



## IMPEDIMENTS OF E-COMMERCE ADOPTION AMONG SMALL AND MEDIUM ENTERPRISES IN TANZANIA: A REVIEW

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### Abstract:

*One of the great challenge facing SMEs performance in Tanzania is how to adopt and use ICT related technologies and particularly e-commerce technology. This study examined the impediments of e-commerce adoption among Small and Medium Enterprises (SMEs) in Tanzania. Variables including poor telecommunication infrastructure, poor e-commerce security systems, lack of information technology (IT) education and training, weak government policy, high taxes imposed on e-commerce services, poor e-readiness and socio-cultural beliefs, lack of capital, lack of IT experts, abrupt technological changes and lack of clear communication standards were identified and measured using quantitative approach. An intensive literature review involving twelve (12) recent (2010-2014) related literatures was conducted to find out the impediments of e-commerce adoption among SMEs in Tanzania. Frequencies and percentages of ten (10) studied variables were computed and presented in a table and bar graph. The findings show that poor telecommunication infrastructure, poor e-commerce security systems, lack of IT education and training, poor e-readiness and socio-cultural beliefs and lack of IT experts are significant impediments of e-commerce adoption among SMEs in Tanzania. The study recommends that policy makers should view these impediments as interrelated obstacles of e-commerce adoption among SMEs in Tanzania which need integrated effort and strategies when addressing them.*

**Key words: Impediments, E-commerce Adoption, Small and Medium Enterprises, Tanzania**

### INTRODUCTION

Adoption of e-commerce among SMEs seems to be a remedy in creation of businesses opportunities for Tanzanian local and international investors. E-commerce adoption is a cost effective way to reach global players, gaining market share, streamlining a wide spectrum of business processes and technology for competitive advantage utilizing telecommunication networks, improving relationships, advantageous to early adopters, willing to change and improve communication internally and externally, ensuring sufficient resources and skilled-staff [27]. Tanzania like any other developing countries in the world, has taken a number of measures to promote ICT usage in different sectors including SME sector. For instance, development of 2003 National Information and Communications Technologies Policy, the policy that aims at enhancing nation-wide economic growth and social

progress by encouraging beneficial ICT activities in all sectors through providing a conducive framework for investments in capacity building and in promoting multi-layered co-operation, knowledge sharing locally as well as globally [39].

Although the SME sector is important to the socio-economic development of Tanzania, studies have revealed that it is under-performing due to a multitude of impediments facing it [30]. One of the main impediments facing SMEs in Tanzania is poor usage of ICTs and its related technologies [23]. For example, Tanzania is said to have a low internet penetration rate with 14% in comparison to mobile penetration with 74% [5]. Until June 2012, the country had 5.6 million internet users which is merely 13% of the entire Tanzanian population which prove the grounds for the digital divide syndrome in the country [13].



There have been limited studies in Tanzania concerning e-commerce and SMEs. Most studies investigate general ICTs and SMEs [14]. On the other hand, a few studies which have related e-commerce and SMEs in Tanzania have tended to generate multiple impediments which sometimes differ from one another. For instance, [3] reveals that lack of telecommunication infrastructure, lack of qualified staff to develop and support e-commerce sites, lack of skills among consumers needed in order to use the internet, lack of timely and reliable systems for the delivery of physical goods, low bank account and credit card penetration, low income and low computer and internet penetration. [14] points out that lack of awareness for e-commerce and related technologies, social-cultural beliefs, high costs associated with investment in e-commerce infrastructure effective, poor laws to combat cybercrime and protect consumer privacy and poor government policy. [34] indicates that lack of sufficient system security, poor reliability, standards and communication protocols, insufficient telecommunication bandwidth, the software development tools are still evolving and changing rapidly, difficulties in integrating the internet and e-commerce software with some existing application and data base, the need for special web servers and other infrastructures, some e-commerce software and hardware are incompatible with some operating systems or other components, lack of trust and user resistance. However, such numerous e-commerce adoption impediments identified might be difficult to tackle them at once due the limited resources facing the country. As the result, such impediments continue to persist without solutions. This study aims at assessing the main critical impediments facing e-commerce adoption among SMEs in Tanzania and finally proposes strategies which will enable policy makers and other business practitioners to mitigate these impediments through prioritization of the available resources in the country.

## LITERATURE REVIEW

### Theoretical Literature Review

Technology Acceptance Model (TAM) was used to guide this study. TAM was proposed by Fred David in 1989 by adapting the Theory of Reasoned Action (TRA) developed by Fishbein and Ajzen, 1975 [18]. TAM has been widely used when investigating users'

perceptions about new or existing software or other technological solution. It gives a good picture about how the users or potential users evaluate the solution and its adequateness in general [28]. TAM posits two factors, Perceived Usefulness (PU) is defined as the degree to which an individual believes that using a particular system would enhance his or her job performance without regarding other limitations and Perceived Ease of Use (PEOU) which is defined as the degree to which a person believes that using a particular system would be free of effort, this describes users' expectations of how easy the application is to use [6]. In this study TAM is used to explain which impediments affect the users' perceptions from using a certain system by which through using it their job performance will be enhanced and will be free of effort. E-commerce offers opportunities to dramatically improve the way that businesses interact with both their customers and suppliers, to make business negotiations faster, cheaper, more personalized, and more responsive [37]. TAM theory summarizes that an individual's behavioral intention to adopt a particular piece of technology is determined by the person's attitude toward the use of the technology. Attitude, in turn, is determined by eliminating of vulnerable risks which in this study are referred as impediments. TAM suggests that perceptions or beliefs regarding an innovation are instrumental when developing attitudes that will lead to system utilization behavior. The relevancy of TAM this study is that the adoption of e-commerce among SMEs can be influenced by PU and PEOU.

### Empirical Literature Review

#### Impediments of E-Commerce Adoption among SMEs

Worldwide, there have been a number of studies concentrating on the aspects of the technology adoption; however, there are few studies studying the adoption and utilization of e-commerce in SMEs [26]. A study of [3] indicates that low acceptability within the sector, poor customers' preferences, poor security, inadequate technical infrastructure, cost and lack of competence in e-commerce are barriers for e-commerce adoption in Turkey. References [26] and [36] point out that manager willingness and relative advantage are significant factors affecting the e-commerce adoption in Malaysia. Reference [35] shows that distrust is one of the main direct reasons for low level of e-commerce adoption in Serbia.



According to [36], the existing culture of a company affects the resistance of employees, which in turn negatively affects the e-commerce adoption in Malaysia. Reference [17] survey in Kenya identifies that SMEs failure to adopt e-commerce is due to limited resources whereby, financial, human and technological resources affect the adoption of e-commerce to a great extent with mean of 4.41 and 4.46 with significant standard deviations respectively. Budget constraints also had a mean of 4.5 with significant standard deviation [17].

In Tanzania, there are few studies which have concentrated in the impediments of e-commerce among adoption among SMEs. According to FITSP [9] on the Mobile Money in Tanzania Use, Barriers and Opportunities, the common impediments for e-commerce adoption include insufficient understanding of the services (m-money) whereby 55% of m-money users were unaware of the service, 72% claimed problems on how m-money agents handled transactions services without considering customer privacy and 49% were unable to withdraw money because the provider’s network was down. Moreover, reference [19] reports that m-commerce adoption in Tanzania is faced by challenges such as network failure during withdrawing and transferring money (56%), high charges per transaction (33%) and most customer lack knowledge of using M-Pesa services as they usually forget password and others transfer money to wrong accounts or persons.

Additionally, the study of [21] on State of Mobile Banking in Tanzania and Security Issues points out that mobile phones security is the hindrance for mobile banking. Accordingly, the study reveals that great number of mobile phones is more vulnerable to attacks as it happens to computers. This poses obvious security risks, especially for mobile device platforms which may turn to restrictions or limitations on third-party applications which may involve transactions. Since these devices can be used for sending and receiving email, browsing the web, online banking and commerce, social networking, storing and modifying documents, remotely accessing data, recording audio and video, make them to be susceptible to mobile malware, viruses which can potentially eavesdrop on user activities, steal sensitive information, destroy stored information, deactivate or activate applications or disable a device. This situation makes mobile phones prone to attacks as the result it becomes an impediment to mobile phone transactions.

**Selected Studies on E-Commerce Adoption among SMEs in a Tanzanian Business Environment**

In order to address the impediments of e-commerce adoption among SMEs in Tanzania, a number of studies as shown in (Table 1.0) were selected and intensively reviewed and thereafter, the variables for this study were extracted and measured accordingly.

**Table 1.0: Selected Previous Studies in a Tanzanian Business Environment and Major Findings**

Author and Title	Major Research Findings
[31]. Adaptation and Barriers of E-commerce in Tanzania Small and Medium Enterprises	i) Lack of telecommunications infrastructure, ii) lack of qualified staff to develop and support e-commerce sites, iii) lack of skills among consumers, iv) lack of timely and reliable systems for the delivery of physical goods, v) low bank account and credit card penetration, vi) low income, vii) low computer and Internet penetration.
[34].The Prospects and Barriers of E-Commerce Implementation in Tanzania	i) Lack of sufficient system security, ii) poor reliability, standards and communication protocols, iii) insufficient telecommunication bandwidth, iv) the software development tools are still evolving and changing rapidly, v) difficulties in integrating the internet and e-commerce software with some existing application and data base, vi) the need for special web servers and other infrastructures, vii) some e-commerce software and hardware are incompatible with some operating systems or other components, viii) lack of trust and user resistance, ix) channel conflict, x) lack of touch and feel from online (social-cultural beliefs) and xi) lack of experts



<p>[33]. State of Tanzania e-readiness and e-commerce: Overview, Information Technology for Development</p>	<p>i) Poor physical and network infrastructures, ii) inadequate human resources, iii) absence of required rules, iv) high taxes placed on e-commerce infrastructure such as computers, v) transaction charges, vi) weaker policy commitment on the part of the government, vii) computer illiteracy among the Tanzanian entrepreneurs, viii) security threats of e-commerce systems, ix) various regional rules (protocols)</p>
<p>[15]. “E-Commerce Institutionalization is not for us”: SMEs perception of E-Commerce in Tanzania</p>	<p>i) Government resistance to technological changes, ii) unclear government policy in the involvement of internet related transactions, iii) lack of trust from e-commerce websites supervisors, iv) difficulties in credit card payments, v) lack of ICT expertise, vi) inadequacy of the website and the e-commerce infrastructure, vii) lack of human resources specifically ICT experts, viii) lack of confidence to employ e-commerce transactions, ix) lack of e-readiness and x) lack of ICT training.</p>
<p>[14]. E-commerce and Small and Medium Enterprises (SMEs) in Least Developed Countries: A case of Tanzania</p>	<p>i) Lack of awareness for e-commerce and related technologies, ii) social-cultural beliefs i.e. SMEs belief lies in the use of bargaining, iii) high costs associated with investment in e-commerce infrastructure, iv) poor laws to combat cybercrime and protect consumer privacy, v) poor government policy i.e. government did not demonstrate strong commitment to promote e-commerce, vi) lack of consumer and business partners e-readiness vii) high prevalence of mobile technology use; that is fast replacing the possibility of wired e-commerce, viii) lack of ICT experts, ix) lack of support from IT firms and IT education, x) e-commerce hardware and software incompatibility, xi) unreliable telecommunication infrastructure.</p>
<p>[25]. Technology adoption in tourism industry: A case of wireless technology (WiMAX) for Tanzania.</p>	<p>i) Fear of international competition to consumers, ii) infrastructural and connectivity problems, iii) information on internet is prone to malicious attacks, such as eavesdropping and data theft, identity theft, piracy and password-related threats, as well as viewed in transit, iv) lack of timely and reliable systems for e-commerce information delivery.</p>
<p>[8]. M-Commerce in Sub Saharan Africa: A case of Tanzania.</p>	<p>i) Lack of awareness of the opportunities offered by m-commerce, ii) false impression about aspects such as safety, iii) lack of online assistance to customers, iv) social-cultural beliefs such as feel and touch, v) lack of trust on e-commerce systems.</p>
<p>[28]. Survey of Mobile Phone Usage Patterns Among Street Vendors in Dar es salaam City Tanzania.</p>	<p>i) Lack of awareness on the benefits received as regarding the usage of e-commerce infrastructure, ii) language barrier on the menu in mobile phone, iii) lack of training on mobile phone usage in business, iv) mobile phone software and hardware incompatibility.</p>
<p>[32]. Challenges of mobile-phone money transfer services’ market penetration and expansion in Singida District, Tanzania.</p>	<p>i) Lack of capital, ii) unavailability of network coverage, iii) mobile money payment systems arrangement, iv) transaction charges, v) Lack of information and understanding among non-users, vi) Fraud issues and unfaithful workers.</p>
<p>[24]. The State of Commercial Bank Transactions in Current Mobile Phone Banking Market: A Case of Dodoma.</p>	<p>i) Reconciliation delay of e-transactions, ii) theft of transactions, iii) network challenges.</p>



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[4]. Mobile Money Transfers and usage among micro and small businesses in Tanzania	i) Poor network coverage, ii) large amount charged for transactions, iii) lack of security arrangement, iii) lack of knowledge and capacity to transact.
[29]. Factors Affecting Quality of Services (QoS) in Tanzania Cellular Networks.	i) Inadequate network infrastructure, ii) lack of fairness from service, iii) little efforts taken by the government in enforcing the national agreed standards, iv) lack of reliable end-to-end systems, v) geographical terrain, vi) low quality of handsets, vii) poor government monitoring on standards, viii) lack of subscriber's skills and training.

Source: Compiled from Literature Review, 2014

## METHODOLOGY

### Methodology

This paper uses a quantitative approach in which descriptive analysis was adopted. An intensive literature review was conducted in order to extract the most frequent identified impediments of e-commerce adoption in Tanzania. Variables in this study were identified from twelve (12) selected literatures in a Tanzanian business environment in order to measure the extent of impediments of e-commerce adoption in Tanzania. These literatures were selected based on their relevance to the topic under study and timeliness in which literatures were restricted within 5 recent years (2010-2014) since [22] adopted the same approach. A sample of 12 literatures was viewed sufficient for statistical analysis since [26] used a sample of 12 literatures to draw up the conclusion. From the literatures, ten (10) variables which appeared frequently were identified and analyzed descriptively and presented in a table after computation of frequencies and percentages. Ten (10) hypotheses were formulated from ten (10) identified variables. These variables are i) poor telecommunication infrastructure, ii) poor e-Tanzania.

commerce security systems, iii) lack of information technology education and training, iv) weak government policy, v) high taxes imposed on e-commerce services, vi) poor e-readiness and socio-cultural beliefs, vii) lack of capital, viii) lack of IT experts, ix) abrupt technological changes, x) lack of clear communication standards. In this study, the decision for the impediments of e-commerce adoption to be significant was confined to only variables with scores at least 50% ([22]; [26]; [11]).

### Conceptual framework

Based on the literature review, the study developed a conceptual framework with independent variables which in this paper are impediments (poor telecommunication infrastructure, poor e-commerce security systems, lack of information technology education and training, weak government policy, high taxes imposed on e-commerce services, poor e-readiness and socio-cultural beliefs, lack of capital, lack of IT experts, abrupt technological changes and lack of clear communication standards) of e-commerce adoption (dependent variable) among SMEs in

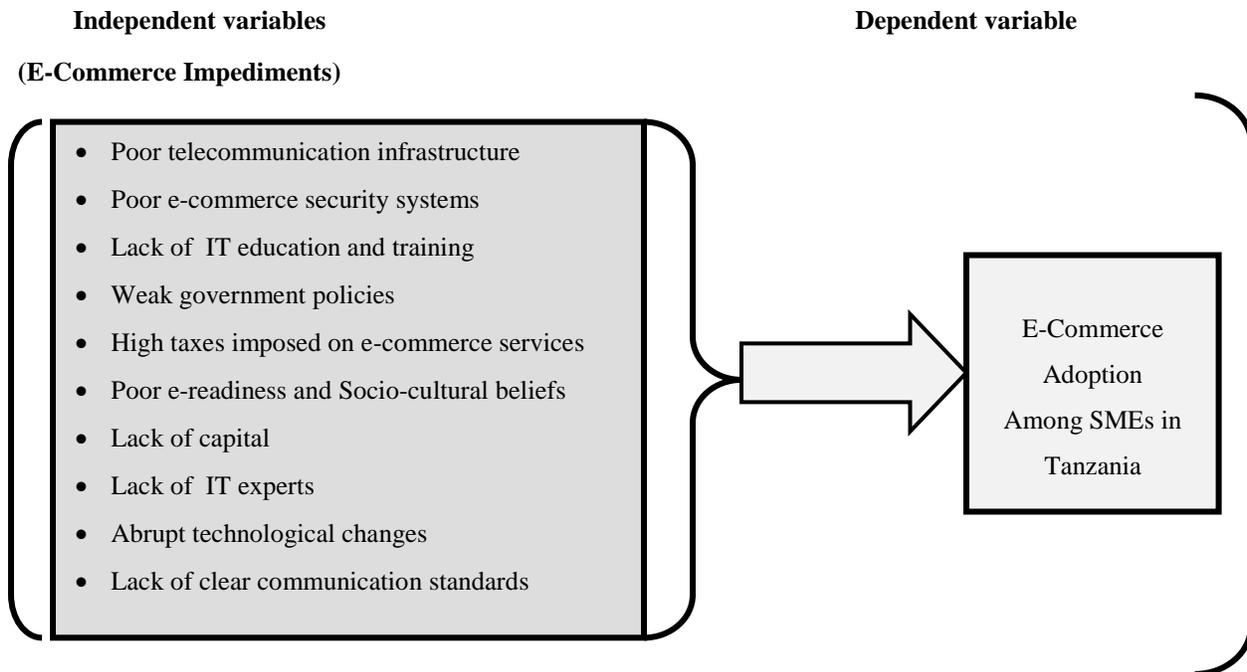


Figure 1: Conceptual Framework

Source: Developed from Literature Review

### Hypotheses

Based on the literature review, the impediments facing e-commerce adoption among SMEs in Tanzania can be hypothesized as follows:

H<sub>1</sub>: There is a negative relationship between poor telecommunication infrastructure and e-commerce adoption among SMEs.

H<sub>2</sub>: There is a negative relationship between poor e-commerce security systems and e-commerce adoption among SMEs.

H<sub>3</sub>: There is a negative relationship between lack of IT education and training among consumers and e-commerce adoption among SMEs.

H<sub>4</sub>: There is a negative relationship between weak government policies and e-commerce adoption among SMEs.

H<sub>5</sub>: There is a negative relationship between high taxes imposed on e-commerce services and e-commerce adoption among SMEs.

H<sub>6</sub>: There is a negative relationship between poor e-readiness and socio-cultural beliefs and e-commerce adoption among SMEs.

H<sub>7</sub>: There is a negative relationship between lack of capital and e-commerce adoption among SMEs.

H<sub>8</sub>: There is a negative relationship between lack of IT experts and e-commerce adoption among SMEs.

H<sub>9</sub>: There is a negative relationship between abrupt technological changes and e-commerce adoption among SMEs.

H<sub>10</sub>: There is a negative relationship between lack of clear communication standards and e-commerce adoption among SMEs.

### FINDINGS AND DISCUSSION

Based on the intensive literature review carried out, the most extracted e-commerce adoption impediments are presented in **Table 2.0**. The sign (X) shows that the variables have been found to be critical e-commerce impediment in the articles selected and intensively reviewed in this study.



**Table 2.0: Impediments of E-Commerce Adoption among SMEs in Tanzania**

Author (s)	[1] PTI	[2] PESS	[3] LITET	[4] WGP	[5] HT	[6] PESC	[7] LC	[8] LITE	[9] ATC	[10] LCCS
[31]	X		X				X	X		
[34]	X	X				X		X	X	X
[33]	X	X	X	X	X			X		X
[15]	X	X	X	X	X	X		X		
[14]	X	X	X	X		X		X	X	
[25]	X	X	X			X				
[8]	X	X	X			X		X		
[28]	X	X	X						X	
[32]	X	X	X				X			
[24]	X	X								
[4]	X	X	X		X					
[29]	X	X	X	X	X	X				X

Source: Compiled from literature review, 2014

**Key:** [1] PTI=Poor telecommunication infrastructure, [2] PESS=Poor e-commerce security systems, [3] LITET=Lack of IT education and training [4] WGP=Weak government policy, [5] HT=High taxes imposed on e-commerce services, [6] PESC=Poor e-readiness and Socio-Cultural beliefs, [7] LC=Lack of capital, [8] LITE=Lack of IT experts, [9] ATC=Abrupt technological changes, [10] LCCS=Lack of clear communication standards.

Based on **Table 2.0**, the most extracted variables are presented in **Table 3.0** to show the frequency and percentage of variables studied.

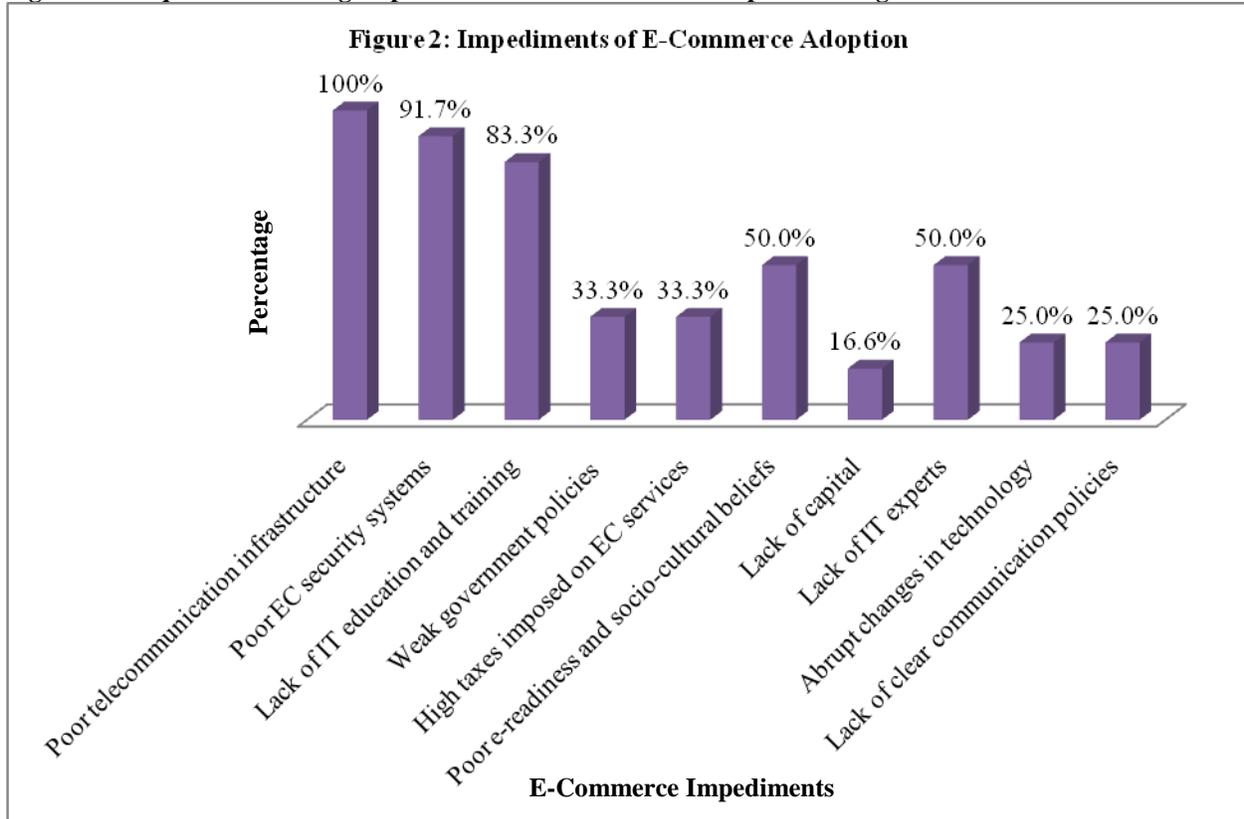
**Table 3.0: Frequencies and Percentages of E-Commerce Impediments Adoption among SMEs in Tanzania**

Variables	Frequency	Percent
Poor telecommunication infrastructure	12	100***
Poor e-commerce security systems	11	91.7***
Lack of IT education and training	10	83.3***
Weak government policies	4	33.3
High taxes imposed on e-commerce services	4	33.3
Poor e-readiness and socio-cultural beliefs	6	50.0***
Lack of capital	2	16.6
Lack of IT experts	6	50.0***
Abrupt changes in technology	3	25.0
Lack of clear communication policies	3	25.0

Source: Compiled from Literature Review, 2014

**Key:** \*\*\*=significant

Figure 2: Frequencies showing Impediments of E-Commerce Adoption among SMES in Tanzania



The results (Table 3.0 and Figure 2) indicate that poor telecommunication infrastructure (100.0%), poor e-commerce security systems (91.7%), lack of IT education and training (83.3%), poor e-readiness and socio-cultural beliefs (50.0%) and lack of IT experts (50.0%) are impediments of e-commerce adoption in Tanzania. This means that  $H_1$ ,  $H_2$ ,  $H_3$ ,  $H_6$  and  $H_8$  are significant and accepted while  $H_4$ ,  $H_5$ ,  $H_7$ ,  $H_9$  and  $H_{10}$  are insignificant and rejected. For the case of poor telecommunication infrastructure, it can be explained that whenever the IT infrastructure is poor, a lot of associated impediments may arise. For instance, network failure and delay of services delivery and other related inconveniences. As the result, customers will tend to withdraw themselves from using e-commerce and instead will opt for the traditional systems of transactions. These findings are consistent with those in [29], [4] and [32] which indicate that inadequate network infrastructure is the challenge of e-commerce adoption in Tanzania and it tends to affect the quality of services offered online.

On the other hand, if the IT infrastructure is improved, network failure will be eliminated and reliable and timely service delivery will be enhanced. As the result, this will be used as a firm's competitive advantage. The study of [20] supports this argument; e-commerce can enhance selling online and help better understand customers. Accordingly, this study using Dell as the case study reports that Dell succeeded in achieving competitive advantages through the deployment of IT-enabled supply chain management (SCM) and effective e-commerce by which attributed to its direct-sales model in mass customization. Also, the study of [26] indicates that relative advantage is a significant factor in e-commerce adoption in Malaysia since most of companies want to increase return of investment.

For the case of poor e-commerce security systems, it can be explained that whenever the security of e-commerce system becomes poor, most of customers using e-commerce will tend to stop using it with the



fear to lose their transactions and information. As the result, the traditional systems of effecting transactions will dominate. Moreover, unsecure e-commerce will tend to discourage potential customers to adopt the system and there is a great likelihood to spread negative word of mouth about e-commerce systems. These findings are supported by those of [38] study which points out that security issues like identity theft and financial fraud have effect on e-commerce growth and there is a need to develop secure communication networks in order to attract and successfully retain customers. Accordingly, the same study suggests that software developers must develop software measures like encryption, digital signatures, biometrics, virus protection, etc which will help to foster customer satisfaction and trust on e-commerce usage and adoption. Also, these findings are in harmony with those in [12] study which shows that e-banking insecurity systems give users a false sense of security as the result users may be frustrated. The study suggests that technology should be an added convenience and secured and not prohibit them from accessing their information.

Regarding lack of IT education and training, this can be explained that lack of education and training denies users from acquiring the required competencies and confidence of using e-commerce. There are individuals who perceive use of e-commerce to be difficult and risky due to lack of IT education and training. IT education and training not only give competencies and confidence to users but also it creates awareness about the benefits and challenges associated with the use of e-commerce. Generally, these findings are supported with those of [22] which finds out that inadequate business training is the most critical business constraint affecting the potential growth of SMEs in Tanzania. Also, these findings are similar to those in [2] and [16] studies in Nigeria which show that literacy amongst SMEs is generally low and often SMEs do not have access to professional advice to address complex ICT issues. In other words, the poor technical knowledge and lack of expertise of ICT in SMEs deprives SMEs of benefiting from new developments and in turn slows their growth.

For the case of poor e-readiness and socio-cultural beliefs, this can be explained as poor e-readiness is affected by individual's cultural beliefs and social

factors such as inadequate IT education and training. These findings are consistent with those in [1] study which reveals that culture has the impact on e-readiness for e-government in Yemen. Also, these findings relate with lack of e-readiness, socio-cultural beliefs and lack of awareness on benefits received as regarded to the usage of e-commerce infrastructure ([28]; [14]; [8]).

Regarding lack of IT experts, leave users in a dilemma of either to accept or reject such technology since they lack understanding of how to interact with it and the benefits accrued from that technology. According to TAM, the users' decision to accept or reject particular technology depends on PU and PEOU. In fact, PU and PEOU will only be easily understood by users through training which is offered by IT experts. Since it has been noted from the findings that, lack of IT education and training is one of the impediments of e-commerce in Tanzania. It is now evident that, lack of IT experts is also an impediment of e-commerce adoption since availability of IT education and training is the function of IT experts. These findings are supported with those in [14] study which indicates that lack of IT experts is one of barriers of e-commerce adoption in Tanzania.

## CONCLUSION AND RECOMMENDATIONS

The purpose of this paper was to examine the impediments of e-commerce adoption among SMEs in Tanzania. This paper concludes that poor telecommunication infrastructure, poor e-commerce security system, lack of IT education and training, poor e-readiness and socio-cultural beliefs and lack of IT experts are significant impediments limiting the adoption of e-commerce in Tanzania. However, poor telecommunication infrastructure (100.0%), poor e-commerce security systems (91.7%) and lack of IT education and training (83.3%) are the most critical significant impediments of e-commerce adoption in Tanzania followed by poor e-readiness and socio-cultural beliefs (50.0%) and lack of IT experts (50.0%).

The implication of these findings is that urgent and serious measures should be taken by policy makers in order to curb these impediments by prioritizing the strategies following the intensity of the impediments.



The study recommends that, poor telecommunication infrastructure should be addressed first before solving other impediments since it is concerned with improvement of network systems, bandwidth and internet penetration to reach many users reliably for ease e-commerce adoption. Accordingly, poor e-commerce security systems should be addressed simultaneously with poor telecommunication infrastructure in order to build strong customer trust for early adopters. Reference[29] give similar recommendations; Tanzania Communications Regulatory Authority (TCRA) should ensure that the established standards are met and followed by operators. Accordingly, telecommunication operators are advised to improve network coverage and provide reliable and fair services to customers. Also, the study recommends to policy makers that a good number of IT experts should be trained so that lack of IT education and training and poor e-readiness and socio-cultural beliefs can be solved together by IT experts. Generally, we recommend that policy makers should view these impediments as interrelated obstacles of e-commerce adoption among SMEs in Tanzania which needs integrated effort and strategies when addressing them.

## REFERENCES

- Al-eryani, A., and Rashed, A. (2012). THE IMPACT OF THE CULTURE ON THE E-READINESS FOR E-GOVERNMENT IN DEVELOPING COUNTRIES (YEMEN). *The 13<sup>th</sup> International Arab Conference on Information Technology ACIT 2012 Dec. 10-13*.
- Apulu, I., and Ige, E. O. (2011). Are Nigeria SMEs Effectively Utilizing ICT?. *International Journal of Business and Management*, 6(6), 207-214.
- Aydemir, C.A. (2013). Survey Aimed at E-Commerce Applications in Firms Operating in Diyarbakir Organized Industrial Zone. *International Journal of Business and Social Science*, 4(1), 43-59.
- Bångens, L., and Söderberg, B. (2011). Mobile Money Transfers and usage among micro-and small businesses in Tanzania. *SPIDER, The Swedish Program for Information and Communication Technology in Developing Regions*.
- Budde.com (2013). Tanzania-Telecoms, Mobile, Broadband and Forecasts. Retrieved from <http://www.budde.com.au/Reseach-Telecoms-Mobile-Broadband-and-Forecasts.html>. (Accessed, 10 November 2014).
- Chuttur M.Y. (2009). "Overview of the Technology Acceptance Model: Origins, Developments and Future Directions," Indiana University, USA . *Sprouts: Working Papers on Information Systems*, 9(37).
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS quarterly*, 319-340.
- Ericsson ConsumerLab (2012). M-Commerce in Sub-Saharan Africa. Available at: [www.ericsson.com/.../2012/consumer\\_lab/m-commerce](http://www.ericsson.com/.../2012/consumer_lab/m-commerce). (Accessed, 3 November 2014).
- Financial Inclusion Tracker Surveys Project, FITSP (2013). Mobile Money in Tanzania Use, Barriers and Opportunities. InterMedia.
- Fishbein, M., and Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*.
- Fjeldstad, O. H., Kolstad, I. and Nygaard, K. (2006). *Bribes, taxes and regulations: Business constraints for micro enterprises in Tanzania*. Chr. Michelsen Institute.
- French, A.M. (2012). A Case Study on E-Banking Security-When Security Becomes Too Sophisticated for the User to Access Their Information. *Journal of Internet Banking and Commerce*, 17(2), 1-14.
- ITU (2013). Tanzania Internet Usage and Marketing Report. Available at: <http://www.internetworldstats.com/af/tz.htm>. (Accessed, 12 August 2014).
- Kabanda, S. (2013). E-commerce and Small and Medium Enterprises (SMEs) in Least Developed Countries: The Case of Tanzania. A thesis submitted in fulfillment of the requirements for the degree of Doctoral of Philosophy in Information Systems. University of Cape Town, South Africa.
- Kabanda, S. (2011). "E-Commerce Institutionalization is not for us": SMEs perception of E-Commerce in Tanzania. *The African Journal of Information Systems*, 3(1), 1.
- Kapurubandara, M. (2009). A framework to e-transform SMEs in developing countries. *The Electronic Journal of Information Systems in Developing Countries*, 39(3), 1-24.
- Kenneth, W., Rebecca, M. N., and Eunice, A. (2012). Factors affecting adoption of electronic commerce among small medium enterprises in Kenya: Survey of tour and travel firms in Nairobi. *International Journal of Business, Humanities and Technology*, 2(4), 76-91.
- Khan, A., and Woosley, J. M. (2011). Comparison of Contemporary Technology Acceptance Models and Evaluation of the Best



- Fit for Health Industry Organizations. *International Journal of Computer Science & Engineering Technology* 1(11), 709-717.
19. Kimambo, N.E. (2012). Challenges Facing Providers and Users of Mobile Commerce in Tanzania. A Case of Vodacom M-Pesa in Tanga City. Dissertation Submitted for the Award of Bachelor of Arts in Procurement and Supplies Management of Sokoine University of Agriculture, Morogoro, Tanzania.
  20. Kosasi, S., Harsono, A., and Kuway, S. M. (2014). HOW DELL, INC. ENHANCES ELECTRONIC SUPPLY CHAIN MANAGEMENT AND E-COMMERCE MARKETING FOR SUCCESS. *International Journal of Information Technology and Business Management*, 25(1), 12-21.
  21. Masamila, B. (2014). STATE OF MOBILE BANKING IN TANZANIA AND SECURITY ISSUES. *International Journal of Network Security and Its Applications*, 6(4), 53-64.
  22. Mashenene, R. G., and Rumanyika, J. (2014). Business Constraints and Potential Growth of Small and Medium Enterprises in Tanzania: A Review. *European Journal of Business and Management*, 6(32), 72-79.
  23. Mhede, E. P. (2012). *The growth of micro and small, cluster based furniture manufacturing firms and their implications for poverty reduction in Tanzania*. Research on Poverty Alleviation.
  24. Mkende, E. and Mashenene, R.G (2014). The State of Commercial Bank Transactions in Current Mobile Phone Banking Market: A Case of Dodoma. Unpublished Dissertation for the Award of Postgraduate Diploma in Business Administration of the College of Business Education Tanzania.
  25. Mlozi, S., Jing, F., and Sedoyeka, E. (2010, May). Technology Adoption in Tourism industry: A case of wireless technology (WiMAX) for Tanzania. In *E-Business and E-Government (ICEE), 2010 International Conference on* (pp. 376-379). IEEE.
  26. Mohammed, J.A., Almsafir, M.K. and Alnaser, A.S.M. (2013). The Factors That Affect E-commerce Adoption in Small and Medium Enterprises: A Review. *Australian Journal of Basic and Applied Sciences*, 7(10): 400-412, 2013.
  27. Motjoloane, I. M., and Warden, S. C. (2007). Electronic commerce adoption approaches by SMMEs: Western Cape, South Africa. In *Information Resource Management Association Conference*, 14-16 May, Vancouver, Canada.
  28. Mramba, N., Sutinen, E., Haule, M., and Msami, P. (2014). SURVEY OF MOBILE PHONE USAGE PATTERNS AMONG STREET VENDORS IN DAR ES SALAAM CITY-TANZANIA. *International Journal of Information Technology and Business Management*, 28(1), 1-10.
  29. Mtaho, A.B. and Ishengoma, F.R. (2014). Factors Affecting Quality of Services (QoS) in Tanzania Cellular Networks. [arxiv.org/ftp/arxiv/papers/1410/1410.0533.pdf]. Site visited on 16.11.2014.
  30. Mutambala, M. (2011). Sources and Constraints to Technological Innovation in Tanzania: A Case of the Wood Furniture Industry in Dar Es Salaam. Dissertation for the Award of MA (Development Studies) of the University of Dar Es Salaam, Tanzania.
  31. Ndyali, L. (2013). Adaptation and Barriers of E-commerce in Tanzania Small and Medium Enterprises. *Developing Country Studies*, 3(4), 100-105.
  32. Nicholaus, S.C. and Venkatakrishnan, V. (2013). Challenges of mobile-phone money transfer services' market penetration and expansion in Singida District, Tanzania. *IRACST-International Journal of Research in Management and Technology (IJRMT)*, 3(6), 205-215.
  33. Oreku, G. S., Li, J., Kimeli, K., and Mtenzi, F. J. (2010). State of Tanzania e-readiness and e-commerce: Overview. *Information Technology for Development*, 15(4), 302-311.
  34. Oreku, G. S., Mtenzi, F. J., and Ali, A. D. (2011, May). The Prospects and Barriers of E-Commerce Implementation in Tanzania. In *ICIT 5th International Conference on Information Technology, Amman, Jordan* (pp. 11-13).
  35. Petrović, D., I. Kovačević, 2012. Distrust as obstacle to e-commerce development in Serbia. *Management-časopis za teoriju i praksu menadžmenta*, 17(65): 71-77.
  36. Poorangi, M. M., Khin, E. W., Nikoonejad, S., and Kardevani, A. (2013). E-commerce adoption in Malaysian Small and Medium Enterprises Practitioner Firms: A revisit on Rogers' model. *Anais da Academia Brasileira de Ciências*, 85(4), 1593-1604.
  37. Säntti, R. M. (2011). Technology acceptance factors in e-commerce environment-Case DHL Express.
  38. Yazdanifard, R., Edres, N. A., and Sevedi, A. P. (2011). Security and Privacy Issues as a Potential Risk for Further E-commerce Development. In *International Conference on Information Communication and Management-IPCSIT* (Vol. 16).
  39. United Republic of Tanzania (2003). *Small and Medium Enterprise Development Policy, 2003*.