Electronic Commerce Adoption Barriers in Small and Medium-Sized Enterprises (SMEs) in Developing Countries: The Case of Libya

Ziad Hunaiti, Faculty of Science and Technology, Anglia Ruskin University, Chelmsford, CMI 1SQ, UK, Ziad.Hunaiti@anglia.ac.uk

Ra’ed (Moh’d Taisir) Masa’deh, Nottingham University Business School, The University of Nottingham, Nottingham, NG8 1BB, UK, Raedmasadeh2003@yahoo.co.uk

Mohammed Mansour, Faculty of Science and Technology, Anglia Ruskin University, Chelmsford, CMI 1SQ, UK, kmkm63@hotmail.com

Ahmad Al-Nawafleh, School of Nursing, The University of Nottingham, Nottingham, NG8 1BB, UK, nawafleh@hotmail.com

Abstract

Today e-commerce has become crucial element to transform some of the world countries into an information society. However, several calls have been made to meet the association between the perceptions of e-commerce adoption barriers in developing countries. This paper focuses on the main challenges facing the growth of e-commerce in SMEs in Libya. Further, a deep investigation concerning e-commerce growth and development in Libya was carried out by discussing several issues such as: postal system suitability, banking system services, internet safety and customer’s culture upon the growth of e-commerce. In order to accomplish the objectives of the study, questionnaire surveys have been distributed to forty business managers to concerning e-commerce situation in Libya. The study showed many challenges facing Libyans’ e-commerce like the expensiveness of internet pricing; the unsuitability of online shopping services and Libyan postal system; and the Libyans’ culture and their limited trust in the online trading systems.

Keywords: SMEs, E-commerce, Developing Countries, Libya.

1. Introduction

According to [15], e-commerce has been considered as the buying and selling of information, products and services via computer networks; whereas other researchers as [8] have used the term as buying and selling information, and the use of internet technologies as e-mail or intranets for exchanging information within the firm itself and with external stakeholders. Indeed, the internet is growing at a phenomenally rate and it has become one of the biggest network if not the biggest network of all [41]. For instance, a service which helped boost adoption of the internet was the launch of the Digital Subscriber Line (DSL) or broadband. Thus, the internet is usually presented as an opportunity for SMEs for several reasons as it helps reduce transaction costs and level the playing field, expanding the scope of marketing, reaching new markets, reducing the cost of operations and partnering with suppliers and other collaborators.

Therefore, the business economy has benefited from such digital revolution as more customers are turning to the internet to purchase goods which has helped the significant growth of the e-commerce industry [10].

There are few empirical e-commerce studies in the developing world [1] and [11]. While Israel is the most technologically advanced country in the Middle East region [13], the rest of the Middle East countries are considered as the least technologically nation in the world [36]. Several scholars as [1], [3], [4], [19], [22], and [31] have called for further research in the Middle East countries to investigate both of facilitators and hinder factors of technology and telecommunications adoptions. Furthermore, in the course of studying the e-commerce literature, the researchers found that there is a lack of published studies addressing e-commerce obstacles in Libya. Moreover, according to the latest report from the Secretariat of Economy in Libya [20], e-commerce usage and growth is very limited in Libya. A committee was established to study current Libyan commercial legislation and to make suggestions regarding the requirement for e-commerce development and efficient practice [21]. Therefore, this study aims to evaluate the current status of e-commerce in Libya and gain an understanding of e-commerce barriers in the Libyan’s SMEs.

This paper commences with a discussion of the literature review regarding SMEs’s e-commerce concerns in developing countries; and then explaining several issues adopted in this study such as the Libyan internet, electronic financial and banking services, postal services, and e-commerce rules and regulations. It then presents the methodology used for the study followed by the discussion of the findings in relation to the literature. The conclusions of the study are then provided and areas for further research are also addressed.

2. Electronic Commerce: An Overview

While e-commerce has contributed to shape the global economy and has led to many of the
innovations in business practice, it has also helped to transform the impact of businesses from a low level to a global level [16]. According to the IT finance newsletter computer economics, worldwide e-commerce transactions have grown from $5,520 billion in 2001 to $11,999 billion in 2004. For the Arab countries the amount of e-commerce transactions has been estimated at $3billion for the year 2000 to 2001, and in 2005 it has reached $500 million [16].

[30] summarized the great benefits e-commerce could offer to organizations and society as it expands the marketplace to national and international markets; decreases the costs of creating, processing, distributing, storing, and retrieving paper-based information; excessive inventories and delivery delays can be minimized with e-commerce; and enables companies to interact more closely with customers, even if through intermediaries. Furthermore, the most important benefit of e-commerce to society is that it keeps people in their homes, which reduces the risk of traffic accidents and cuts pollution by reducing traffic on the roads. Moreover, e-commerce may give the less wealthy groups in society a chance to improve their standard of living through lower prices. However, [37] argued that e-commerce faces several technical problems and limitations such as security, reliability, telecommunications, software, integration of the internet and e-commerce software with existing databases, and incompatibility of e-commerce software with certain operating systems and components. Thus, the major problem is security as customers do not desire their personal information (such as credit cards number) to be stolen and used in fraudulent activities.

Some researchers as [32] emphasized the potential benefits that the internet offered SMEs which creates an unprecedented opportunity for them to engage in national and international marketing campaigns that previously have been unaffordable. In addition, [11] found that SMEs have been using the internet for several activities such as improved communication, access to information, marketing and transactions with customers and suppliers. [29] stated that one could focus on SMEs in developing countries for two reasons. Firstly, because they are important to economic development. According to [38], in the developing countries SMEs account 60 to 70 percent of all employment and thus it can take full advantages offered by electronic commerce especially those who have information-intensive activities and products that can be used or delivered electronically. Secondly, SMEs are in a good position to adapt to new technology, and possibly faster than larger companies which can be slowed by bureaucracy and stricter hierarchies. Thus, e-commerce may offer them more advantages to find new customers and suppliers either internationally or regionally.

[22] argued that governments should focus on the main policy, regulatory and constrain facing businesses as they try to use e-commerce. In addition, they have to clarify the legal issues surrounded electronic transactions. Indeed, [10] stated that the intensity of competition for SMEs arising from the growth of e-commerce is being influenced by political and economic strategies of local, regional and national governments which are active in promoting the development of entrepreneurship and in regulating competition. Furthermore, [33] said that evidences suggested SMEs have insufficient knowledge of IT and e-commerce. Many SMEs have identified their lack of knowledge of technology as one of the main barriers to use e-commerce. Thus, government and private sector partnerships can engage in a campaign to disseminate information to SMEs about e-commerce policies, success stories and opportunities and obstacles relating to the use of IT systems. Further, government should be the lead users of e-commerce by taking the form of various online transactions like company registration, taxation and application of a variety of employee. Moreover, she generalised the main obstacles that faced SMEs as a lack of awareness and understanding of the value of e-commerce; lack of ICT knowledge and skills; and high financial costs, infrastructure and security.

Once [29] argued that the use of IT in a way that improves SMEs relationships with customers or suppliers called e-commerce; there are many ways businesses can benefit from e-commerce which range from serving current customers better and finding new suppliers to improve the efficiency of their business processes. However, some researchers as [6], [23], [24], and [25] argued that results of several empirical studies which have been conducted over the past decade on the relationship between IT investments and firm performance have been vague, and the conflicting results have been attributed mainly to the lack of productivity measurement and the time lags owing to an IT learning effect, or a time-consuming period of balancing organization changes. Nevertheless, several researchers such as [3], [14], [18], [27], and [35] called for more research to investigate the barriers of adopting e-commerce systems in SMEs.

2.1. Electronic Commerce in Developing Countries: Libya as a Case Study

As previously mentioned there are few studies related to the barriers that limit the growth of e-commerce in the Middle East countries. For instance, [2] carried out a study in Saudi Arabia to identify factors that may significantly affect the adoption of e-commerce. The factors were including technical
issues and customers’ requirements. These contain internet security-trusted sites, customer awareness and the speed of service. Also, customer awareness is vital knowing how to access services, and internet availability is very essential. However, a lack of legal regulations, ISP monopolies, internet infrastructure, and pricing of internet services were perceived by business managers as the least important e-commerce issues. Nevertheless, the results showed that 45% of the organisations had operated e-commerce, while 34% had not operated using e-commerce. The remaining 21% had showed interest in implementing e-commerce in their organisations in the future. In a study conducted by [3] on Arab consumers’ attitudes towards e-commerce found that approximately 80% percent of the surveyed Arab consumers have favourable intentions to e-shop sometime in the near future, 67% percent of the same pool of consumers’ views e-shopping as an easy way to use/carry out tasks, and approximately 65% percent of them are fully satisfied with the idea of using the internet to purchase products and services.

However, the outcomes from the above studies are limited and did not cover other issues that might directly influence e-commerce growth in Arab countries such as internet infrastructure, the cultural effects of Arab society, internet pricing, internet speed and banking systems. Therefore, this section explains briefly the Internet related issues in Libya like the internet access cost, the Libyan DSL, Libya telecom and technology wireless networking, the Libyan postal system, and their electronic banking services.

Internet access in Libya began in late 1998. Initially only people from the authorities were able to gain access, and gradually citizens were allowed access from early 2000.

In 1998 the number of the internet users in Libya did not exceed 100, but by early 2001 the number had grown to 300,000. As the public had also started to use the internet by mid-2003 the number was estimated to be 850,000, and it is now fast approaching the one million mark [20]. This increase was performed as a result from hundreds of workshops and training courses which held in schools, institutes and universities to allow successful transition to the internet area. Further, internet and telecommunications are mainly run by the government through a semi private Telecommunication Company called LTT (Libya Telecom and Technology) along with other seven internet companies which supply the internet in Libya. While the government moderates and controls the use of the internet in Libya, the four ISP's (Internet Service Provider) in Libya are AlFalak; Bayt Al Shams; Libya Telecom and Technology; and Modern World Telecom. Furthermore, there are also two GSM (Global System for Mobile communications) operators, both of which are owned by the government, Almader and Libyan. Figure 1 shows the applied internet infrastructure in Libya [20].
Although the LTT wireless networking is well developed (i.e. which specializes in delivering last mile connectivity for high-speed internet and intranet; and its highly-secure wireless broadband products are deployed in Libya by public and private enterprises, government and educational institutions, and internet Service Providers), the Libyan postal system is not reliable. Indeed, parcels take ages to be delivered to its final destination, and there is a high possibility for the items to be lost. Also, there is no door to door service: all the items are delivered to the local post office from which each customer should collect them. Thus, in collaboration with the Universal Postal Union (UPU), UNDP began cooperation with the Libyan PTT Authority for improving postal services [39].

However, the national payment systems have witnessed an important development in that they have become heavily dependent on complex applications. The Central Bank of Libya (CBL) has realised the benefits of implementing and developing technologies and improving the banking activity. The CBL alongside commercial banks has started an ambitious project of implementing technological development in the area of information technology in the National Payment System [9]. This development project was set up by a committee of experts in the banking sector. The plan’s purpose was to ensure efficiency and succession of the project (the IT development in the banking sector). Further, to implement such large development project, companies were required to apply several projects like Real-Time Gross Settlement, Automated Clearing House, Automated Checks Processing, Automated Teller Machines and Points of Sales.

### 2.2. Barriers to Electronic Commerce in Developing Countries

Since the aim of this study is to identify the main barriers facing e-commerce adoption in Libya, this section reviews some international studies and models which might be applicable to the Libyan situation. For instance, [17] investigated the factors driving and inhibiting e-commerce adoption in SMEs. They found that adoption was motivated by pressure from customers, a belief that e-commerce would produce revenues or reduce costs, and access to new markets and competitor activity. They also found that the cost of e-commerce developments and concerns about security, and lack of customer satisfaction were found to be the major inhibitors in the study.

A recent study implemented by [18] analyzed e-commerce barriers in terms of three categories: economic, socio-political and cognitive. Whereas economic and socio-political factors focus mainly on the environmental characteristics, the cognitive component reveals organizational and individual behaviours. The economic obstacles include several factors that affect the diffusion of e-commerce in developing countries such as slow internet diffusion, unavailability of credit cards, unavailability of a physical delivery system, and low bandwidth availability. The socio-political barriers take account of government regulations like privacy and security, lack of business laws for e-commerce, lack of legal protection for internet purchases; and people preferences such as the preference of Asian people to communicate face-to-face over e-mails. Finally, the cognitive hindrances contain a number of factors which lead to a negative cognitive assessment of e-commerce of individuals and organizations like inadequate awareness, knowledge, skills, and confidence; lack of awareness and understanding of potential opportunities; lack of confidence in service providers and the postal network; and computer illiteracy. The following figures illustrate e-commerce barriers in developing countries; and how they influence pre-transaction, transaction and post-transaction phases respectively [18].

### 3. Research Methodology

To accomplish the main aim of the study, a survey questionnaire has been chosen as the primary research method for this study. Questionnaires enable access to a wider spectrum of views and opinions in a shorter space of time, as responses are predefined, specific or limited by the use of a limited range of predefined answers from which the respondent simply has to choose [40].

This study targeted top managers of SMEs business from various industries in the capital region of Libya, Tripoli. The data were gathered by means of a drop and collect survey during January 2008. The process was carried out in two steps. Firstly, a sample of forty SMEs businesses was identified from various sources that focus on SMEs’s activities. Then, the researchers identified the company name, a contact person, an e-mail address for that person, an address for the company, and a telephone number. Secondly, because of the researchers limited time and budget, and their experience of Libyan firms’ unwillingness to take part in telephone/postal/email surveys due to the Libyan unreliable mailing and postal systems, the current research data conducted by using drop and collect surveys. This technique is less expensive and consumes less time than other methods such as interviews, and covers a wider geographical area than self-administered surveys. Therefore, the researchers used this method of data collection in Libya.

In addition, although the outcome from reviewing other people’s work has been useful in shaping the questionnaire design, five top managers participated in a pilot of the survey instrument. Their ages were
between 35 and 50 years and represented various sectors including: cosmetics, estate agents, hostelling, home accessories and mobile phones. Indeed, to evaluate the effectiveness of the chosen research method it is important to conduct a pilot study on a small sample of subjects. The outcome from the pilot study will help to detect any flaws in the questions so that they can be corrected prior to the main survey. Therefore, running a pilot study can contribute to maximising the response rate and minimising the error rate in answers [7].

However, feedback from piloting resulted in minor changes to the survey instructions and questions. A seven-point Likert scale (from strongly disagree to strongly agree) was utilized to measure the questions about barriers of adopting e-commerce in Libya. Nevertheless, the respondents were 30 out of 40 SMEs. Consequently, the respondent rate was 75%. Possible explanations for such high response rate could include the relevance of the topic to the respondent, and the way of distributing the survey questionnaire. However, responding rate from drop and collect method could reach 100% [34].

<table>
<thead>
<tr>
<th>Barrier type</th>
<th>Consumer level</th>
<th>Business level</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic</td>
<td>• Low credit card penetration</td>
<td>• Underdeveloped financial systems</td>
</tr>
<tr>
<td></td>
<td>• Lack of electrical supply</td>
<td>• Internet less attractive for traditional economic sectors</td>
</tr>
<tr>
<td></td>
<td>• Low selection.</td>
<td>• Lack of economies of scale</td>
</tr>
<tr>
<td></td>
<td>• Lack of purchasing power.</td>
<td>• Unavailability of ICT and other supporting infrastructures.</td>
</tr>
<tr>
<td>Sociopolitical</td>
<td>• Inadequate legal protection for Internet purchases</td>
<td>• Preference to face-to-face communications over e-mail.</td>
</tr>
<tr>
<td>Cognitive</td>
<td>• General and computer illiteracy and lack of English language skills</td>
<td>• Precedence of established relationships.</td>
</tr>
<tr>
<td></td>
<td>• Lack of availability of local language websites</td>
<td>• Lack of knowledge to use ICTs profitably.</td>
</tr>
<tr>
<td></td>
<td>• Lack of awareness and knowledge of e-commerce benefits</td>
<td>• High degrees of risk aversion.</td>
</tr>
<tr>
<td></td>
<td>• Lack of confidence in service providers.</td>
<td>• Lack of workforce with e-commerce expertise.</td>
</tr>
</tbody>
</table>

Fig 2. Business and Consumer-Level E-commerce Barriers in the Developing World
4. Results
This section includes the findings that were obtained from the questionnaires which were collected from 30 businesses. The section consists of the findings from business's questioner, where the issues related to the development of e-commerce in Libya have been evaluated from a businessmen point of view. Similar problems facing SMEs, as well as the barriers facing the adoption of e-commerce business practices have been examined as followed:

Firstly, do you have a web site for your business? If yes, does it support online shopping? If not, are you planning to introduce it? Then, do you have internet access for your business? If yes, what kind of connection do you have?

The study showed that 63% of the business participated in this study has a web site. While only a few of the businesses do have websites that will support online shopping and 80% does not support online shopping, 73% of the businesses are planning to introduce online shopping to support in the future. Also, the outcome revealed that the majority (83%) of the businesses have their own access to the internet, whereas the majority of businesses surveyed are connected by leased line (49%), 37% by DSL, 7% by dialup 7% by other means.

Secondly, the following table shows in percentages the results from the remaining questions using Likert scale questions type to allow the evaluation of businessmen feeling towards particular issues by indicating how strongly they agreed or disgraced on the given statements.

Table 1: Libyan Businessmen Attitude toward E-commerce Issues

<table>
<thead>
<tr>
<th>Research Questions</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I believe in online trading will be useful for my business.</td>
<td>4</td>
<td>7</td>
<td>18</td>
<td>39</td>
<td>32</td>
</tr>
<tr>
<td>It is easy to do online shopping with current internet speed you use.</td>
<td>3</td>
<td>10</td>
<td>20</td>
<td>40</td>
<td>27</td>
</tr>
<tr>
<td>Internet access cost in Libya is too high to be used for online shopping.</td>
<td>17</td>
<td>27</td>
<td>40</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td>Internet is secure enough to perform financial transaction.</td>
<td>13</td>
<td>17</td>
<td>20</td>
<td>40</td>
<td>10</td>
</tr>
<tr>
<td>I think the existing legal system is strong enough to do online shopping.</td>
<td>7</td>
<td>20</td>
<td>46</td>
<td>20</td>
<td>7</td>
</tr>
<tr>
<td>Postal services in Libya are suitable for the delivery of online-bought merchandise.</td>
<td>27</td>
<td>43</td>
<td>17</td>
<td>43</td>
<td>27</td>
</tr>
<tr>
<td>Internet filtration in Libya discourages online shopping.</td>
<td>7</td>
<td>30</td>
<td>39</td>
<td>17</td>
<td>7</td>
</tr>
<tr>
<td>Suitability of banking system in Libya for online shopping (allows online payments for goods purchased).</td>
<td>20</td>
<td>46</td>
<td>17</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>It is not easy to use and maintain the e-commerce service.</td>
<td>10</td>
<td>17</td>
<td>33</td>
<td>30</td>
<td>10</td>
</tr>
</tbody>
</table>
5. Discussion
The conducted study concludes that over half of the businesses who participated in the questionnaire already have their own website. However, only a few of these websites have online shopping facilities although the others have plans to introduce online shopping in the future. In addition, the results show that 83% of the businesses have internet access and the majority of them have leased line connection. This can be very useful to allow high speed internet access which results in facilitating online trading generally and in particular for SMEs. This fact was demonstrated by study of e-commerce in the UK [28]. According to the results, businessmen are split over whether current internet speed allows customers to perform online shopping easily. This contradiction could be due to the fact that DSL service is still new in the Libya. Also, the study shows that 84% of the participated businessmen who participated believe that the internet costs are reasonable for the performance of online shopping.

Furthermore, businessmen have different points of view regarding the safety of financial transactions over the internet. The study showed that 70% of businessmen who participated feel that it is not safe to perform online transactions. The same applies to the suitability of the current legal system in addressing online trading issues. This is simply due to the absence of a legal framework at the time of the study. The enactment of the new law will contribute to solving this dispute, as the core of the new law is to allow for easy e-commerce dealing, through the recognition of digital signatures and other electronic means of identity [5].

Moreover, businessmen have shown little confidence in the suitability of the current postal system to deliver goods purchased online. According to [12], the postal system is one of the most common issues discouraging the growth of e-commerce in developed countries. Also, the high cost of parcels and the traditional postal procedure has affected the engagement of both businesses and clients in e-commerce. On the one hand, businessmen have different opinions on concerning internet filtration. It has been seen as a major obstacle by those who have experienced the filtration of their goods. On the other hand, some businessmen feel it is not that effective. Internet filtration has led many customers to use expensive satellite links to bypass blocking.

Finally, it seems that a lack of experience with online trading in Libya, affects the opinion of businessmen, with regards to maintaining an online trading system. This might change when online shopping becomes popular and more developed in Libya. This issue has been also reported in a previous study as one of the main problems facing e-commerce in the Arab world [1] and [3].

6. Conclusion
The central aim of this study was to identify the main barriers facing Libyans’ e-commerce adoption in SME establishments. This paper seeks also to address this gap in the current literature by opening the door for further research in this topic in Libya as the country is evolving and academic literature in the domain of e-commerce will support change and development. The outcome from this study covered the common major issues regarding e-commerce in Libya, such as: whether internet pricing is reasonable, the internet is not secure enough for money transactions, the legal system does not govern e-commerce, postal services are not suitable for online trading, and internet filtration is a major obstacle for some business establishments and it is not effective for others. Finally, the study shows that the vast majority of Libyan businesses are willing to use online shopping in the future. Due to the short amount of time available for the completion of this study, the survey has only been conducted within Tripoli City involving 30 SMEs. Therefore, in order to obtain more adequate results; the study should be extended to cover more businesses establishments across Libya. Furthermore, designing and implementing a national framework would be beneficial to the growth of e-commerce in Libya. This framework can be successful if it aims to solve the previously mentioned issues with particular reference to the legal regulations related to internet filtration, as well as postal and banking services.

7. References


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