa, not only is the big version of small business. Not only do they vary because of scale, but they also differ in several ways.

There are at least four characteristics that differentiate it according to Kartiwi and MacGregor (2008), Management-related; decision-making and planning processes; availability of resources. Some examples of these attributes are that SME firms tend to focus on the viewpoint of short-term planning; insufficient planning; lack of technology; small market share; limited emphasis on goods; more uncertainties; less risk-averse; and then SMEs are riskier than large enterprises. This illustrates SMEs are unable to quickly enforce strategies or policies implemented by large enterprises, introducing e-commerce technologies planned to fulfill the needs of major corporations in developed countries. On the other hand, SMEs are known in many countries as the engine of economic development, this will have a direct effect on the national economy, particularly in developing countries (Ghobakhloo & Tang, 2013) and their performance (Poon & Swatman, 1999). The limited number of studies and the strong efforts of several parties promoting e-commerce adoption by SMEs provide researchers with opportunities to conduct studies on e-commerce adoption in SMEs, especially in developed countries. In addition, two major groups, namely upstream and downstream studies, can also be divided into e-commerce studies (Molla & Heeks, 2007). The first refers to research that aims to look at the variables that promote the adoption of e-commerce.

On the other hand, the latter applies to research that aims to look at benefits post-adoption. Some examples of upstream studies are a study performed by Alam et al. (2011), Aboelmaged (2010), Al-Qirim (2007), Aboelmaged (2010), Baridam and Nwibere (2015), Chiliya et al. (2011), Kurnia, Choudrie, et al. (2015), Tan et al. (2007), Grandon and Pearson (2004b), Govindaraju et al. (2012), Saffu et al. (2008), Raymond (2001), Quaddus and Hofmeyer (2007). In the meantime, the analysis performed in a downstream review by Sila and Dobni (2012), Molla and Heeks (2007), Mustaffa and Beaumont (2004) and Abebe (2014) is graded as. It is important to know the factors that drive or hinder business especially for SMEs, but it is equally important to understand how implementing e-commerce benefits business efficiency. Salwani et al. (2009) some of the main reasons why SMEs are still reluctant to implement e-commerce technology are recognized as: lack of success stories; absence of awareness of e-commerce and lack of understanding of the potential effects on business results of e-commerce implementation (Salwani et al., 2009). For these reasons, SMEs are afraid to invest their capital in this technology, particularly in developing countries. Then, based on their level of study, technical innovation studies may also be graded (Frambach & Schillewaert, 2002: Hameed et al., 2012; Premkumar, 2003; Quaddus & Hofmeyer, 2007).

The classified this study into three main levels: individual, group and organizational by Hameed et al. (2012), while Premkumar (2003), Frambach and Schillewaert (2002), and Quaddus and Hofmeyer (2007) conducted study was classified into two main levels which are individual and organizational. In terms of innovation adoption, individual-level studies concentrate on individual behavior. Some of the ideas mentioned in the previous section apply to the organizational and individual level, and some of them can be extended to research at individual and organizational levels. TPB, TRA, and TAM are closely related to the analysis of the individual level; TOE and PERM are linked to the analysis of the organizational level, while IDT can be used as an analysis of individuals and organizations. Based on a systematic analysis of 151 studies performed by Hameed et al. (2012), most of the studies were undertaken at the level of organizational and few at the personal level. This makes sense, because not only can one person be credited to the implementation of IT innovation in organizations because it will include several people. The decisions taken in organizations to approve or reject IT technologies are made by consensus of individuals with sufficient organizational authority or left to several individuals (Premkumar & Roberts, 1999).

While decisions are taken by consensus among individuals in the company, to obtain an organizational level image, it is not advisable to combine individual perspectives. This condition will cause bias in aggregation, decreased predictive ability and may also lead to results being over or underestimated (Hameed et al., 2012). Furthermore, as stated in the previous subsection, in the review of e-commerce adoption by SMEs, the use of individual perspective theory cannot capture the peculiarities of SMEs, and organizational level research is proposed to be used to recognize the implementation of IT innovation within organizations, such as e-commerce. Therefore, this study uses an organizational level analysis to clarify the adoption of e-commerce by SMEs in Indonesia. Besides, based on the viewpoint used, which is an individualistic, structuralist and interactive process perspective, innovation studies can also be categorized (Hameed et al., 2012). Furthermore, Hameed et al. (2012) explain that individualists believe that the individuals in the organization are the key cause of change in organizations; individualist studies, therefore, focus only on the behavior taken by people.

A structuralist considers that organizational features primarily dictate changes in organizations, such that individual contributions are not taken into account in structuralist studies (Hameed et al., 2012). In the implementation of creativity in organizations, neither individualists nor structuralists alone can see a systematic mechanism. The last viewpoint, namely the interactive process perspective, suggests, in contrast to this perspective, these organizational changes are determined not only by the people in the organization but also by the features of the organizations in which they function. This viewpoint enables researchers to deal with all variables and their interactions in a single complex system (Molla & Licker, 2005a) and is believed to be able to clarify the acceptance of IT invention comprehensively. Consequently, this point of view is used to explain the general acceptance of e-commerce by SMEs in Indonesia. TOE is considered a theory among the theories mentioned above that uses an interactive viewpoint since it incorporates different contexts, which are the contexts of technology, organization and the environment (Sila & Dobni, 2012).

5. Conclusion

This study conducts a thorough analysis of different factors in e-commerce adoption, such as the context of technology, environmental and organizational context. The variables influencing e-commerce adoption can be divided into 3 major contexts, namely the context of technology, organization and climate, based on the above description. Three key contexts are therefore regarded in this study as factors affecting SMEs in their e-commerce adoption. The technology background defines, according to Tornatzky et al. (1990), Not only existing technology available in an enterprise but also emerging technology on the market that determines an organization's ability to respond to new technology or other technical initiatives. The technical context relates to technological variables, such as perceived benefits, compatibility and costs. In addition, the organizational context relates to the features of enterprise that could affect the implementation of e-commerce technology in this case. Readiness for technology and company size, which are considerations in the corporate sense, are recognized as factors that can impact SMEs in e-commerce adoption. An organization's decision to implement some kind of technology for innovation is not only motivated by legitimate expectations for productivity, but also by environmental and social factors. Environmental factors apply to external factors, such as pressure from consumers, vendors, rivals, and governments that affect e-commerce implementation organizations.

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