The Factors That Affects E-Commerce Adoption in Small and Medium Enterprise: A Review

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Abstract: The appearance of electronic commerce (e-commerce) during 1990s has brought great benefits for businesses. E-commerce is a paradigm shift and a competitive tool for Small and Medium Enterprises (SMEs). Despite the benefits of e-commerce, the adoption of the technology is limited. This paper aims to investigate the factors that affect the adoption of e-commerce by SMEs. Variables such as perceived ease of use, security, willingness, perceived usefulness, company readiness, relative advantage, and customers’ need are expected to affect the adoption of e-commerce. Quantitative approach is followed in this study. An intensive literature review was carried out to find the relationship between the variables. Frequency analysis was adopted to find the results of this study. the findings indicate that the relationship between manager willingness and e-commerce adoption by SMEs is significant. Followed by relative advantage with frequency of 8 out 12. Other factors were found to have marginally significant relationship with e-commerce adoption by SMEs.

Key words: E-commerce, SMEs, adoption,

INTRODUCTION

The appearance of the internet during the last two decades has brought huge benefits for businesses. Electronic Commerce (e-commerce) has started in 1994 and it is a process of purchasing, selling, transferring, or exchanging goods, services and information through the internet. Companies have utilized the internet to manage information and integrate e-commerce into their reengineered business processes. Clearly, e-commerce has made favorable conditions for economies to implement a shift from the labor intensive paradigm to a knowledge worker paradigm that is strongly expected to be dominant in the future. There are many benefits that companies have gained through the adoption of e-commerce in their operations. E-commerce has been making significant contributions to reduction in costs of doing business, improved product/service quality, new customer and supplier penetration, and generation of new ways or channels for product distribution (Pham, Pham, and Nguyen, 2011). Such benefits can be realized in not only large firms but also in Small and medium enterprises (SMEs) (Huff, 2000).

Adoption of technology and its aspects was the main focus of academicians and practitioners. However, there is few studies that focuses on the adoption and utilization of e-commerce in SMEs (Grandon and Pearson, 2004; Mirchandani and Motwani, 2001; Riemenschneider, Harrison and Mykytyn, 2003). Nobody can deny the fact that SMEs play an important role in both developed and developing economies. It should be noted that various potential advantages can be created by e-commerce, but surprisingly SMEs’ adoption of e-commerce has still been limited perhaps due to the fact that SMEs have different characteristics from large enterprises.

SMEs are vital for the economic growth in the developed and developing world. It is estimated that more than 80% of the global economic growth comes from SMEs.

The purpose of this study is to investigate that factors that influence the adoption of e-commerce by small and medium enterprise. It also aims to find the benefits and the barriers of e-commerce adoption by SMEs. Finding the factors that impact the adoption is vital to ensure the success of adoption and to let the decision makers and business owners focus more on these factors so that they can guarantee the feasibility of adoption and implementation of e-commerce by SMEs and they can gain the expected benefits and overcome the challenges.

This paper consists of five sections. First section presented the introduction of the paper. The next section reviews the literature pertaining to e-commerce adoption and the factors that affect the adoption. It reviews also the benefits and barriers of e-commerce and the related theories. Third section proposes the conceptual framework of this study. Fourth section presents the expected results. Fifth section concludes the research.

2. Literature Review:
2.1 Evolution and Definition of the E-Commerce:
Even though the internet has existed for several decades, e-commerce has become a reality only with the development of the World Wide Web (WWW) and its associated technologies (Napier, Judd, Rivers, and Wagner, 2001). Early work in e-commerce, such as that Kalakota and Whinston (1998), defined e-commerce simply as “the buying and selling of information, products and services via computer networks” (Kalakota and Whinston, 1998), the computer networks primarily being the Internet. Chaffey (2002) used the term more broadly to encompass not only the buying and selling described above but also the use of Internet technologies, such as email and intranets, to exchange or share information either within the firm itself or with external stakeholders. This broad interpretation of the term e-commerce has continued, with Ching and Ellis (2004) describing e-commerce as “technologically mediated exchanges”. For this study E-commerce has been defined as the process of buying, selling, transferring, or exchanging products, services, and/or information via computer networks, including the Internet. This definition is adopted from Turban, Leidner, McLean, and Weatherbe, (2008).

Despite the importance of e-commerce for economic growth, in developing countries, the adoption of e-commerce and the academic researches still limited (Molla, and Licker, 2005). Currently, it is obvious that e-commerce is making favorable conditions for economies to implement a shift from the labor intensive paradigm to a knowledge worker paradigm that is strongly expected to be dominant in the future. Among a variety of benefits reaped by firms, it is contended that e-commerce has been making significant contributions to reduction in costs of doing business, improved product/service quality, new customer and supplier penetration, and generation of new ways or channels for product distribution (Chaudhury and Kuiboer, 2002).

2.2 Factors Affect the Adoption of E-Commerce by SMEs:

There have been a number of studies concentrating on aspects of the technology adoption; however, there are few studying the adoption and utilization of e-commerce in SMEs (Grandon and Pearson, 2004). Reviewing the literature, it can been seen that the researchers have general tendency to divide the factors that affect the adoption of e-commerce by SMEs into three main groups: organizational factors, technological factors and external factors (MacGregor and Vrazalic, 2008; Gilaninia, Danesh, Amiri, Mousavian, and Eskandarpour, 2011; Lip-Sam and Hock-Eam, 2011; Bahaddad, Alghamdi and Houghton, 2012; Al-Hudhaif and Alkubeyyer, 2011).

MacGregor and Vrazalic (2008) conducted study in Australia to identify the factors that affect the adoption of e-commerce by using quantitative approach and dividing the target respondents to adopters and non-adopters. The findings reveal that organizational factors are more important than technological factors. Organizational factors for this study were: suitability of e-commerce, way of doing business, and e-commerce relative advantages. In perfect agreement with the findings of MacGregor and Vrazalic (2008), Gilaninia et al., (2011) indicate that organizational factors such as compatibility, e-commerce benefits, e-commerce risk and perceived ease of use are the factors that can affect the adoption. Lip-Sam and Hock-Eam (2011) find that external factors such as government support and expertise, organizational factors like Chief Executive Officer (CEO) characteristic which were age, education, and frequent use of computer were effective factors for e-commerce adoption. Elmazi, Vukaj, Gega, and Elmazi, (2011) find that the organizational factors such as size, top management support for e-commerce, IT emphasis, existence of IT department were significantly effective for SMEs adoption of e-commerce and the same results found for the technology factors (perceived benefits, perceived compatibility) and the environmental factors (industry competitiveness). Differently, Hafeez, Keoy, Zairi, Hanneman and Koh, (2010) found technological factors to be more effective rather than organizational factors.

In Saudi Arabia, Al-Hudhaif and Alkubeyyer (2011) found that the first step in adoption of e-commerce is heavily dependent on external factors mainly factors related to market forces (customers and partners e-readiness), the supporting industries e-readiness, and the effect of government e-readiness. The study reveals that for advance adoption of e-commerce the main factors and determinants are internal factors such as technology resources related factors, managerial factors, organizational factors. While the only external factors that still has a considerable influential power in this level of adoption is the market forces’ e-readiness. Similar to this approach, Alzougool and Kurnia (2010) found that organizational readiness (perception of technology, perceived organization resources, perceived governance ) industrial readiness (perceived industry standards, perceived trading partners readiness, perceived level of trust among industry players) national readiness (perceived government support, perceived supporting services) environmental pressure (perceived internal pressure, perceived external pressure) affect the adoption of e-commerce by SMEs.

In similar approach to Lip-Sam and Hock-Eam (2011), Bahaddad et al., (2012) tested 17 factors under three categorizations. Namely, people and organization, technological and environmental, and traditional and cultural. The study reveals that only 9 factors are significant. Under people and organizational group, the significant factors are: good previous IT experiences, educational background, lack of resource and IT skills, lack of interest and awareness. Under the technological and environmental group: e-mall website characteristics and its
security, safe payment methods and delivery system. Under traditional and cultural group, the significant factors are: telecommunication, and logistics infrastructures.

Following different approach and frameworks, other researchers identify the factors that affect the adoption of e-commerce by SMEs by testing a group of factors. In Malaysia the factors that affect adoption were found to be relative advantage, compatibility, organizational readiness, manager’s characteristic and security (Shah Alam, Ali, and Mohd Jani, 2011). In Jordan, Al-Weshah and Al-Zubi (2012) found the factors to be top management support followed by business partner. In UK, a study by Wilson, Daniel, and Davies (2008) using quantitative approach by distributing questionnaires to 678 SMEs, the study found the factors to be top management support, management understanding, presence of IT skills, availability of consultancy, and prioritization of e-commerce compared with other projects. Wanyoike, Mukulu, and Waititu, (2012) agreed with Shah Alam et al., (2011) and they stated that the reason behind the adoption of e-commerce is only relative advantages and observability.

Saffu, Walker and Mazurek (2012) found perceived usefulness, ease of use, readiness and compatibility, and external pressure respectively in order of importance were the factors that affect the adoption of e-commerce. The findings of Irish study by Ramsey, Ibbotson, and Mccole, (2008) reveal that there are seven factors that can induce companies in Ireland to adopt the e-commerce. These factors are: e-commerce capability, willingness to change/rate of response to new technologies, technological opportunity recognition, customer orientation, sensitivity to competitive/customer environment, perception of technology feasibility, and e-skills development mechanisms.

Similarly to shah Alam et al., (2011), Ifinedo, (2011) found that relative advantages have the strongest impact on the adoption of SMEs in Canada followed by competition’s pressure and management support respectively and differently from the finding of Al-weshah and Al-Zubi (2012), Ifinedo (2011) found that business partner along with compatibility and complexity, government support, were not significant for the adoption of SMEs. In contrast with Ifinedo (2011), Zakaria and Janom. (2011) found government support along with other factors such as personal traits dimension, enterprise readiness, competency of staff and organization, technology, business process, and market forces, are factors that can affect the smooth implementation of e-commerce.

Interestingly, a study by Luqman (2011) using structural equation modeling approach reveals that compatibility is the only construct that can affect the adoption of e-business and surprisingly, relative advantage along with trialability were found to have positive but not statistically significant relationship. Complexity and observability were found to have negative and statistically insignificant relationship with the adoption of e-business. Cohen and Kallirroi (2006) found that the success factors of E-commerce are proper selection of the planning and development team, e-commerce application development by experienced personal, alignment with corporate strategy and top management support. Olatokeun and Kebonye (2010) found that the major reasons for e-commerce technology adoption were competitive advantage and customers and suppliers’ pressures.

CEO characteristic and other factors were studied by Jeon, Han and Lee, (2006) in Korea. The study reveals that the factors that can affect the adoption of e-commerce in the country are CEO’s knowledge of IT/E-business, the relative advantages and benefits from adopting e-business, governmental support for e-business, using e-business as globalization strategy for market expansion and the aim to collaborate with North Korean companies. The study also finds that business size; cost of e-business adoption and competitive pressure of the industry has no effect on the adoption of e-commerce.

Researchers have used many variables categorized under three main groups as mentioned earlier. However, there is conflicting results among the findings. While some stated that the relative advantage is the strongest reason for e-commerce adoption, some other researcher found that it is not significant. In similar approach, partner pressure or customers and suppliers pressures was found to be significant in some studies and not in others.

2.3 Benefits of E-Commerce Adoption by SMEs:

In a study conducted in Turkey by Aydemir (2013) to find the benefit and the barriers of e-commerce adoption. The study reveals that the benefits that can be gained through the adoption of the technology are: access to new markets, enhance competitiveness and cost advantage. Similarly, Stockdale and Standing (2004) find the benefits to be: access to a wider range of markets, greater potential for partnerships, flexibility in administration and communication, accessibility, information, improved customer services, updating of information, lower transaction costs, differentiation of product and service, and ability to enter supply chain for larger companies. Wanyoike et al., (2012) find the advantages of using the e-commerce are simplification of work, reliable communication, improve customer satisfaction, new product and services, reduction of cost, and increased productivity. Olatokeun and Kebonye (2010) found the major reasons for e-commerce technology adoption was competitive advantage and customers and suppliers’ pressures.

Al-Abdallah (2013) has tested a framework consists of three independent variable (customer loyalty, customer retention, and attracting new customers) representing the customer-company relationship and
dependent variable representing the adoption of e-commerce, the findings reveal that one of the benefit of e-commerce adoption is customer loyalty. Customer retention and attracting new customers found to have weak contribution to e-commerce adoption. Zahedi et al. (2013) proposed that trust is one of the most important factors for the acceptance of e-commerce. Once trust is built, the transaction can be conducted. April and Pather (2008) found that one of the benefit of e-commerce adoption is enhancing service quality.

2.4 Barriers of E-Commerce Adoption by SMEs:

SMEs’ adoption of e-commerce has still been limited perhaps due to the fact that SMEs have different characteristics from large enterprises. Under the opinion of Seyal and Rahman (2003), distinct characteristics imbedded in SMEs consist of small management teams, strong owner influence, lack of staff in specialized areas such as information technology, multi-functional management, limited control over their business environment, limited market share, low employee turnover, a reluctance to take risks, and avoidance of sophisticated software or applications. Such characteristics lead SMEs to be very slow with respect to technology adoption and have more difficulties in taking advantage of benefits from the technologies than large enterprises (Grandon and Pearson, 2004).

Aydemir (2013) in his study found that the barriers for e-commerce adoption in turkey was related to the acceptability within the sector, customers’ preferences, security issue, inadequate technical infrastructure, cost and lack of competent in e-commerce. The barriers to e-commerce are: inadequate infrastructure, limited capital, reliability problem of customers and training problems. For Stockdale and Standing (2004) the barriers of e-commerce adoption are internal and external barriers. The internal barriers are: identification of benefits, global trading, financial constraints, supply chain integration and understanding of e-environment. The external barriers are: lack of understanding of SME needs, no common technology standard, and e-competences of industry sector. Medjedel (2013) found that most of managers were not satisfied with dealing with e-commerce application in their companies. Companies use e-commerce through emails only. The reason behind not using e-commerce are technical, environmental, economically, financial, institutional and legal reasons. For Wanyoike et al., (2012) the barriers are: not consistent with business needs, no perceived benefit, lack of training, and expensive.

In similar approach to other researchers, Olatokun and Kebonye (2010) found that the main challenge faced by the firms in their use of e-commerce technologies was related to security issues. They suggested that in order to build successful SMEs’ adoption of e-commerce, support must be provided to SMEs. In Serbia a study conducted by Petrović and Kovačević, (2012) found that distrust is one of the main direct reasons for low level of e-commerce adoption. The study suggested fundamental changes for wider adoption of e-commerce. Ramsey et al., (2008) found the differences between adopters and non-adopters are the e-commerce capability and willingness to change/rate of response to new technologies.

Hashim, (2013) found that the barriers can be the government grants as the government tends to support the implementation of new technology by SMEs. However, the grant is not sufficient and do not cover the costs after introduction. In earlier study by Hashim (2009) she finds that the manager understanding of e-commerce is forming a barrier for the adoption. Many managers believe that a website is simply a nice thing to have and it is fashion of the moment. For Al-Weshah and Al-Zubi (2012) the barriers of e-commerce adoption were organizational and technical barriers. In the web presence stage, organizational barriers such as lack of expert and lack of time for implementation were found to be highly significant.

3. Research Methodology:

This research paper aims to identify the factors that affect the adoption of e-commerce by SMEs. This paper is using quantitative approach. An intensive literature review is conducted to extract the most frequent mentioned factors that affect the adoption of e-commerce by SMEs.

3.1 Conceptual Framework:

Base on the literature review, it can be identifying that there are many factors that can affect the adoption of e-commerce. The conceptual framework for this study is as follows:

The dependent variable for this paper is the adoption of e-commerce by SMEs. It is expected and based on the literature review that the independent variables (perceived ease of use, security, willingness of manager, perceived usefulness, company readiness, relative advantages, customers’ needs) have impact on the dependent variable and can explain the variation of the adoption of e-commerce by SMEs.
3.1.1 Hypotheses:
Based on the theoretical framework, the relationship between independent and dependent variables can be hypothesized as follows:
H1: There is a positive relationship between perceived ease of use and the adoption of e-commerce by SMEs.
H2: There is a positive relationship between security and the adoption of e-commerce by SMEs.
H3: There is a positive relationship between willingness of manager and the adoption of e-commerce by SMEs.
H4: There is a positive relationship between perceived usefulness and the adoption of e-commerce by SMEs.
H5: There is a positive relationship between company readiness and adoption of e-commerce by SMEs.
H6: There is a positive relationship between relative advantage and adoption of e-commerce by SMEs.
H7: There is a positive relationship between customer needs and adoption of e-commerce by SMEs.

4.0 Result:
Based on the intensive literature review that has been conducted for the sake of this study, the most extracted factors can be presented through table 1, where the variables are presented and the articles that has been reviewed as well. The sign X indicates that the researcher or the article has found that the relationship between the e-commerce adoption by SMEs and the particular variables was found by his research to be significant.

<table>
<thead>
<tr>
<th>Article/researchers</th>
<th>Perceived ease of use</th>
<th>Security</th>
<th>Willingness of manager</th>
<th>Perceived usefulness</th>
<th>Company’s readiness</th>
<th>Relative advantage</th>
<th>Customers’ needs</th>
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<td>Shah alam et al (2011)</td>
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<td>MacGregor, Vrazalic, (2008)</td>
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<td>Lip-Sam and Hock- Eam (2011)</td>
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<td>Jeon et al (2006)</td>
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<td>Saffu et al (2012)</td>
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<td>Wanyoike et al (2012)</td>
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<td>Ifinedo (2011)</td>
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<td>Zakaria and Jansom (2011)</td>
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</tbody>
</table>

Based on the table above, the most extracted variables can be organized in table 2 to show the frequency of these variables.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Frequency</th>
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<tbody>
<tr>
<td>Perceived ease of use</td>
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<tr>
<td>Security</td>
<td>3</td>
</tr>
<tr>
<td>Willingness of manager</td>
<td>9</td>
</tr>
<tr>
<td>Perceived usefulness</td>
<td>3</td>
</tr>
<tr>
<td>Company’s readiness</td>
<td>3</td>
</tr>
<tr>
<td>Relative advantage</td>
<td>8</td>
</tr>
<tr>
<td>Customers’ needs</td>
<td>4</td>
</tr>
</tbody>
</table>
Table 2 shows that the most significant relationship is between e-commerce adoption by SMEs and willingness of manager. This can be explained that the influence of managers in SMEs is very strong and usually the manager is the owner of the company. Relative advantage has the second highest frequency and that can be explained as most of the company want to increase the return of investment. Customer needs were found to be marginally significant with frequency of 4 out of 12. This can be explained as most of the companies adopt the e-commerce technology to satisfy their customers.

5.0 Conclusion:
The purpose of this research was to find the factors that affect the adoption of e-commerce by SMEs. The relationship between adoption of e-commerce and the independents variables such as perceived ease of use, security, willingness of manager, perceived usefulness, company readiness, relative advantages, customers’ needs, are investigated. A quantitative approach was employed in this research. An intensive literature review was carried out to find the significance of the relationship between the variables. The result shows that manager willingness followed by relative advantage were the highest frequent factors to affect the adoption of e-commerce by SMEs. Other factors were found to have marginal significance relationship.

REFERENCES


