

E-Commerce Technology Usage in Business Processes in Tanzania: Is There a Significant Gap in Perceived Value and Perceived Risk?

¹Fatuma ABDALLAH NANTEMBELELE, ²Sagaran GOPAL

^{1, 2}Binary University of Management & Entrepreneurship,
Malaysia

ABSTRACT

In Tanzania e-commerce opportunities can be a meaningful approach for business firms to be able to compete with business enterprises with the lowest possible costs and international penetration. This study **aims** to analyze the application of e-commerce from the angle of value to risk analysis on business processes in Tanzania. The **methodology** employed in the form of survey, where questionnaire from a sample of 132 companies in Dar-es-salaam were collected. The study provides new **findings** on the relationship between perceived value and perceived risk. There is still a positive correlation between the two variables, however, the Gap between them is not significant. This study has highlighted the **practical importance** of business enterprises to encompass e-commerce technologies to look at the broader picture. Benefits like cost reduction and profit maximization, increased efficient and effectiveness of operation, market expansion are likely to be gained with wider e-commerce usage.

There are a couple of **limitations** to the study; Financial and time constraints, also, the research was only based in Tanzania using third party contacts.

Type of Paper: Exploratory

Keywords: E-commerce, Business Processes, Perceived Value Risk Gap, Tanzania.

I. INTRODUCTION

1.1 Introduction and Background of the Study

The phenomenon of e-commerce has roused great interest in the research sphere. E-commerce touches upon different aspects of economic activities. It concerns infrastructure access and services, trade policy and regulatory settings, taxation, standardization, security of transactions, consumer protection, and privacy. E-commerce has acted as an engine of global economic growth and international trade to increase economic efficiency in many nations. In the business world, e-commerce has possibly the most promising application for information technology in recent years as it has the potential to modernizing supply chain management for manufacturing, retail and service operation and the business processes in general. Hence, the application of e-commerce in business processes is vital for competitiveness and survival of businesses in the changed environment.

In African economy, e-commerce is gaining popularity fast as local consumers, most of whom are youths, prefer easy access information on products and services to traditional shopping practices. The online shops are open 24/7 and therefore potential buyers can browse and check at any time, appealing to current generation who may not have the necessary time to visit physical stores due to busy schedule. E-commerce is also a convenient way for brander to gain local and international exposure without the need for expansive promotion and stock keeping expenses. This will ensure business profit and sustainability for long run operations.

It has become imperative for business owners to adopt e-commerce technologies as it is aligned closely to business processes. Business firms involved in business processes can use e-commerce technologies in a variety of ways including selling products in different markets, fulfill orders, and deliver them simultaneously. Furthermore, the development of e-commerce technologies in relation to business processes have improved significantly and are viewed as a mainstream to improve productivity and information flow as well as communications.

In the Tanzanian context e-business activities has increased significantly, however, until now, only ad hoc researches have been conducted to pursue the direction e-commerce is heading. (Aydemir, 2013).

E-Commerce Phenomenon in Tanzania

Tanzania Communication Regulatory Authority -TCRA, (2014) conducted a survey recently, to provide an accurate breakdowns of urban and rural use of internet for e-commerce. The survey finding indicates Tanzania e-commerce usage is far below that of its immediate neighbors who are far below Tanzania in terms of economic growth. The adoption level of e-commerce technologies in business processes in Tanzania is a bit of a challenge as many sectors have not adopted e-commerce technologies. For instance, the percentage of adoption level of e-commerce by service and maintenance and security is 24% only in 2013(TCRA,2014).

Table 1.1: e-commerce adoption and non-adoption in Tanzania

Sector	Percentage of adoption of e-commerce by sector	Percentage of non- adoption of e-commerce by sector
Service and maintenance and electricity	24.0%	76.0%
Wood and its product	33.3%	66.6%
Electronic and electric industries	64.0%	34.4%
Paper product and printing	33.3%	66.6%
Electricity and power production	39.6%	60.4%

Source: TCRA, (2014)

In 2013, (Table 1.1), the rate of e-commerce adoption level was not more than 50% for many sectors, except for electronic and industries sectors at 64.0%. In addition, the level of e-commerce adoption does not prove that there is effective use and implementation of e-commerce in Tanzania. The data (Table 1.2) shows that online payment system in Tanzania has 0% in use while 100% is not in use (TCRA, 2014). Many sectors do not apply e-commerce technologies in their business processes. As from the sample of those few sectors it shows only 2 sectors use e-commerce technologies effective, which are electronic advertising and electronic marketing, while payment system does not use e-commerce at all and two sectors which are order and delivery and customer support service use e-commerce for less than 50%. On the other hand, the adoption of e-commerce can be determined by the reliable internet infrastructure cable, information communication technology and connectivity facilities such as computer and mobile devices which is currently not satisfactory (Table 1.2,1.3).

Table 1.2: Usage of e-commerce by sector in Tanzania

Sector	Percentage in use	Percentage not in use
Order and Delivery	42.1	57.8
Customer Support Service	26.3	73.8
Electronic Advertising	76.3	23.7
Electronic marketing	60.6	39.4
Payment system	0.0	100

Source: TCRA, (2014)

Table 1.3: Summary of ICT usage in Tanzania

Media	All Sample	Urban	Rural
Radio	85%	85%	84%
TV	27%	59%	14%
Computer	3%	8%	1%
Internet	4%	8%	2%
Mobile phone	62%	82%	54%

Source: TCRA, (2014)

The results of TCRA survey have further shown that the average distribution sales of new computers are 50% to government and 40% to the private companies and 10% to private households and small businesses while the survey from second hand dealers showed that hand IT equipment are mainly sold to private households and small businesses. Many factors could be responsible for the low usage of e-commerce among business processes in Tanzania such as technical barriers, legal and regulatory barriers; lack of internet is also a barrier that inhibits the implementation of e-commerce in Tanzania, poor physical and network infrastructures, inadequate human resources, absence of required rules, low level of computer literacy, widespread poverty. Efforts are needed to help and encourage business processes in Tanzania to speed up e-commerce adoption particularly the more advanced applications. As there are various factors hinder further utilization of these technologies in different parts of the world. This research will therefore identify those factors and level of e-commerce adoption.

Status of E-commerce in Tanzania

Tanzania ranks as a 107 country in 2016 in the global in B2B e-commerce, while the share of individuals using internet is 5% and share of individuals with credit card is only 1%. The secure internet servers per 1 million people are 35 and in 2014 world rank Tanzania position was 120, which shows improvements from 2014 to 2016. Among East African Region, Kenya is the leader in the use of internet followed by Uganda and then Tanzania, while Rwanda and Burundi follows respectively. In this case there are a lot that are needed to be done in Tanzania so as the use of internet can increase like other African countries including South Africa, Mauritius, Morocco, Nigeria, Kenya, Uganda and others so as the adoption of e-commerce technologies can as well increase (Table 1.4).

Table 1.4: B to B E-commerce Index for some African countries, 2016

2016 Rank	Economy	Share of individuals using internet (2014 or latest)	Share of individuals with credit card (15+, 2014 or latest)	Secure Internet Servers per 1 million people (normalized, 2014)	UPU postal reliability score (2013-2014)	UNCTAD B2B e-commerce index value 2015	2014 rank
61	South Africa	49	13	72	67	50.3	67
70	Mauritius	41	17	74	51	45.9	54
79	Morocco	57	4	45	60	41.5	75
82	Egypt	32	2	52	81	39.9	68
85	Botswana	19	10	49	74	38.9	109
86	Kenya	43	5	49	54	37.9	112
91	Senegal	18	1	42	73	33.4	110
95	Algeria	18	6	37	68	32.3	N/A
99	Ghana	19	1	42	60	30.5	108
100	Nigeria	43	3	38	38	30.4	100
101	Mongolia	27	1	60	31	29.8	102
102	Uganda	18	2	35	64	29.7	114
103	Zimbabwe	20	2	44	49	28.7	96
107	Tanzania	5	1	35	65	26.5	120
110	Zambia	17	2	42	30	22.8	92
112	Ethiopia	3	0	19	63	21.2	N/A
113	Angola	21	4	44	15	21.1	104
117	Rwanda	11	1	43	25	19.9	113
135	Burundi	1	0	26	15	10.6	124

Source: UNCTAD, 2016

In Tanzania the predicted value of online buyers on internet users in percentage were 7.7% while the actual value was 15% which had an absolute difference of 7.3 and relative difference of 95%, low income nations from South Asia and East Africa are, however, doing much better than expected are such as Bangladesh, India, Kenya and Tanzania.

Table 1.5: Top 10 economies by online buyers as a share on internet users (%)

Economy	Predicted Value	Actual Value	Absolute Differences	Relative Differences
Bangladesh	7	23	16	228%
China	19.8	55.7	35.9	182%
India	10.1	22	11.9	118%
Tanzania	7.7	15	7.3	95%
Jordan	13.9	27	13.1	94%
Ukraine	24.9	44	19.1	77%
Vietnam	15.1	26	10.9	72%
Malta	38.7	63	24.3	63%
Denmark	57.8	81	23.2	40%
Slovak Republic	41.4	58	16.6	40%

Source: UNCTAD, 2016

Table 1.6: Internet users, penetration rates and population in Tanzania (2010-2016)

Year	Internet Users**	Penetration (% of pop)	Total population	Non-Users (Internetless)	1 Y User Change	1 Y User Change	Population Change
2016*	2,895,662	5.3%	55,155,473	52,259,811	5.6%	153,394	3.15%
2015*	2,74,269	5.1%	53,470,420	50,728,151	8.9%	223,689	3.18%
2014	2,518,579	4.9%	51,822,621	49,304,042	14%	309,187	3.2%
2013	2,209,392	4.4%	50,213,457	48,004,065	15%	287,887	3.22%
2012	1,921,506	4%	48,645,709	46,724,203	27.4%	413,570	3.23%
2011	1,507,936	3.2%	47,122,998	45,615,062	13.9%	184,129	3.23%
2010	1,323,807	2.9%	45,648,525	44,324,718	24.7%	262,477	3.23%

* Estimate for July 1, 2016, **Internet User = individual who can access the Internet at home, via any device type and connection

Source: Internet Live Stats (www.InternetLiveStats.com)

The share of Tanzania Population penetration was 5.3% while the total population was 55,155,473. This shows a big difference when comparing to year 2010, whereby the rate of internet penetration was 2.9% and number of internet users were 1,323,807 with a population of 45,648,525. Furthermore, the Tanzania Communications Regulatory Authority (TCRA) recently published its Quarterly Statistics Report for Q4 2015, showing that subscriptions to mobile networks reached 39,665,600, 24.4% more than the 31,862,656 subscriptions registered at the end of December 2014 (Tanzania Invest.com, 2017). The estimated number of internet users was 17,263,523, with an internet penetration of 34%, and mobile wireless internet accesses accounted for 94.3%, with 16,280,943 subscribers. (Tanzaniainvest.com, 2017).

Tanzania is ranked at 107th in the world in B2B e-commerce, while the share of individuals using internet is 5% and share of individuals with credit card is only 1%. The secured internet servers per 1 million people is 35 in 2014 (World Bank, 2017) and secure servers using encryption technology in Internet transactions is mere 2.04 per million in 2015 (Figure 1).

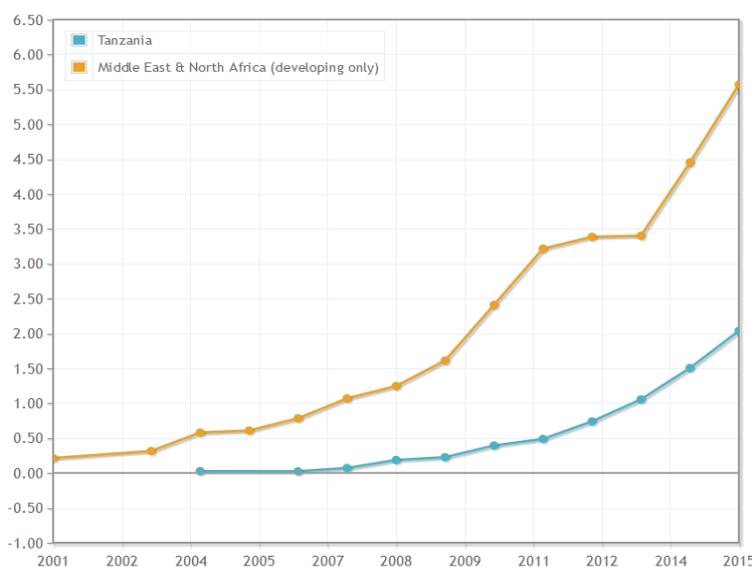


Figure 1.1: Number of secured servers in Tanzania compared with Middle East and North Africa
Data source: World Bank, World Development Indicators

Tanzania will have low competitive advantage, even among developing countries which are far behind Tanzania. The adoption of e-commerce technologies has always been met with fear and uncertainty in Tanzania and most business owners prefer to stuck on old practices, and shuns new solutions centered on e-commerce (TCRA, 2014). Neither the government has placed much needed emphasis in promoting e-commerce absorption among businesses. The current drivers of e-commerce are the private practitioners. However, the private practitioners are very slow in adopting e-commerce for a variety of reasons (Ali-Alawi and Al-Ali, 2015) which hinder adoption of e-commerce.

Hence, this study aims to study whether the business users are still pondering the benefits to risk in investing in e-commerce technologies in Tanzanian. The significance of this findings will likely help business community and policy makers to be directional in their effort.

Research Objective

To investigate the significance of the gap between Perceived Values and Perceived Risks of E-commerce Technologies Adoption in Tanzania

Significance of the Study

E-commerce technologies usage is a recent phenomenon in Tanzania. Therefore, not so many researches are focused in all aspects of this phenomenon here (Kshetri, 2008; Machu, 2013; Ndyali, 2013) and therefore, this study will be adding on to the existing literature on e-commerce technologies from the angle of value to risk analysis.

Scope of the Study

The study mainly focuses on e-commerce technologies gap in risk and benefit as the reason in slow absorption of technologies in business processes in Tanzania. The selection of respondents will be restricted to people who have idea and understanding on IT/ICT issues, as they will be in a better position to understand current e-commerce technologies on the business processes. Additionally, the study will not encompass all forms of e-commerce technologies, all business models, or all business processes. In addition, the study will not compare the level of e-commerce technologies adoption in Tanzania with other developing countries like Kenya, Uganda.

Assumptions of the Study

A number of assumptions in this study are considered as the topic is too wide and not everything can be discussed in this study. The following assumptions are taken into consideration

- Only three models of e-commerce are discussed that is Business to Business (B2B), Business to Consumer (B2C) and Consumer to Business (C2B)

- Only four e-commerce technologies are discussed which are mobile computing, electronic money, credit cards and electronic fund transfer

- Only four business processes are discussed, which are order fulfillment/generation, online selling and buying, direct marketing and information purposes. That is input and output processes are involved while operations processes are excluded.

II. LITERATURE REVIEW

Scholars generally define e-commerce as transactions where the exchanging of goods and services through internet and other digital media (Chaffey et al, 2002; Shen et al, 2002; Samiee, 2008; OECD, 2016; WTO, 2016). It involves ordering goods or services electronically, by which the payment and the delivery of the goods or services is conducted online. However, due to e-commerce's virtual young life and its complexity, this view is not accepted across board.

The common denomination, however, is that e-commerce composes some business processes, like receiving, placing of orders, doing payments and then delivering of products (WTO, 2016) and are part of business processes. Nevertheless, it should be noted that not all business processes are carried out through e-commerce process (Kalakota and Whinston, 1996). It also involves an action of trust between buyers and sellers in accepting different types of digital payments technologies.

The adoption of innovation is related to performance of business enterprises (Damanpour, 1991) and numerous studies attempted to identify factors related to the appropriate adoption and performance of e-commerce. Aghaunor and Fotoh, (2006) in their studies inferred e-commerce adoption is influence by top management support, organization support, IT capability, perceived benefits, perceived compatibility, perceived complexity, supporting industries, market and government readiness. Adenwala, (2014) expanded on this to include perceived relative advantage, perceived compatibility, manager's/owner's knowledge and expertise, management characteristics and external change agents influencing adoption. Rahayua and Daya, (2015) broaden the scope to eleven variables but grouped them into technological factors, organizational factors, environmental factors and individual factors and within the main factors identified perceived benefits, technological readiness, owners' innovativeness, owners' IT ability and owner's IT experience as sub factors.

Al-Alawi and Al-Ali, (2015) view e-commerce adoption through model of organization, technological, environmental, and characteristic of the business environment, use of ICT, and Web applications and Kumar et al. (2015) included customer-based open systems, EDI, enterprise systems, e-business. Shemi, (2013) emphasized the importance of managerial characteristics, perception of e-commerce, managerial characteristics, and perception of e-commerce adoption as important influence, agreeing on some factors identified by Adenwala, (2014). Others, like Nguyen and Drew (2010) view skilled ICT personnel, availability of speed internet, the cost of setting-up and maintaining internet

applications, access to payment facilities as important consideration. Alghamdi (2012), asserted that organizational culture, supplier and customer preferences, security concerns, local business environment, government role as customer, the global economic recession, relative strength as influencing and Shah, Ali and Jani (2011) discussed relative advantages of factors in terms of compatibility, organizational readiness, manager's characteristics, and security in their studies.

Most of the obstructive factors are found in developing countries, Lawrence and Tar (2010) and Shemi (2013) identified them as organization's based or external barriers, whereas Lawrence and Tar (2010) included the individual level into the grouping. Some of this grouping are ubiquitous in researches; issue of understand (Farhoomand *et al.* (2000)), government policies on IT and financial sectors Richard, (2008), qualified staff Awa *et al.* (2015) awareness of privacy and security Kabanda, (2013) and Orekuet *al.* (2011). Others like Senarathna and Wickramasuriya, (2011) did cross group analysis and revealed that organizational culture is positively correlated to adhocracy cultural characteristics among the SMEs influencing e-commerce adoption.

Although, a multitude of factors have been studied, they primarily fall into environment, technology and finance, and the interplay between them that decides usage. As for technologies, acceptance depends on availability and how such technologies complement with technologies currently in use (Scupola, 2009). These perceived relative advantage are important consideration affecting e-Commerce adoption and such advantages can have a direct or indirect influence on Business processes (Mehrtens *et al.*, 2001). Perceived benefits are the benefits offered by e-Commerce in comparison to the traditional approach (Cosgun and Dogerlioglu, 2012). Ratnasingam (2002) views perceived benefits as the gains or improvements from existing methods of operating business with e-Commerce applications and include profits and establishing positive trading partner relationships. This view is shared by Sparling *et al.* (2007) who describes perceived benefits as the most commonly used innovation characteristics in adoption research. Such benefits include customer service, inventory control and lower marketing and distribution costs, reduce both cycle time and operating costs (Alamro and Tarawneh, 2011).

Perceived risk include complexity in using; a degree of difficulty to understanding and use of innovation (Beatty *et al.* (2001) and Bagale (2014)). Adoption is faster and smoother if the technology is simpler, easily learnt and used (Rogers, 1995) but if specific training or other special skills are required then it inhibits usage (Chwelos *et al.*, 2001), significantly affecting adoption decision (Akbulut, 2002). Complexity is seen as perceived risk in e-Commerce usage (Wang *et al.*, 2010).

Environment includes both external and internal; internal in the specific context and the external environmental refers to market conditions, government laws and regulations (Sparling *et al.*, 2007), especially the role of government in fostering e commerce adoption (Wang and Hou, 2012). Bagale (2014) opines government policies, direct and indirect, stimulates the supply of information for fast dissemination of technology. Government e-readiness is an important consideration for organizations' assessment to facilitate e-Commerce usage internally (Molla and Licker, 2005) and positively (Kamal, 2006, Bagale, 2014). Such finding is observed in SME studies in Malaysia (Shaharudin *et al.*, 2012).

Internal environment on owner's characteristics such as lack of perceived benefits, lack of knowledge and skill, perceived lack of trust are understood as perceived risk (Looi, 2005). Top management support is an important consideration in company's readiness to commit e-commerce across all levels of organization (Chong *et al.*, 2009) and such support is seen crucial for developing a successful system (Al-Alawi, 2006b) indicating positive effect of leadership support (Aghaunor and Fotoh, 2006) and leads to good performance (Epstein, 2004). Management support comes from organizational competence. Edgar and Lockwood (2008) refers to organizational competence as integration of technology and skills and Molla and Licker (2005) refers to it as the availability of staff with sufficient experience and exposure to information and communications technology and other skills. The management must have competence; the level of understanding to use IT to meet organizational objectives (Clarke, 2001).

Availability of Financial resource is central in bringing environment and technology together. High investment requirements in hardware, software and employee training is influenced by financial feasibility of an organisation (Bagale (2014); Nelson and Shaw (2003)). According to Zerenler and Sahin (2013) and Shaharudin *et al.* (2012) benefits gained should outweigh the cost for its investment in their studies on SMEs with the rate of absorption depending on gains (Nelson and Shaw, 2003).

The literatures are concentrated along the line of identifying issues, factors, barriers and environment, there are also discussion on gains and risk of adoption, however, the gap analysis and its significant in the Tanzanian context is absent among these findings. Hence, the researchers aim to fill that gap.

III. METHODOLOGY

The study uses the generally accepted Technology Acceptance Model (TAM) (Davis, 1989) as a framework for answering the research question. Although, TAM is used to facilitate the prediction of IT acceptance henceforth-altering engineering processes before systems are mass marketed to consumers, but is still a relevant frame to analyze absorption of IT usage across current usage after mass marketing. User acceptance in TAM focuses on *perceived usefulness (PU)* and *perceived ease of use (PEU)*. It provides basis for the study of impacts of external variables on adoption decisions. TAM proposes perceived usefulness (PU) and perceived ease of use (PEU) as the principle determinants of IT adoption (Awa et al., 2015). Although TAM has received empirical validation, application and replication (Gounaris and Koritos, 2008), the model provides less meaningful information on user’s opinions about adopting specific systems by narrowing its constructs to only PU and PEOU (Gounaris and Koritos, 2008). Hence, the need to expand the factors or integrate with other IT acceptance models to improve TAM’s explanatory and predictive utilities (Awa et al., 2015).

Hence, the study uses the view that the adoption of e-commerce technologies depends on awareness and experience (Chosin and Ghaffari, 2017), skills and training (URT, 2012), internet penetration (TCRA, 2014), computer literacy level and budget constraints (Oreku et al, 2013) and risk factors (authors’ comments) as the variables for the study.

Therefore, the factors of interest include Budget Constraints, Internet Penetration, Computer literacy, Skills and Training that influences adoption. This adoption is mediated with perceived value and perceived risk for gap analysis. The Positivist Philosophy with the use of Quantitative tools is ideal for this type of research that takes questionnaire survey as central to data collection.

Population and sample size

This study gathered primary data (survey questionnaire) from registered companies’.

Population of Interest	Registered Companies in Tanzania		
Target Population	Registered Companies involved with IT/E-commerce(About 1000 companies)		
Accessible Population	Registered Companies involved with IT/E-commerce in Dare-es-salaam (200 companies)		
Population Location	Kinondoni, Ilala and Temeke		
Source	BRELA- Business Registration and Licensing Agency		
District (Cluster)	Population	% Population	Sample Size
Temeke	46	23%	23
Kinondoni	100	50%	50
Ilala	54	27%	27
Total	200	100%	100
Note; Sample size technique: Systematic random sampling and cluster sampling			
Random number used	200/100 = 2		

Table 3.1: Asummary of the population and sampling used

The list of these companies was obtained from Business Registration and Licensing Agency (BRELA). Primary data offered originality; relevance, high degree accuracy, and reliability.

IV. DATA ANALYSIS AND DISCUSSION

Perceived Values and Risks Analysis on E-commerce Technologies

This section provides information of respondent’s knowledge on values and risks of e-commerce technologies adoption on business processes in Tanzania.

The number of Questions used to induce responses are as indicated below: -

Construct	
Impact	Single question used in a 5 point forward Likert scale
Perceived values	6 questions used in a 5 point forward Likert scale
Perceived risks	6 questions used in a 5 point forward Likert scale

Validity of the questions on constructs Values and Risks were undertaken using Cronbach alpha, and found to be within range of acceptance. The data is found to be Normally distributed using the Shapiro-Wilks Test.

The mean for each question in a construct was calculated (response induced through a 5 point Likert scale) and was repeated for all questions in a construct, and were averaged for each construct, this was repeated for the other constructs as well. The central limit theorem allows such analysis as the data now are in the form of interval (use of mean) and parametric test are relevant. The results are shown in Table 4.1.

a. Analysis by descriptive statistics

Table 4. 1: Summary Statistics-Perceived values and risk

	Mean	Std. Deviation
Perceived values	2.2800	1.04765
Perceived risks	2.3250	1.47089

Table 4.1 shows the descriptive statistics for perceived values and risks whereby, the mean for perceived values is 2.2800, which imply that the average respondents agreed that perceived values impacts e-commerce adoption on business processes. The mean 2.3250 for perceived risks also implies that the respondents agreed that perceived risk impacts e-commerce adoption on business processes.

b. Analysis by correlation

Relationship between impact on business processes, perceived values and risks of e-commerce

Table 4.2: Correlation between impact on business processes, perceived values and risks

			Impacts	Perceived values	Perceived risks
Spearman's rho	Impacts	Correlation Coefficient	1	.967**	.914**
		Sig. (2-tailed)	.	0	0
	Perceived values	Correlation Coefficient	.967**	1	0.794
		Sig. (2-tailed)	0	.	0
	Perceived risks	Correlation Coefficient	.914**	.794**	1
		Sig. (2-tailed)	0	0	.

(**Correlation is significant at the 0.01 level at 2-tailed where $t = r / \sqrt{(1-r^2 / n-2)}$; r = the sample correlation coefficients, n = the number of ordered pairs)

Table 4.2 shows the Spearman correlation between impact on business processes, perceived values, and perceived risks of e-commerce. Whereby, the result shows that the correlation between impact on business processes and perceived values of e-commerce is 0.967 while the correlation between impact on business processes and perceived risks is 0.914 and the correlation between perceived values and perceived risks is 0.794.

The results reveals: -

- i. that there is a very strong positive correlation between impact on business processes and perceived values and perceived risks,
- ii. there is a strong positive correlation between perceived values and perceived risks. The findings reveal that impact on business processes increases as perceived values and risks increases

c. Analysis by paired samples (correlated groups) t-test on Perceived Value and Perceived Risk

Table 4.3: Paired samples t-test-on perceived values and perceived risks

		Paired differences					t	df	Sig. (2-tailed)
		Mean	Standard deviation	Standard error	95% Confidence Interval of the Difference				
					lower	Upper			
Pair	Perceived values- Perceived risk	.01500	.30484	.03048	-.04549	.07549	.492	99	.624

As the p-value of 0.624 more than 0.05, perceived risks is not significantly related to perceived values.

The result reveals: -

i. that there is a no significant difference between perceived values and perceived risks, it implies that the gap between value perceived and risk perceived are insignificant.

V. SUMMARY OF MAIN FINDINGS AND CONCLUSION

The findings reveal the relationship between perceived value and perceived risk. There is still a positive correlation between the two variables, however, the differences between them is not significant. It implies that there is still a gap between Perceived Values and Perceived Risks of E-commerce Technologies Adoption in Tanzania, however, the gap is not significant. It implies that as the perceived benefits increases so is the perceived risk to the business community. The business users are still pondering the benefits and risk of e-commerce technologies in business processes in Tanzanian. Although, the gap may not be significant, to remain competitive, Tanzania need to do more to repeal the negative impression on e-commerce usage for better absorption.

Some recommendation for practitioners of e-business process to help their companies reap the benefits of modern technological business platform and reduce perceived risk: -

- The need to understand that the environment of trade has changed, understand the change and be better prepared for it.
- Businesses in Tanzania need to understand and use the Internet to manage every business process competitively and confidently.
- Need to move away from general awareness towards specific support and develop trade activities using e-commerce platform.
- That need to understand that some restrictions are self-made by the organization themselves; can be overcome by the organization themselves through better training and coaching.
- Government policy can play an important role to lower the perceived risk and the need to investment in ICT infrastructure.
- A comprehensive partnership and innovative approaches from government, trade and investment support institutions, and enterprises themselves is required to help expand e- business processes to help raise Tanzania competition position.

REFERENCES

- 1) Akbulut, A., (2002). An investigation of the factors that influence electronic information sharing between state and local agencies. Proceedings of 8th Americas Conference on Information Systems, December 12, 2002, Dallas, Texas, USA.
- 2) Al-Alawi, A.I., (2006). Investigating the strategies for successful development of health information systems: A comparison study. *Information. Technology Journal.*
- 3) Al-Alawi, A.I., (2006). WiFi technology: Future market challenges and opportunities. *Journal Computer Science.*, 2.
- 4) Al-Alawi, A. & Al-Ali, F. (2015). Factors affecting e-commerce adoption in SMEs in the GCC: An empirical study of Kuwait. *Research Journal of Information Technology*, 7(1), 1-21.
- 5) Alamro, S. and S.A. Tarawneh, (2011). Factors affecting E-commerce adoption in Jordanian SMEs. *Eur. J. Sci. Res.*, 64.
- 6) Abid, A., Rahim, M., Sheepers, H. (2011). Experienced benefits and barriers of e-business technology adoption by SME suppliers. Retrieved August 15, 2017, from <http://www.ibimapublishing.com/journals/CIBIMA/cibima.html>.
- 7) Aghaunor, L., &Fotoh, X. (2006). Factors affecting ecommerce adoption in Nigerian banks. Allen Institute for Artificial Intelligence. Retrieved July 15, 2017, from <https://pdfs.semanticscholar.org/4bf5/8464e96f6c72d56b8ca4d7edf3488ae60544.pdf>.
- 8) AlGhamdi, R., Nguyen, J., Nguyen, A., & Drew, S. (2012). Factors influencing e-commerce adoption by retailers in Saudi Arabia: A quantitative analysis. *International Journal of Electronic Commerce Studies*, 3(1), 83.
- 9) Alkhalaf, S., Nguyen, A., & Drew, S. (2010). Assessing eLearning systems in the Kingdom of Saudi Arabia's Higher Education Sector. 2010 International Conference on Intelligent Network and Computing.
- 10) Awa, H.O., Ojiabo, O.U., &Emecheta, B.C. (2015). Integrating TAM, TPB and TOE frameworks and expanding their characteristic constructs for e-commerce adoption by SMEs. *Journal of Science & Technology Policy Management*, 6(1), 76-94.
- 11) Bagale, G.S., (2014). Determinants of E-commerce in Indian MSME sector: A conceptual research model based on TOE framework. *Universal Journal Management.*, 2
- 12) Beatty, R.C., J.P. Shim and M.C. Jones, (2001). Factors influencing corporate Web site adoption: A time-based assessment. *Journal of Information Management.*, 38.
- 13) Chaffey, D. (2002). *E-business and e-commerce management: Strategy, implementation and practice*. Harlow, UK: Financial Times Prentice Hall.
- 14) Choshin, M., &Ghaffari, A. (2017). An investigation of the impact of effective factors on the success of e-commerce in small-and medium-sized companies. *Computers in Human Behavior*, 66, 67-74.
- 15) Chong, A.Y.L., K.B. Ooi, B. Lin and M. Raman, (2009). Factors affecting the adoption level of c-commerce: An empirical study. *Journal of Computer Information Systems*, 50
- 16) Chong, S., G. Pervan and C. Bauer, (2001). Implementation success of internet-based electronic commerce for small- and medium-sized enterprises in Australia. Proceedings of the 14th International Bled Electronic Commerce Conference, June 25-26, 2001, Bled, Slovenia
- 17) Chwelos, P., I. Benbasat and A.S. Dexter, (2001). Research report: Empirical test of an EDI adoption model. *Information System Research.*, 12
- 18) Clarke, G., (2001). Bridging the digital divide: How enterprise ownership and foreign competition affect internet access in Eastern Europe and Central Asia. Policy Research Working No. 2629
- 19) Cosgun, V. and O. Dogerlioglu, (2012). Critical success factors affecting e-commerce activities of small and medium enterprises. *Information Technology Journal.*, 11
- 20) Davis, F.D. (1993). User acceptance of information technology: system characteristics, user perceptions and behavioral impacts. *International Journal of Man-Machine Studies*, 38(3), 475-487.
- 21) Edgar, W.B. and C.A. Lockwood, (2008). Organizational competencies: Clarifying the construct. *Journal of Business Inquiry*, 7
- 22) Epstein, M.J., (2004). *Implementing E-Commerce Strategies: A Guide to Corporate Success after the Dot.com Bust*. Prager Publishers, Wester port, New Zealand
- 23) Farhoomand, A.F., Tuunainen, V.K., & Yee, L.W. (2000). Barriers to global electronic commerce: A cross-country study of Hong Kong and Finland. *Journal of Organizational Computing and Electronic Commerce*, 10(1), 23-48.
- 24) Gounaris, S., &Koritos, C. (2008). Investigating the drivers of Internet banking adoption decision: A comparison of three alternative frameworks. *International Journal of Bank Marketing*, 26(5), 282-304.

- 25) Internet World Stats. (2017). Retrieved August 15, 2017. <http://www.internetworldstats.com/stats1.htm>.
- 26) Kabanda, S. (2013). E-commerce and small and medium enterprises (SMEs) in least developed countries: The Case of Tanzania. Doctoral thesis, University of Cape Town, South Africa.
- 27) Kabanda, S., & Brown, I. (2016). Factors that affect e-commerce adoption in Tanzanian SMEs. In *International Conference on Information Management and Evaluation* (p. 153). Academic Conferences International Limited.
- 28) Kabanda, S., & Brown, I. (2017). Interrogating the effect of environmental factors on e-commerce institutionalization in Tanzania: A test and validation of small and medium enterprise claims. *Information Technology for Development*, 23(1), 59-85.
- 29) Kalakota, R., & Whinston, A.B. (1996). *Frontiers of electronic commerce*, Reading, MA: Addison-Wesley.
- 30) Kumar, V., & Raheja, E.G. (2013). Business to business (b2b) and business to consumer (b2c) management. *International Journal of Computers and Technology*, 3(3), 447-551.
- 31) Kamal, M.M., (2006). IT innovation adoption in the government sector: Identifying the critical success factors. *Journal Enterprise Information. Management.*, 19
- 32) Looi, H.C., (2005). A model of factors influencing electronic commerce adoption among small and medium enterprises in Brunei Darussalam. *International Journal InformationTechnology.*, 10
- 33) Lawrence, J.E., & Tar, U.A. (2010). Barriers to e-commerce in developing countries. *Information, society and justice journal*, 3(1), 23-35. Retrieved June 8, 2017, from <http://www.tanzaniainvest.com/economy/draft-budget-2017-18-june>.
- 34) Ministry of Finance and Planning. (2017). Budget information. Retrieved August 18, 2017, from <http://www.mof.go.tz/index.php/budget>.
- 35) Mehrtens, J., P.B. Cragg and A.M. Mills, (2001). A model of Internet adoption by SMEs. *Information Management Journal.*, 39
- 36) Molla, A. and P.S. Licker, (2005). E Commerce adoption in developing countries: A model and instrument. *Information Management Journal.*, 42
- 37) Nelson, M.L. and M.J. Shaw, (2003). The adoption and diffusion of interorganizational system standards and process innovations. Proceedings of the Workshop on Standard Making: A Critical Research Frontier for Information Systems, December 12-14, 2003, Seattle, WA
- 38) Oreku, G.S., Mtenzi, F.J., & Ali, A.D. (2011). The prospects and barriers of e-commerce implementation in Tanzania. In *ICIT 5th International Conference on Information Technology, Amman, Jordan* (pp. 11-13).
- 39) Oreku, G.S., Mtenzi, F.J., & Ali, A.D. (2013). A viewpoint of Tanzania e-commerce and implementation barriers. *Computer Science and Information Systems*, 10(1), 263-281.
- 40) Organisation for Economic Co-operation and Development. (2016). E-commerce definition, 2016. Retrieved February 10, 2017, from <https://stats.oecd.org/glossary/detail.asp?ID=4721>.
- 41) Paul, A.S., Wan, E.A., Adenwala, F., Schafermeyer, E., Preiser, N., Kaye, J. and Jacobs, P.G. (2014). MobileRF: A robust device-free tracking system based on a hybrid neural network HMM classifier. In *Proceedings of the 2014 ACM International Joint Conference on Pervasive and Ubiquitous Computing* (pp. 159-170). New York: Association for Computing Machinery.
- 42) Pilot, S. (2011). IT revolution will complete with computer literacy. *The Economic Times*, August 20, 26-30.
- 43) Rahayu, R., & Day, J. (2015). Determinant factors of e-commerce adoption by SMEs in developing country: evidence from Indonesia. *Procedia-Social and Behavioral Sciences*, 195, 142-150.
- 44) Ratnasingam, P., (2002). Perceived versus realized benefits in e-commerce adoption. *Malaysian Journal Library Information Science.*, 7
- 45) Rogers, E.M., (1995). *Diffusion of Innovations*. 4th Edition, Free Press, New York, USA.
- 46) Scupola, A., (2009). SMEs' e-commerce adoption: Perspectives from Denmark and Australia. *Journal Enterprise Information Management*,
- 47) Shaharudin, M.R., M.W. Omar, S.J. Elias, M. Ismail, S.M. Ali and M.I. Fadzil, (2012). Determinants of electronic commerce adoption in Malaysian SMEs' furniture industry. *African Journal Business Management.*, 6
- 48) Sparling, L., M. Toleman and A. Cater-Steel, (2007). SME adoption of E-commerce in the central Okanagan region of Canada. Proceedings of the 18th Australasian Conference on Information Systems, December 5-7, 2007

- 49) Sajuyigbe, A.S. (2012). Adoption of e-commerce to business operations: A key to achieving Nigeria Vision 20: 2020. A paper presented at 2012 National Conference on Nigeria's Transformation and the Vision 20: 2020 Policy of the Federal Government. Organized by faculty of Business and Communication Studies, The Polytechnic, Ibadan, Nigeria.
- 50) Samiee, S. (2008). Global marketing effectiveness via alliances and electronic commerce in business-to-business markets. *Industrial Marketing Management*, 37(1), 3-8.
- 51) Seethamraju, R. (2006). Impact of e-commerce on business process redesign and integration. *International Journal of Electronic Business*, 4(5), 380-400.
- 52) Senarathna, R.P.I.R., & Wickramasuriya, H.V.A. (2011). Organizational factors affecting e-commerce adoption in small and medium-sized enterprises. *Tropical Agricultural Research*, 22(2).
- 53) Shah Alam, S., Ali, M.Y. & Jani, M.F. M. (2011). An empirical study of factors affecting electronic commerce adoption among SMEs in Malaysia. *Journal of Business Economics and Management*, 12(2), 375-399.
- 54) Shemi, A.P. (2013). *Factors affecting e-commerce adoption in small and medium enterprises: An interpretive study of Botswana*. Doctoral dissertation, University of Salford.
- 55) Siau, K., & Shen, Z. (2002). Mobile commerce applications in supply chain management. *Journal of Internet Commerce*, 1(3), 3-14.
- 56) Tanzania Communications Regulatory Authority. (2014). Report on Internet and data services in Tanzania: A supply-side survey., <https://www.tcra.go.tz/images/documents/reports/InternetDataSurveyScd.pdf>. Retrieved July 15, 2017
- 57) United Nations Conference on Trade and Development. (2016). B2C e-commerce index 2016. Retrieved January 18, 2017, from http://unctad.org/en/PublicationsLibrary/tn_unctad_ict4d07_en.pdf.
- 58) United Republic of Tanzania. (2012). Census 2012. Retrieved March 25, 2017, from http://nbs.go.tz/nbs/takwimu/census2012/Basic_Demographic_and_SocioEconomic_Profile_PopularVersion-KeyFindings_2012_PHC_EnglishVersion.pdf.
- 59) Watson, R. T. (2009). *Electronic Commerce: The Strategic Perspective*. Gainesville, FL: Orange Grove Texts.
- 60) World Trade Organization. (2016). E-commerce definition. Retrieved February 10 2017, from https://www.wto.org/english/tratop_e/ecom_e/ecom_e.htm.
- 61) World Bank. (2017). World development indicators, 2017. Retrieved August 15, 2017, from <https://data.worldbank.org/indicator/IT.NET.SECR.P6>.
- 62) Wang, H. and J. Hou, (2012). Factors Affecting Business-to-Business E-Commerce Adoption and Implementation in Small- and Medium-Sized Enterprises. In: *International Conference in Electrics, Communication and Automatic Control Proceedings*, Chen, R. (Ed.). Springer, New York, USA
- 63) Wang, Y.W., Y.S. Wang and Y.F. Yang, (2010). Understanding the determinants of RFID adoption in the manufacturing industry. *Technol. Forecast. Social Change*, 77
- 64) Zerenler, M. and E. Sahin, (2013). The impact on electronic commerce activities of SMEs: A study of the Turkish automotive supplier industry. *Academic Journal of Interdisciplinary Study*.