INTERNATIONAL JOURNAL OF eBUSINESS AND eGOVERNMENT STUDIES
Vol 10, No 1, 2018 ISSN: 2146-0744 (Online)

INHIBITORS OF THE ADOPTION OF E-COMMERCE BY SMMES IN TWO SOUTH AFRICAN CITIES

Patrick Ndayizigamiye
University of KwaZulu-Natal
Ndayizip@ukzn.ac.za

Refiloe Gladys Khoase
University of KwaZulu-Natal
Khoaser@ukzn.ac.za

—Abstract —

SMMEs play a significant role in developing countries' economies. Literature suggests that SMMEs stand to benefit more from e-commerce adoption than larger companies due to their flexible organisational structure. Such benefits include reaching a wider market compared to the traditional brick and mortar organisations. However, various authors suggest that e-commerce is not widely adopted within the context of SMMEs due to various factors that hinder them to take up or enhance their online businesses. It is in this context that this paper investigates factors that impede e-commerce adoption by SMMEs in the KwaZulu-Natal (KZN) province of South Africa. From a sample of 247 SMMEs owners conveniently sampled from two cities in KZN and using quantitative research methods, this paper tests the significance of identified factors from the literature as possible hindrances to SMMEs adopting e-commerce. Findings reveal that there are common significant relationships between e-commerce adoption and the following limiting factors in the two cities: low use of e-commerce amongst suppliers; low level of computerisation within the SMME; high cost of computers and network technologies; unreliable telecommunications services; concerns about Internet security and concerns about legal issues, contracts and liability. Thus, the paper recommends that SMMEs adopt a flexible organisation culture to promptly adapt to changes within their business environment; adequate support for SMMEs; government regulations and incentives that attract more SMMEs into the e-commerce venture.

Key Words: SMMEs, e-commerce, inhibitors, Durban, Pietermaritzburg

JEL Classification: M15

Vol 10, No 1, 2018 ISSN: 2146-0744 (Online)

1. INTRODUCTION

SMMEs (Small, Micro and Medium Enterprises) are defined differently depending on the context of individual countries. In the South African context, the size of an SMME depends on its business sector. However, in most sectors, the size of an SMME is limited to 200 full time employees except for the agricultural sector where the size limit is 100 fulltime employees (Goldstuck, 2012). A small enterprise has up to 50 employees, a medium enterprise from 51 to 200. Firms with less than 20 employees are classified as very small enterprises. A micro enterprise has up to 5 employees (Goldstuck, 2012). In many developed and developing countries, SMMEs are considered as SMEs (Small, Medium Enterprises) because Small and Micro Enterprises are generally grouped under one umbrella of "small" businesses. Many researchers recognise the importance of SMEs in contemporary economies as contributors to employment opportunities and catalysts for poverty reduction (Wit and Kok 2014; Ayyagari, Demirguc-Kunt & Maksimovic, 2011).

Turban, King, Liang & Turban (2010: 48) defines e-commerce as ''the process of buying, selling, transferring, or exchanging products, services and/or information via computer networks, mostly Internet and intranets''. The Organisation for Economic Development (OECD, 2002) points out that SMEs can reap benefits from e-commerce adoption such as getting access into foreign markets. However, Zhu and Kraemer (2005) caution that the extent to which e-commerce benefits are realised depends on the level of e-commerce utilisation in an organisation.

Smith (2017) argues that there is a continued growth of e-commerce in South Africa. Such growth is due to the increase in online purchases through mobile devices (such as smartphones) and international purchases (that is, cross border purchases) as South Africa-based consumers are increasingly looking for a variety of goods at competitive best prices. It is estimated that online spending in South Africa will surpass 53 billion (ZAR) by 2018 and revenues generated through mobile platforms (smartphones, tablets and others) are expected to increase by 123 percent by 2018 (Smith, 2017). The reasons for increased online purchases include the convenience that the online shopping experience offers, money saving, and change in disposal income (Smith, 2017). Therefore, SMMEs that adopt e-commerce can tap into the pool of an increasing number of South Africa-based online shoppers provided that SMMEs owners understand the benefits associated with e-commerce adoption and how to reap those benefits (in terms of the required and appropriate technology) but also understand the challenges associated with e-commerce adoption. This paper investigates factors that may hinder SMMEs from adopting e-commerce. In view of the role that e-commerce plays in SMMEs

Vol 10, No 1, 2018 ISSN: 2146-0744 (Online)
growth, it is important to identify such challenges and then devise interventions to address them. It is anticipated that the knowledge of the limiting factors will assist SMMEs to make an informed decision on how to adopt e-commerce; and also guide other stakeholders in their quest to assist SMMEs in setting up online businesses.

2. E-COMMERCE ADOPTION PROCESS

Rao, Metts and Monge (2003) proposed a stage approach to e-commerce development, each stage representing an improved state of e-commerce than its predecessor. These stages are presence, portals, transactions integration and enterprises integration. Each stage has its own set of facilitators and barriers. The model is particularly beneficial to start-up SMMEs as it depicts what can be expected as the firms strive to enhance their products, services offerings through e-commerce. However, the authors caution that the stages are not necessarily sequential as firms can leapfrog any of the stages. Although firms may adopt any stage at any time, it is anticipated that all the conditions pertaining to the previous stages must have been fulfilled (Rao *et al*., 2003). The first level is an entry-level characterised by setting up a website that advertises a company's products, services offerings, as a one-way communication to potential customers. In this stage, the content of the website must be attractive, and the website must be user friendly; prices must be flexible enough to attract sales and at the same time yield profits; and potential customers must perceive that the cost of accessing the website is affordable (Rao *et al*., 2003). Barriers at this stage are the financial implications, acceptance by managers, telecommunication infrastructure development, resistance to technology and lack of in-house expertise (Rao *et al*., 2003). In the second stage, the portals stage, a firm introduces a two-way communication process such as supplier or customer order placing. Hence, moving into this stage entails internal organisational changes, additional investment into the e-commerce platform and ensuring that the usability of the website is enhanced due to the added functionality of the website (Rao *et al*., 2003). Furthermore, these authors indicate that hindrances at this stage include the fact that Business-to-Business (B2B) interfaces need to be added to the functionality of the website; culture and language issues have to be considered as more partners are added into the e-commerce platform. The transactions integration phase entails performing financial transactions through the website which requires additional technical capabilities. At this stage, SMMEs must make a financial commitment towards investing in the technology, acquiring internal IT skills, creating an e-commerce community, selecting competitive payment systems and creating partnerships with external entities. Barriers at this stage relate to the financial transactions that will occur on the e-commerce platform.

Vol 10, No 1, 2018 ISSN: 2146-0744 (Online)
Such barriers can be classified as security and privacy; lack of compatibility of financial systems that may hinder cross borders trading (Walczuch, Braven and Lundgren, 2000); lack of compatibility between cross borders governmental and trade policies; the legal environment especially enforcing contracts, taxation and intellectual property such as copyright and trademarks (Timmers, 2000). The last phase, enterprises integration occurs when the entire business processes are fully integrated into the online business model. This requires the integration between e-commerce, Customer Relationship Management and Supply Chain Management. Critical success factors at this stage include an accurate and full understanding of the current and future strategic needs of partners and devising solutions with partners that address those needs, relying on information sharing and having extended long term contracts (Lacerra, Benson & Wong, 1999). Hence, internal staff competencies are required together with the integration and control mechanisms of business processes. Barriers are majorly technology-related since technology is full intertwined with the business itself. These include the availability of the technology, technology diffusion and complexity of networks.

3. BARRIERS TO E-COMMERCE ADOPTION

Jahanshahi and Zhang (2013) investigated barriers to e-commerce adoption in Iran, Malaysia and India and concluded that security and privacy issues; lack of knowledge and understanding of e-commerce; and high maintenance cost ICT infrastructure were the main barriers faced by SMEs to adopt ICT. In a study conducted on Business-to-Consumer e-commerce in Nigeria (Ayo, Adewoye and Oni, 2011), it was found that Internet fraud coupled with the lack of trust of payment methods, insufficient information on the e-commerce website, and the high cost of accessing the Internet were major impediments towards e-commerce adoption in Nigeria. However, Garg and Choeu (2015) found that concerns of security did not significantly influence the adoption of e-commerce by SMMEs in Pretoria, South Africa, which is in contradiction with other studies such as Marjeni, Govindaraju, Prihartono & Sudiman (2012) and Chiliya, Chikandiwe & Afolabi (2011). A study by Olatokun and Kebonye (2010) shows that in Botswana, e-commerce adoption was mainly limited to point of sale systems, with little evidence of Internet technologies adoption. The lack of knowledge of e-commerce-related technologies such as e-wallet, electronic billing, and electronic shopping constituted an impediment towards e-commerce adoption in Botswana. The study concluded that there is a need for increased awareness about e-commerce, adequate training and skills upgrading in order for SMMEs to better benefit from e-commerce technologies. Datta (2010:4) argues that in developing countries, from the

Vol 10, No 1, 2018 ISSN: 2146-0744 (Online)
consumer's side, e-commerce is "often skewed towards information rather than product consumption". Due to landline constraints (telecommunication infrastructure) and high prices of computers, most consumers tend to use cyber cafes and their cell phones as media for e-commerce. Thus, the bulk of e-commerce activities in developing countries are centred around access to information on websites (web browsing) rather than online purchases. This situation is further exacerbated by the lack of purchasing power, streamlined payment mechanisms (including payment options), critical mass of vendors (online sellers) and shippers (Datta, 2010).

MacGregor and Vrazalic (2007) posit that e-commerce adopters need to adjust to the new business practices that emanate from e-commerce adoption. In addition, e-commerce post implementation requires resources for maintenance and daily e-commerce activities, thus putting pressures on existing resources. Stauber (2000) acknowledges that for SMMEs operating in a traditional face-to-face business transaction fashion, a complete shift to e-commerce may equate to loss of customer contact and thus, revenues. MacGregor and Vrazalic (2007) echo Stauber (2000) highlighting that e-commerce may lead to a deterioration of relationships with business partners. Thus, they suggest a strategic approach towards e-commerce adoption. Particularly, an e-commerce strategy would address support strategies needed to address post implementation issues that may arise.

3.1. Interventions to stimulate the adoption of e-commerce by SMMEs

Kapurubandara and Lawson (2008) found that lack of awareness of benefits associated with e-commerce adoption, lack of employees' skills and security concerns were the internal barriers to SMEs adopting e-commerce in Sri Lanka. In addition, the authors further identified cultural, infrastructure, political, social, legal and regulatory external barriers to e-commerce adoption. Hence, they suggest internal and external supporting interventions to stimulate e-commerce adoption within the SME sector as depicted in Table 1.

Government policies and regulations pertaining to data protection and security and regulated price charged to access the Internet, have a positive impact on establishing e-commerce (Tan and Teo, 2000). However, Garg and Choeu (2015), in their study on the adoption of e-commerce by SMEs Pretoria in South Africa, found that most of the surveyed SMEs would still adopt e-commerce irrespective of the level of government support they would receive. Hence, there was no correlation between government support and e-commerce adoption. Looi (2005), investigating e-

Vol 10, No 1, 2018 ISSN: 2146-0744 (Online)
commerce adoption in Brunei also found that government support is the least amongst the determinants of e-commerce adoption.

Table 1:Supporting interventions to stimulate e-commerce adoption

Internal support	External support
Awareness and education interventions	Improve national infrastructure
Provide guidance in overcoming risks associated with implementation	Provide financial assistance
Provide guidelines for appropriate hardware and software	Provide tax incentives
Provide advice and direction for ICT and e-commerce adoption	Improve ICT diffusion
	Government & industry sector to take leadership/promotion role
	Improve collaboration among SMEs
	Improve low bank account and credit card penetration
	Enforce suitable software standards

Source: Kapurubandara and Lawson (2008)

4. METHODOLOGY

A survey was conducted amongst Durban and Pietermaritzburg SMMEs in South Africa. Data was collected by means of a questionnaire administered to 360 SMMEs owners/managers conveniently sampled. Usable responses were collected from 247 SMME owners/managers (69% response rate). The questionnaire was divided into 3 parts. Part A captured the general information about the SMMEs business including how long the SMMEs had been established, the SMMEs' business sector, the size of the business (in terms of the number of full-time employees) and whether they had an email, Internet access or a website. Part B captured the types of e-commerce that the SMME is currently using. Part C consisted of Likert scale questions (scale of 1= strongly disagree to 5=strongly agree) to depict the SMMEs owners' perceptions of certain factors as impediments to the adoption of e-commerce in their firms. These factors were identified from previous studies as depicted in Table 2.

Table 2:Variables (barriers) adopted in the study

Variables	Sources
Lack of conviction of the financial and business benefits of e-commerce(V1)	Salwani, Marthandan, Norzaidi, Chong, 2009; Kartiwi and MacGregor, 2008; Cloete, Courtney and Fintz, 2002
Limited knowledge of the required technology (V2)	Zhang, 2013; Kotelnikov, 2007
Low use of e-commerce amongst customers (V3)	Courtney and Fintz, 2001
Low use of e-commerce amongst suppliers (V4)	Cloete, Courtney and Fintz, 2002
Low level of computerisation within the SMME (V5)	Knol and Stroeken, 2001
High cost of computers and network technologies (V6)	Ayo *et al*., 2011
Telecommunications services not dependable (V7)	Kotelnikov, 2007
Concerns about Internet security (V8)	Jahanshahi and Zhang, 2013; Ayo *et al*., 2011; Dubelaar, Sohal and Savic, 2005.
Concerns about legal issues, contracts and liability (V9)	Kapurubandara and Lawson, 2008; Kotelnikov, 2007; Courtney and Fintz, 2001; El-Nawawy and Ismail, 1999.

5. DATA ANALYSIS AND DISCUSSION

A Cronbach alpha test was performed in order to assess the reliability of the responses in section C of the questionnaire. The Cronbach alpha coefficient is 0.820 which depicts high internal consistency within the data. Hence, the results pertaining to the perceptions of the impediments to the use of e-commerce by SMEs can be deemed to be reliable. In addition, descriptive statistics were performed in order to depict the demographics of the respondents. Furthermore, a Chi square of independence test was carried out to depict the significance of association between each of the following e-commerce options: online payment by credit card (e-commerce1), allowing customers to place orders online (e-commerce2), providing customer services online (e-commerce3), placing orders with suppliers over the Internet (e-commerce4) and the identified factors (from the literature as depicted in Table 2). The following factors were tested within the context of Durban and

Vol 10, No 1, 2018 ISSN: 2146-0744 (Online)
Pietermaritzburg SMMEs as possible inhibitors to e-commerce adoption: i) lack of conviction of the financial and business benefits of e-commerce (V1), ii) limited knowledge of the required technology (V2), iii) low use of e-commerce amongst customers (V3), iv) low use of e-commerce amongst suppliers (V4), v) low level of computerisation within the SMME (V5), vi) high cost of computers and network technologies (V6), vii) telecommunications services not dependable (V7), viii) concerns about Internet security (V8), and ix) concerns about legal issues, contracts and liability (V9). Moreover, cross tabulations were run in addition to the Chi-square test.

5.1. Descriptive statistics

Frequency analyses reveal that out of the 247 respondents (SMMEs), 89 were from Durban while 158 were from Pietermaritzburg. Most of the respondents' businesses in the Durban area (33.7%; n=30) had been established for 4 to 7 years. However, in Pietermaritzburg most of the SMMEs (37.3%; n=59) had been established for 1 to 4 years. In addition, most of the businesses both in Durban (55.1%, n=49) and Pietermaritzburg (25.5%, n=40) were in the retail sector. Most respondents in Durban (74.7%, n=65) and Pietermaritzburg (32.1%, n=50) had less than 10 full time employees. Compared to Pietermaritzburg (PMB) SMMEs, in Durban (DBN) less SMMEs had an email (39%, n=32 (DBN); 77.9%, n=102 (PMB)), Internet access (44.2%, n=38 (DBN); 82.3%, n=107 (PMB)) and a website demonstrating their products and services offerings (26.1%, n=23 (DBN); 64.7%, n=90 (PMB)). As depicted in Table 3, the mode for all the variables related to the SMMEs' owners' perceptions of factors that impede e-commerce adoption is 4. This implies that most SMMEs owners perceive that all the nine variables are important limitations to the use of e-commerce in their firms (on a Likert scale of 1=Not at all important to 5=Very important). The Kurtosis and Skewness values depict that data within the set of variables is not normally distributed. Hence, non-parametric tests are the most suitable tests for data analysis as there is a significant departure from normal distribution amongst the data within the variables examined in section C of the questionnaire.

Table 3:Descriptive statistics

Variable	Mean	Mode	Standard deviation	Kurtosis	Skewness	Cronbach's alpha
V1	3.75	4	1.033	0.872	-1.043	0.820
V2	3.99	4	0.892	2.139	-1.262	
V3	3.66	4	0.962	0.563	-0.818	
V4	3.62	4	1.001	0.743	-0.918	
V4	3.63	4	1.083	0.492	-0.906	
V5	4.12	4	0.857	1.456	-1.030	
V6	3.77	4	1.033	0.139	-0.724	
V7	3.87	4	1.022	0.629	-0.892	
V8	3.83	4	1.033	0.432	-0.915	

5.2. Chi square test of independence

A Chi square test of independence was performed to detect any significant relationship between each e-commerce option and the tested impediments. A subsequent Cramer's V test was performed in order to depict the strength of each significant relationship. The results show that in Pietermaritzburg, there is a significant relationship between each of the four e-commerce options and each impediment. However, in Durban only selected impediments are related to e-commerce adoption. The following sections present the results whereby the relationship is significant both for Pietermaritzburg and Durban.

5.2.1. Chi square test between online payment by credit card (e-commerce1) and impediments

Table 4 depicts that in both cities, there is a significant relationship between online payment by credit and the perceptions that *e-commerce is too low amongst suppliers, level of computerisation being low in the company, telecommunications services not dependable and concerns about Internet security*. The Cramer's V coefficients depict a moderate to strong significance (Cohen, 1988).

Vol 10, No 1, 2018 ISSN: 2146-0744 (Online)

Table 4:Chi square test between online payment by credit card and impediments

Impediments	Online payment by credit card (e-commerce1)	Pearson Chi square			Cramer's V
		Value	*df*	*significance*	*Value*
E-commerce use is too low among suppliers(V4)	*Durban*	*10.987[b]*	*4*	*0.027*	*0.368*
	Pietermaritzburg	*22.080[c]*	*3*	*0.000*	*0.436*
Low level of computerisation in the company(V5)	*Durban*	*10.840[b]*	*4*	*0.028*	*0.368*
	Pietermaritzburg	*20.383[c]*	*3*	*0.000*	*0.421*
Telecommunications services not dependable(V6)	*Durban*	*13.942[b]*	*4*	*0.007*	*0.415*
	Pietermaritzburg	*13.995[c]*	*3*	*0.003*	*0.347*
Concerns about Internet security(V7)	*Durban*	*10.019[b]*	*4*	*0.040*	*0.352*
	Pietermaritzburg	*12.811[c]*	*2*	*0.002*	*0.332*

5.2.2. Chi square test between placing orders online (e-commerce2) and impediments

Table 5 indicates that there is a common significant relationship between placing orders and e-commerce being too low among suppliers in Durban and in Pietermaritzburg. The Cramer's V coefficients depict a strong significance (Cohen, 1988).

Table 5:Chi square test between placing orders online and impediments

Impediment	Placing orders online (e-commerce 2)	Pearson Chi square			Cramer's V
		Value	*df*	*significance*	*Value*
E-commerce too low among suppliers(V4)	Durban	14.039[b]	4	0.007	0.416
	Pietermaritzburg	21.669[c]	6	0.001	0.306

Vol 10, No 1, 2018 ISSN: 2146-0744 (Online)

5.2.3. Chi square test between providing customer services online (e-commerce3) and impediments

Table 6 depicts a medium to large significant relationship between low level of computerisation, telecommunications being undependable and providing customer services online (e-commerce3). The Cramer's V coefficients depict a strong relationship (Cohen, 1988).

Table 6: Chi square test between providing customer services online and impediments (where the relationship is significant both in Pietermaritzburg and Durban)

Impediments	Providing customer services online (e-commerce3)	Pearson Chi square			Cramer's V
		Value	*df*	*significance*	*Value*
Low level of computerisation (V5)	Durban	11.346[b]	4	0.023	0.377
	Pietermaritzburg	21.637[c]	3	0.000	0.434
Telecommunications services not dependable (V6)	Durban	10.892[b]	4	0.028	0.367
	Pietermaritzburg	17.628[c]	3	0.001	0.390

5.2.4. Chi square test between placing orders with suppliers over the Internet (e-commerce4) and impediments

Table 7 shows that there is a moderate to large significant relationship between placing orders with suppliers over the Internet and e-commerce being too low amongst suppliers or amongst customers. The Cramer's V coefficients depict a strong relationship (Cohen, 1988).

Table 7: Chi square test between placing orders with suppliers over the Internet (where the relationship is significant both in Pietermaritzburg and Durban)

Impediments	Placing orders with suppliers over the Internet (e-commerce4)	Pearson Chi square			Cramer's V
		Value	df	significance	Value
E-commerce too low among customers(V3)	Durban	9.975[b]	4	0.041	0.355
	Pietermaritzburg	17.609[c]	3	0.001	0.390
E-commerce too low among suppliers(V4)	Durban	13.349[b]	4	0.010	0.406
	Pietermaritzburg	16.104[c]	3	0.001	0.373

The above Chi square results show that *e-commerce being too low among suppliers* is significantly related to 3 e-commerce options (e-commerce1, e-commerce2 and

Vol 10, No 1, 2018 ISSN: 2146-0744 (Online)
e-commerce4). This concurs with the findings pertaining to impediments of e-commerce adoption by Courtney and Fintz (2002). The reason why *e-commerce being too low among suppliers* is not related to e-commerce3 could be due to the fact that e-commerce3 assesses whether the surveyed SMMEs provide online customer services, hence is not directly related to supplying goods. *Level of computerisation in the company being low and telecommunications services being undependable are* significantly related to e-commerce1 and e-commerce3. These two factors were identified by Kotelnikov (2007) and Knol and Stroeken (2001) respectively as impediments to e-commerce adoption. *E-commerce being too low among customers* is significantly related with only e-commerce 4 while *concerns about Internet security* is only significantly related to e-commerce1. The former was previously identified as an impediment by Courtney and Fintz (2001) while the latter has been acknowledged by a number of authors as a barrier to e-commerce adoption (Jahanshahi and Zhang, 2013; Ayo *et al*., 2011; Dubelaar *et al*., 2005). In the context of this research, the findings could mean that in both cities, concerns about Internet security are only perceived as significant limitations when making online financial transactions. The above results also show that the perceptions of what significant factors limit the adoption of e-commerce differ depending on the type of e-commerce. *Online payment by credit card* has more significant limiting factors than any other e-commerce options while *placing orders online* has the least number of such factors. Further cross tabulations reveal that, where the relationships are significant, most of the adopters and non-adopters perceive that the impediments are important limiting factors to the adoption of e-commerce. In the case of SMMEs that do not have e-commerce in place, such perceptions of these factors may hinder their efforts toward e-commerce adoption. In view of the benefits associated with e-commerce adoption such as exposure to foreign market and potential increase in sales, there is a need of devising interventions to stimulate SMMEs adoption of e-commerce and further assist them in overcoming limitations as they move through the e-commerce adoption ladder. This calls for partnership between government and the private sector.

6. CONCLUSION AND RECOMMENDATIONS

This paper investigated a set of limiting factors in the context of SMMEs e-commerce adoption. Findings reveal that, on one hand, in both Durban and Pietermaritzburg, there are common limiting factors that are significantly related to e-commerce adoption. These are: low use of e-commerce among customers (V3); low use of e-commerce suppliers (V4); low level of computerisation (V5); telecommunications services not dependable (V6); concerns about Internet security

Vol 10, No 1, 2018 ISSN: 2146-0744 (Online)
(V7). However, the number of significant limiting factors differ depending on the e-commerce option, '*online payment by credit card'* being the one with the most number of limiting factors while '*low use of e-commerce amongst suppliers*' has the least number of significant limiting factors. This paper contributes to the knowledge of significant factors that need to be considered within the context of e-commerce adoption in developing countries. For SMMEs owners, the findings reveal factors that they need to be cognisant of, for each type of e-commerce activities that they may want to embark on. Furthermore, stakeholders that assist in SMMEs development may use these findings in order to devise strategies that may alleviate the impact of such factors on SMMEs businesses.

In the context of this study, it is important that SMMEs owners have a positive perspective of e-commerce. In other words, notwithstanding the identified factors that impede e-commerce, SMMEs owners need to be cognisant of the benefits that they may reap from adopting e-commerce and weigh them against the drawbacks. Hence, there is a need for continuous awareness and education on how SMEs can benefit from technological innovations as the technology itself evolves. This task may be facilitated through public and private interventions or through public-private partnerships. In this era of cloud computing, SMMEs may find it useful to opt for affordable cloud computing solutions. SMMEs may find such solutions advantageous in terms of providing reliable back up and security to their businesses. In this age of serious cybersecurity concerns, SMMEs may see cloud computing as a way of entrusting storage and processing of sensitive business data to a trusted and more robust (in terms of cybersecurity enhancements) entity than themselves providing such security measures. As e-commerce operates in a dynamic business environment, there is a need for SMMEs to adopt an e-commerce culture that may facilitate the adjustment and adaptation to constraints that may arise. In other words, SMMEs need to be sensitive to the dynamics within their markets to ensure that they respond promptly to the changing nature of customers and product offerings and any challenges that may arise. Lastly, the government has also a role to play to stimulate e-commerce adoption amidst the challenges. The proposed government interventions include evaluating how the current legal and regulatory framework enhances e-commerce start-ups. In addition, the government may provide incentives to SMMEs that are embarking on the e-commerce journey and e-commerce-related assistance through government agencies that are already established to assist SMMEs.

REFERENCES

Ayo, C. K., Adewoye, J. O. & Oni, A. A. (2011). Business-to-consumer E-commerce in Nigeria: Prospects and challenges. http://www.academicjournals.org/ajbm/pdf/pdf2011/4July/Ayo%20et%20al.pdf. Accessed 2012/04/10.

Ayyagari, M., Demirguc-Kunt, A., & Maksimovic, V. (2011). Small vs. Young Firms across the World, contribution to employment, job creation and growth. https://openknowledge.worldbank.org/bitstream/handle/10986/3397/WPS5631.pdf?sequence=1&isAllowed=y. Accessed 2017/10/23.

Chiliya, N., Chikandiwe, C.K. & Afolabi, B. (2011). Factors Affecting Small Micro Medium Enterprises (SMME) Adoption of E-commerce in the Eastern Cape. *International Journal of Business & Management*, 6(10), 28-36.

Cloete, E., Courtney, S. & Fintz, J. (2002). Small businesses' acceptance and adoption of e-commerce in the Western Cape Province of South Africa. *The Electronic Journal of Information Systems in Developing Countries,* 10(4), 1-13.

Datta, P. (2010). A preliminary study of e-commerce adoption in developing countries. *Information Systems Journal,* 21 (1), 3-32.

Dubelaar, C., Sohal, A., & Savic, V. (2005). Benefits, impediments and critical success factors in B2C E-business adoption. *Technovation*, 25(11), 1251–1262.

El-Nawawy, M. A. & Ismail, M. M. (1999). Overcoming Deterrents and Impediments to Electronic Commerce in Light of Globalisation: The Case of Egypt. https://www.isoc.org/inet99/proceedings/1g/1g_3.htm. Accessed 2017/10/23.

Garg, A.K. & Choeu, T. (2015). The Adoption of Electronic Commerce By Small And Medium Enterprises In Pretoria East. *The Electronic Journal of Information Systems in Developing Countries*, 68(7), 1-23

Goldstuck, A. (2012). Internet Matters: The Quiet Engine of the South African Economy. http://hsf.org.za/resource-centre/focus/focus-66/AGoldstuck.pdf. Accessed 2017/10/23.

Jahanshahi, A. A., & Zhang, S. X. (2013). E-commerce for SMEs: empirical insights from three countries. *Journal of Small Business and Enterprise Development*, 20(4), 849–865.

Kapurubandara, M. & Lawson, R. (2008). Availability of E-commerce Support for SMEs in Developing Countries. *The International Journal on Advances in ICT for Emerging Regions,* 1(1), 3-11.

Vol 10, No 1, 2018 ISSN: 2146-0744 (Online)

Kartiwi, M. & MacGregor, R. C. (2008). Electronic Commerce adoption barriers in small to medium-sized enterprises (SMEs) in developed and developing countries: a cross-Country comparison. *Journal of Electronic Commerce in Organization*, 5(3), 35–51.

Knol, W. H. C. & Stroeken, J. H. M. (2001). The Diffusion and Adoption of Information Technology in Small- and Medium-sized Enterprises through IT Scenarios, *Technology Analysis & Strategic Management*, 13(2), 227-246.

Kotelnikov, V. (2007). *Small and medium Enterprises and ICT.* https://en.wikibooks.org/wiki/Small_and_Medium_Enterprises_and_ICT/Print_version. Accessed 2017/10/23.

Lacerra, S.V., Benson, R.A. and Wong, K.A. (1999). E-commerce services: Business services for the new economy. Tucson, A.Z.: Jefferies and Company.

Looi, H.C. (2005). E-Commerce Adoption in Brunei Darussalam: A Quantitative Analysis of Factors Influencing its Adoption. *Communications of the Association for Information Systems,* 15(3), 61-81.

Macgregor, R. & Vrazalic, L. (2007). E-commerce in regional small to medium enterprises. United States of America: IGI Publishing.

Marjeni, Y., Govindaraju, R., Prihartono, B. & Sudiman, I. (2012). *Organizational Factors Influencing the E-commerce Adoption by Indonesian SMEs*. http://ieeexplore.ieee.org/document/6225845/. Accessed 2017/07/31.

OECD. (2002). *Measuring the Information Economy.* https://www.oecd.org/sti/ieconomy/1835738.pdf. Accessed 2017/10/23

Olatokun, W. & Kebonye, M. (2010). E-Commerce Technology Adoption by SMEs in Botswana. *International Journal of Emerging Technologies and Society,* 8(1)**,** 42-56.

Rao, S. S., Metts, G. & Monge, C. A. M. (2003). Electronic commerce development in small and medium sized enterprises: a stage model and its implications. *Business Process Management Journal*, 9(1), 11–32.

Salwani, I.M., Marthandan, G., Norzaidi, M.D. & Chong, S.C. (2009). E-commerce usage and business performance in the Malaysian tourism sector: empirical analysis." *Information Management & Computer Security* 17(2), 166-185.

Smith, C. (2007). *SA e-commerce growing by leaps and bounds.* http://www.fin24.com/Companies/Retail/sa-e-commerce-growing-by-leaps-and-bounds-20170222. Accessed 2017/07/31.

Stauber, A. (2000). A survey of the incorporation of electronic commerce in Tasmanian small and medium sized enterprises. BIS Honours dissertation. Tasmania: University of Tasmania.

Vol 10, No 1, 2018 ISSN: 2146-0744 (Online)

Tan, M. & Teo, T. (2000). Factors Influencing the Adoption of Internet Banking. *Journal of the Association for Information Systems*, 1(5), 1-42.

Timmers, P. (2000). Going global in electronic commerce. https://link.springer.com/chapter/10.1007/3-540-44463-7_17. Accessed 2017/10/23.

Turban, E., King, D., Liang, T.P. & Turban, D. (2010). Electronic commerce 2010: a managerial perspective. Upper Saddle River: Pearson Education.

Walczuch, R. Braven, G. and Lundgren, H. (2000). Internet adoption barriers for small firms in the Netherlands. *European Management Journal*, 18(5),561-572.

Wit, G., and Kok, J. (2014). Do small businesses create more jobs? New evidence for Europe. *Small Business Economics*, 42(2), 283–295.

Zhu, K., & Kraemer, K. L. (2005). Post-adoption variations in usage and value of e-business by organizations: cross-country evidence from the retail industry. *Information Systems Research*, 16(1),61–84.