Measuring the E-Business activities of SMEs in Yemen

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This paper aims to measure the e-business adoption activities in Yemeni SMEs. The paper employed a mixed method (quantitative and qualitative) case approach. The results indicate that Yemeni SMEs are at the early stages of e-business adoption

Introduction

Increasingly, in developed and developing countries, small and medium-sized enterprises (SMEs) are becoming more important to national economies due to their strategic significance in developing different industrial sectors Worldwide. Therefore, SMEs play a major role in an economy by significantly contributing to the enhancement of the countries' gross domestic product (GDP) and its labour force by creating more job opportunities and developing skilled labour.

However, Rapid development has been witnessed in the World within different aspects of life, especially the technological revolution such as e-business. This has become a feature of this era requiring us to 'keep-up' in our daily society, losing the traditional pattern of our daily lives and combining scientific methodology of an analytical and experimental nature. In the past few years the emergence of e-business and e-commerce in the World has been carefully surveyed. For instance, there is widespread use of the internet in every aspect and phase of business.

This article's main aim is to measure the actual and potential e-business activity of SMEs in Yemen. The research aims to answer the question: To what extent are SMEs engaging in e-business?

Literature Review

SME Definition

The definition of a Small and Medium Enterprise (SME) varies from country to country. To define whether a company is an SME, there is a need to understand the number of employees, the annual turnover and the balance sheet of the company. In European law the Medium-Sized Enterprise is defined as a firm having employees between (50 and 249), and an annual turnover less or equal to 50 million Euros. A Small-Sized enterprise is a firm with employees between (10 and 49), and annual turnover less or equal to 10 million Euros (EC, 2005). Whereas, the Yemen Government defines SMEs as: a Medium-Sized Enterprise is a firm having employees between 10 and 50 and Small-Sized enterprise is a firm with employees between four and nine (YMIT, 2014) (See Table1).

Table 1 SME Definition

Enterprises	European	Yemen
Medium-Sized	50-249	10-50
Small	10-49	4-9
Micro	1-9	1-3

SMEs in Yemen

The YMIT (2014) state the number of SMEs in Yemen at about 27,796 companies in the manufacturing field (see Table 2).

Table 2 Number of SMEs

		Percentages
Enterprise	Large	0.51
	Medium	1.91
	Small	19.15
	Micro	78.43
Location	Sana'a	18.06
	Taiz	13.93
	Rest of the cities	68.01
Type of Enterprises	Food products and beverage	43.75
	Fabricated metal products	14.78
	Non-metallic mineral products	11.02
	Apparel products	10.80
	Other (services, retail)	19.65

E-business and E-commerce

Most researchers state that e-business and e-commerce are similar in terms of selling and buying products on the internet and others define e-business and e-commerce as distinct. For example Chaffey (2011) argues that e-commerce is a subset of e-business. Also, IBM defined e-business back in 1997 as *"the transformation of key business processes through the use of internet technologies"* (Chaffey, 2011). Parazoglou (2006) and Turban (2010) argue that e-business is more than buying and selling products and services, it is all about customer services, collaborating with business suppliers and partners as well as making transactions electronically inside the organisation.

Turban (2010) defines e-commerce as an external activity of buying and selling products and services online. While Parazoglou (2006) defines e-business as the integration of internal and external organisational processes and the connection between the organisation and their suppliers and partners as well as customer scarification. However, Fillis et al. (2004) state e-business as companies that employ ICT in their business operations, but exclude sending and receiving text-based e-mail messages.

SMEs and e-Business

Nowadays, the worldwide economy is developing and e-business has increased and become an important component of business strategy and economic development. The integration of information and communications technology (ICT) has an effect within the organisation and individual. In addition, ICT has a strong effect on businesses with improved productivity, an increase in the number of customers and has reduced the cost of products (Andam et al., 2003). However, one of the most important strategies that can effectively help SMEs to enhance their business performance is the utilisation of information and communication technology (ICT) (Sin Tan et al., 2009). Moreover, ICT can provide SMEs

with several competitive advantages such as integrating supply chain partners, organizational functions and offering critical information at the right time (Sharma and Sheth, 2004).

However, the characteristics of SMEs, such as structure, resource constraints and size, generate several challenges and difficulties towards the adoption of ICT. According to MacGregor and Vrazalic (2005), despite the rapid growth of ICT within SMEs, the level of ICT adoption by small and medium enterprises remained comparatively low. The lack of financial resources required for ICT development and maintenance is one of the main reasons preventing SMEs from adopting ICT (Parida et al., 2010). According to Ghobakhloo et al. (2012), small enterprises have less tolerance in accepting cost and risk associated with adopting new technologies. Furthermore, the lack of ICT literacy among the owners and employees is another barrier that inhibits effective ICT deployment within SMEs (Mehrtens et al., 2001).

E-business Measurement Evolution model

This research contributes to the existing literature in e-business adoption by outlining the factors involved with e-business adoption in SMEs in developing countries and Yemen. Also, by testing the e-business Measurement Evolution model on Yemeni SMEs. This study does this by developing a specific e-business Measurement Evolution model based on the contribution of existing literature and the e-adoption ladder model. This is because organisations may differ in their level of e-business adoption, varying from the very simple use of emails to a more complex collaborative platform used to deliver services to employees, partners and customers.

The E-business Measurement Evolution model consists of nine stages which can help SMEs to understand the level of e-business in their firm. Stage zero means the business does not have internet access. Stage one (Emails) means the business does not have a website but accesses information and services on the internet and uses email for communications. Stage

two (Social Media) means the business has pages on social networks such as Facebook and uses these pages to advertise their products and services as well as to include information about the business and contact details. Stage three (Websites) means the business has its own websites which only include very basic information about the business; relies on customers initialising contact for further information.

Stage four (E-commerce) means customers can access more detailed information about products/services and customers can buy and pay for products/services from the website, but the website is not linked to internal systems and orders are processed manually. Stage five (Mobile Apps) means the business has developed mobile apps which include their product and services and the consumer is able to purchase goods and services through the app. The mobile app is linked to internal systems and orders are processed automatically.

Stage six (Cloud Service) means the business uses cloud services to store their files, software and applications services. The business will be able to access the applications and services across a range of devices and networks from anywhere. Stage seven (E-business) means the on-line "store" is integrated with other business systems, e.g. order processing, fulfilment, accounts and/or marketing. Stage eight (Transformed Organisation) means internet technology drives the business internally and externally, and is used to manage all processes end-to-end more effectively and efficiently (see figure 1).

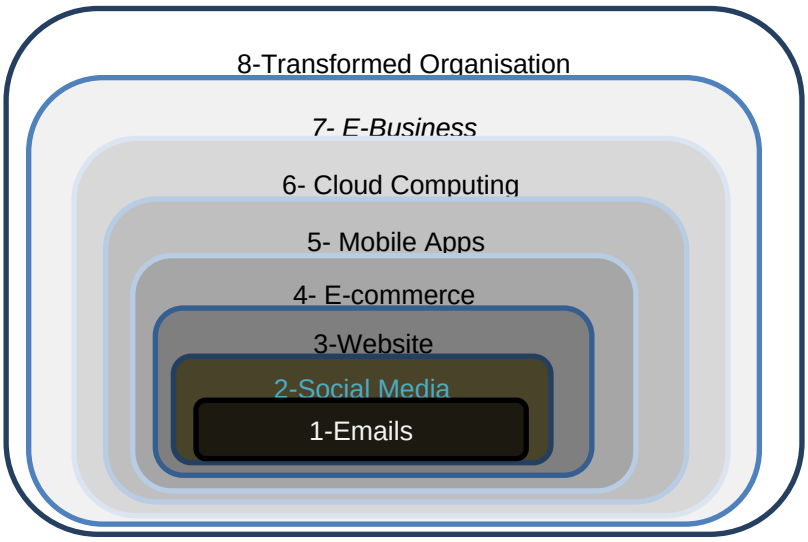

Figure 1 E-business Measurement Evolution Model

Research Methodology

The aim of this study is to measure the e-business activities of SMEs in Yemen. To achieve this, the current study will employ a mixed method case approach. The study will integrate different methods in order to facilitate a deep understanding of the adoption level of e-business in SMEs in Yemen. Following a sequential exploratory design (Creswell, 2003), this study will comprise two stages and employ a total of two different data collections that include: semi-structured-interviews and survey questionnaires. In exploratory design, qualitative data has the priority over quantitative ones (Johnson and Onwuegbuzie, 2004).

In the first stage, a series of semi-structured interviews will be conducted with SMEs' managers in order to further explore their understanding of E-business in their enterprises. The results of the first stage will help in informing the design of the questionnaire. The second stage, a survey questionnaire will be used to generalise and verify the findings from stage one to the SMEs' population. The SMEs' survey characteristics include - size: 1-50 employees, location: Taiz and Sana'a in Yemen and business activities: retailer, wholesale, manufacturing, other services. The sampling frame consisted of ~~988~~ 600 firms. SME is a firm that employs not more than 50 employees. A total of four interviews were conducted with owners and managers. A total of 100 questionnaires were distributed randomly to about 100 managers and decision makers in SMEs in Yemen and the return was 51 questionnaires.

Findings

Most of the interviews stated that they have basic ICT infrastructure such as computers and internet, and just a few have a website. This can be attributed to the fact that most of the SMEs' owners, managers and decision makers, described their understanding of e-business as an important technology for SMEs to grow, they stated that e-business is the main aspect for selling and buying over the internet as well as the product's advertisement .

Also they mentioned that e-business becomes a new way to extend their business and reach the whole world quickly. When they were asked why they have not yet adopted e-business, they mentioned a lot of barriers such as government and bank support, the weak ICT infrastructure, electricity and electronic payments as well as legal aspects and the regulation of e-business. They added that there was a lack of experts, skilled employers and other barriers.

About 80 percent of the respondents were males and 20 percent females, and most of the respondents were 70 percent in the business services field and 30 percent in wholesale and retail. Businesses with between 1-3 employees were 20 percent, 4-9 40 percent and 10-49 40 percent, see Table 3.

Table 3 ICT infrastructure results

Infrastructure	Yes		No	
	Frequency	Percent	Frequency	Percent
Networked Computers	40	78.4	11	21.6
Websites	40	78.4	11	21.6
Broadband Connection	29	56.9	22	43.1
Internet Connection	45	88.2	6	11.8

The analysis of the questionnaires considers the current state of e-business adoption in Yemen SMEs via the e-business measurement evolution model as explained in figure 2, 50 percent of the SMEs are on the “not started” stage while 57 percent at the “email stage” and they use the emails for communicating with their suppliers and customers. However, 78 percent of the businesses that participated in this study have social media and used advertising for their goods and services. An interesting score was that most of the SMEs have their own website and only 39 percent use e-commerce for purposes such as to receive orders and processed them manually and receive the payment either by bank transfer or cash. On the other hand, none of the respondents have any experience of using mobile apps, cloud computing, e-business and transferred organisation.

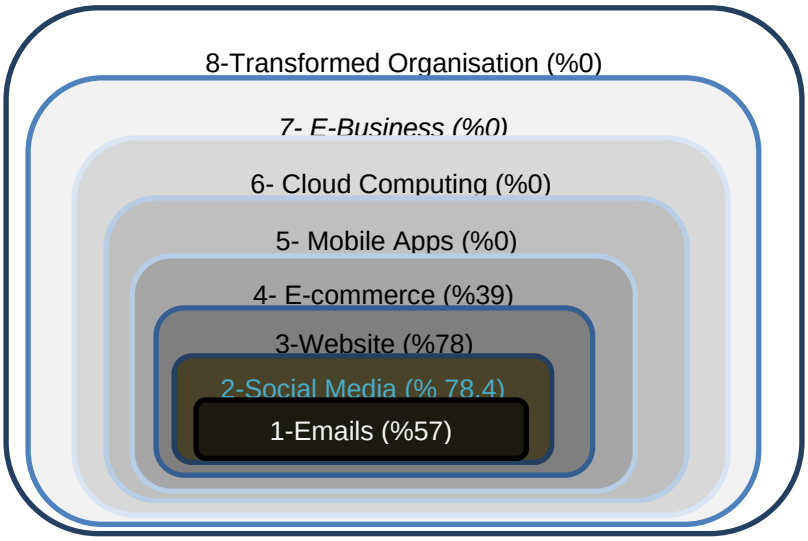

Figure 2 E-business Measurement Evolution Model

Discussion

The conducted study concludes that most of the SMEs have a basic ICT infrastructure such as computer networked internet connections. This can be attributed to the fact that most of the SMEs' owners, managers and decision makers, describe their understanding of e-business as an important technology for SMEs to grow. Also they mentioned that e-business is the main aspect for selling and buying over the internet as well as product advertisement.

The findings stated that internet connections, emails and websites were the main technologies adopted by the SMEs as those technologies were used for electronic advertising and providing firm information. for instance, emails were used for communicating with suppliers and customers, and websites were used for some kind of e-commerce purpose such as to receive orders and process them manually and receive the payments either by bank transfer or cash. Referring to the e-business measurement evolution model SMEs are still at early stages of e-business adoption and these stages are the important basis of the adoption of e-business and it shows SMEs are able to move toward the stages to adopt e-business. These results agree with the findings of Mendo and Fitzgerald (2005) that early stages of electronic business adoption are usually considered by connecting to the internet then the use of relative technologies such as email and websites.

The highest percentage of the SMEs are those that used social media for electronic advertising, selling products and providing firm's information, another major service being websites that were adopted with a small use of e-commerce. Only 20 SMEs enabled customers to purchase through either the company's social media or website. The result confirms the Almotamar (2014) report that the Yemen e-commerce sector is witnessing rapid growth and has exceeded expectations, and has become a new way of shopping compared with previous years. In the last year, the first electronic store website was established called Warzan and became arguably the best e-commerce site in the scope of e-commerce in Yemen. Although there are many individuals using Facebook pages to promote their products, those pages do not have sufficient confidence due to not being considered an entity and not officially registered compared to the Warzan company which is a registered company and has earned the confidence of consumer rights.

Conclusion

E-business has provided many benefits to developing countries. It has reduced the cost of all sales transactions and increased international trade which may result in economic development. The Yemen e-commerce sector is witnessing rapid growth with exceeded expectations, and has become a new way of shopping compared with previous years. This paper's main aim was to measure e-business adoption activities in Yemeni SMEs.

This paper employed a mixed method (quantitative and qualitative) case approach. The paper integrated different methods in order to facilitate a deep understanding of the adoption level of e-business in SMEs. Firstly, semi-structured interviews were conducted with SMEs' managers. Secondly, a survey questionnaire was used to generalise and verify the findings from stage one to the SMEs' population.

The findings of this study have identified the current state of e-business adoption in Yemen SMEs via the e-business measurement evolution model, 50 percent of the SMEs are on the “not started” stage while 57 percent at the “email stage” and they use the emails for communicating with their suppliers and customers. However, 78 percent of the businesses that participated in this study have social media and used this for advertising their goods and services. An interesting score was that most of the SMEs have their own website and only 39 percent use e-commerce for purposes such as to receive orders and processed them manually and receive payment either by bank transfer or cash. On the other hand, none of the respondents have any use or experience of mobile apps, cloud computing, e-business and transferred organisation.

Based on the research findings, the research offers the following recommendation: the owners and decision makers need to understand the benefits that their company can gain from adopting e-business as well as the growth of their business. Also, owners must be aware of the technology and they have to keep up-to-date with the revolution of technology. Decision makers should employ ICT experts to help the company to identify the need for development to move the company toward the adoption of e-business. For instance, the e-business environment and infrastructure must be continuously improved to facilitate e-business applications in SMEs including high speed internet, a full functionality website, secure order processing and payment systems. SME employees need to be trained to use such technology.

Further research will investigate the barriers and drivers that deter SMEs from adopting e-business as well as to increase the study sample. This will enable identification of the unique requirements and problems related to SMEs in adopting e-business.

Limitation of the study

It should be noted that this research has a limitation. The sample of this study was small due to the distance between the researcher location and the sample of the study. Therefore, the study sample has to be increased in further research.

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