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Factors Affecting E-Commerce Adoption in Tanzania

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Abstract
Internet technology has been the fast growing technology in the world since its introduction in early 1990's. E-commerce is one of the most important internet tools for commercial/business world. This technology diffuses geographical boundaries and makes a world as one region in business terms. Acceptance of this technology has never been the same for all countries, there are countries which adopt it earlier and other countries such as The United Republic of Tanzania who are still in adoption stage.

This study is focusing on the factors influencing E-commerce adoption in Tanzania. Beside this it also examines factors that hinder E-commerce adoption in Tanzania. Primary data was collected by the use of questionnaire and different classes of respondents filled the questionnaires. Later, the given data were analysed by the use of SPSS software.

The results show that E-commerce in Tanzania is small and still at a growing stage and as well adoption is still slow compared to the developed countries such as UK. Tanzanians still prefer to do physical/traditional business because they lack knowledge and they also don't trust E-commerce and online business/transactions. Lastly the study recommends for the Government and other important players to increase effort in promoting and improving adoption of e-commerce. Respondents suggested different measures to be taken including having Government support and ICT policies, improve ICT infrastructure and proper systems security.

Keywords: E-commerce, Adoption, Information and Communication Technology, consumer

Introduction

E-commerce stands for Electronic Commerce, it is the selling and buying of products and services over the electronic devices such as internet and other computer networks through which all transactions and terms of sale are performed electronically. As opposed to traditional commerce which uses physical stores for transactions, E-commerce uses electronic media such as internet for its transactions regardless of the size of the transaction. Now nearly all products can be bought online, from tiny to a large and expensive one. E-commerce usage is growing at almost the same pace of internet usage growth. E-commerce has a big number of applications including content management, online payment systems, online shopping and online banking.

E-commerce is not a new discipline in the business world, it has been there for more than 20 years now and it keeps on flourishing in every business day. According to Nemat (2011) E-commerce have been categorized into four major types/categories that are Business-to-Consumer (B2C), Business-to-Business (B2B), Consumer-to-Business (C2B) and Consumer-to-Consumer (C2C). Due to increase in E-commerce demand -even government institutions have found themselves being involved in E-commerce in one way or another- there are some hybrid types of E-commerce that are emerging and gaining popularity; such as Business-to-Government (B2G).

Business-to-Consumer (B2C)

This is the direct trade between the company or producers of the goods and the end consumer. This model helps consumers to get goods directly from the producer without using intermediaries and hence getting those goods at a relatively lower price as compared to intermediaries' price. A practical example of B2C application is amazon.com company, it sells its products through their website (internet portal) "www.amazon.com" to final consumers.

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Business-to-Business (B2B)

This is a kind of trade which is conducted between companies and most of the time it includes selling of unfinished goods (raw materials) or selling finished goods to suppliers. Popular world B2B is outsourcing; this is when one company contracts another company to provide certain service or product. Popular outsourcing companies and for B2B are such as AT&T, Sony and Microsoft Corporation.

Consumer to Business (C2B): In the current growing arena of customised needs, it has been common for customers to go online and order what they want according to their budgets. After some specified time companies will send their bids, customer will go through them and select one who will offer the product/service.

Consumer to Consumer (C2C): Usually, this type of E-commerce works as Consumer to Business to Consumer (C2B2C) transaction. It is called so because a consumer would contact a business in search for a suitable customer. Most of the auction websites (like www.eBay.com) and matrimonial websites are working on this methodology.

From the above categories of uses, E-commerce has been a vital tool on boosting up economies of different countries by doing business electronically. Adoption of E-commerce in the country is inevitable since the world is moving towards electronic/digital world as well as knowledge economy. Despite of having the same importance in every country, there are different adoption trend in each country. Adoption trend is still very slow in some countries (especially least developing countries). The United Republic of Tanzania is a poor country but it is making steps towards adoption of E-commerce. It is clear that there are specific factors that influences adoption of E-commerce in the country.

This adoption trend was one of the push factors towards undertaking of this specific case study. By recognising these facts, the study focused on the factors that influences or affects the adoption of E-commerce in The United Republic of Tanzania. After knowing factors influencing E-commerce adoption in the country, the researcher recommends ways of improving or eliminating bottlenecks to smooth the process of E-commerce adoption in the country and hence the country will enjoy the benefits of E-commerce implementation.

Literature Review
Importance of E-commerce in social-economic development

E-commerce is diffusing into the developing countries' economies and it is said to be a big helper and motivator in delivering and/or meeting the world development agenda. One of the agenda for the world development is narrowing the gap between countries' economies by equalising social-economic development. The world is now depending a lot on ICT and E-commerce which makes it inevitable for developing countries to deploy E-commerce in their development goals.

The lack of one general/common definition that encounters all aspects of E-commerce makes researchers and practitioners to come up with definitions which lean towards their research orientation, professional orientation, or the product, service and the technological infrastructures involved in the research. According to Ngai and Wat (2002), E-commerce can be perceived from different perspectives; A communications perspective, E-commerce is the delivery of information, products and services, or payments via telephone lines, computer networks, or any other means. A business process perspective, E-commerce is the application of technology toward the automation of business transactions and workflow. A service perspective, E-commerce is a tool that addresses the desire of firms, consumers, and management to cut service costs while improving the quality of goods and increasing the speed of service delivery. An online perspective, E-commerce provides the capability of buying and selling products and information on the Internet and other online services.

Kenneth et al. (2012) supported that depending on the integration extent of ICT into business processes in the value chain management, E-commerce may constitute part of the business processes or the entire process (depends on how it is used in value creation), embrace several forms of transactions (including information exchange), and yield diverse operational and strategic benefits. E-commerce as a tool towards social-economic development has been argued by different researchers that it brings a number of benefits to the economies. These benefits are categorised into three categories which are strategic benefits, informational benefits and operational benefits.

Peerawat and Atthaphon (2012) established that strategic benefits are associated with improving market performance of the organization. E-commerce offers opportunities for firms in developing countries to increase their market performance by extending the firm's market reach through entry into global commodity chains and access to new customers and new markets. This increase in the market "reach" and access can enable commodity producers in developing countries to overcome market fragmentation and become more integrated within the electronic marketplaces which offer value through aggregation and collaboration between producers. Demand and supply forces keeps on going up in the global chains and electronic marketplaces, this creates a bigger market for developing countries producers, suppliers and manufactures and in return more choices of products and services are given to the customers.

Mutula (2008) Electronic marketplace increases business transparency, this means, there are more opportunities for price transparency and greater economies of scale and scope for both buyers and suppliers. Information benefits are associated with improving marketplace information richness and communication abilities. Information about products and services are published on websites (internet), so as to make it possible for customers and partners to reach that information in a timely manner. Organisations are using Web 2.0 features, such as wikis, mash ups and blogs, to inform their customers and get feedback from them about their preferences and how they can serve them better. Apparently this makes the organisation to be more informed as well it is the case to the customers and hence the sustainable customer relationship is developed by the organisation.

Barsauskas, (2008) Operational benefits are associated with achieving cost reductions and efficiency in operations, which facilitate the delivery of an organization's product or service in the marketplace. In most developing countries, procurement and inventory control mechanisms tend to be slow, less efficient and more labour-intensive; as such, improving marketplace information, and automating

coordination processes can contribute direct savings in unit costs and time (efficiency).

The above foundation benefits of E-commerce implementation can well be realized when there is affordable telecommunication infrastructure, efficient transportation systems, legal and regulatory policies, and local and international credit management infrastructure. This shows that E-commerce is not a standalone function in bringing social-economic development but it acts hand in hand with other factors and developmental goals. When there is good integration between E-commerce and these other factors the country will enjoy benefits of E-commerce and hence fast movement towards social-economic development and smooth entry into the digital world.

E-commerce adoption

E-commerce adoption is the state of a specific country/society start using electronic commerce in their day to day business transaction. E-commerce adoption differs from country to country depending on country economic, social and political situations. These differences in adoption are also referred to the implementation of E-commerce in the respective country. There are countries (knowledge based economies) that adopted E-commerce a while ago in early 2000's whiles there some many other countries who are still in the process of adoption, The United Republic of Tanzania is one of them. E-commerce adoption can be influenced with a number of factors such as follows; Country's economic and technological background, ICT infrastructures in the country, Economic capacity of the citizens, Government support and influence towards adoption, Consumer behaviour, ICT security and Government policies towards E-commerce adoption. These are the major factors which makes different countries adopt E-commerce in different places. A country needs to have a good combination if not all of the above factors in favour of E-commerce so as to smooth the process of adoption and implementation.

According to Berthon et al. (2008), Internet has been growing at a remarkable pace since the introduction of World Wide Web (www) for public use in early 1990's. World Wide Web has boosted and place E-commerce to be an important issue when talking of internet and it is now growing almost at the same pace with internet. Internet users are the major determinants of E-commerce adoption in any country since they are the one who will buy and sell products and services over the internet. Berthon et al, 2008; proposed a model called E-commerce Adoption Model (e-CAM) which examines important factors which can predict consumer's online purchasing behaviours. e-CAM integrates the technology acceptance model with the theories of perceived risk to explain the adoption of e-Commerce. Specifically, it examines the impact of the following factors on the consumer's purchasing behaviour: perceived ease of use, perceived usefulness, perceived risk with products/services, and perceived risk in the context of online transaction. The traditional Technology Acceptance Model (TAM) which was used to predict consumer behaviour had been criticised by many ICT researchers, TAM stated that Online purchasing behaviour is a result of combination of perceived ease of use and perceived usefulness of the product/service offered but the model didn't consider the fact of risk associated with online transactions. e-CAM was proposed to replace TAM because it puts into account the risk associated in online transactions. The followings are the factors considered by e-CAM;

E-commerce adoption in Brunei Darussalam

Looi (2008) in studying ecommerce adoption in The Royal State of Brunei, found that adoption of E-commerce started in mid-2000's and it is still in the early adoption and implementation part but it has managed to utilize it effectively in its day to day social and business transactions. Mobile and electronic payments accounts for more than 50% of total payments made in Brunei, this means that E-commerce plays a big and important role in the trade and economic situation of Brunei. The way towards this adoption and acceptance of E-commerce in Brunei had its ups and downs; there are a number of factors which influenced individuals and companies to adopt e-commerce. The major factors towards this adoption are competitive pressure, ICT knowledge, relative advantage, security and government support.

E-commerce adoption in Indonesia

Kartiwi (2006) stated that the use of E-commerce in SMEs has become an important aspect in IS studies and business development. There is a large number of well-documented benefits derived from E-commerce for SMEs both in theoretical and practical literature. Despite the enormous attention given to encourage SMEs to adopt E-commerce by both academics as well as governments, little research has been carried out in identifying strategies of E-commerce adoption for SMEs in developing countries.

Rahayu and Day (2017) on their study aimed at providing an overview of E-commerce adoption by SMEs in developing countries and, in particular, the extent of the adoption of E-commerce by Indonesian SMEs. The results found that SMEs in Indonesia are adopting E-commerce because of the foretasted benefits to be brought by the implementation of E-commerce on their business modules. The reasons towards fast E-commerce adoption in Indonesian SMEs are low transactional costs, reduction of promotion and advertising costs, speed communication between buyer and seller, reduction of operation costs and time saving. With the huge and widely spread population, the development of internet technology and infrastructure will not only become a potential market of E-commerce business but also a means to bridge hundreds of islands spread around the Indonesian archipelago. Therefore, a national campaign has been carried out by the government through seminars and other media in order to convince the benefit of E-commerce and to increase the use of E-commerce by businesses in Indonesia.

Adoption of E-commerce by SMEs in the UK

Wilson et al. (2008) studied about E-commerce adoption in UK with the aim of finding the diffusion of E-commerce among SMEs. The study adopted qualitative as well as quantitative data analysis and found that most of SMEs in the UK adopted and some are still adopting and making full utilization of E-commerce on their daily business operations. It was found that a number of factors influences this adoption in UK but most of the them are due to availability of infrastructure, proper systems security, good government support, education, awareness and usefulness. The above factors have contributed a lot to success of E-commerce adoption in UK.

Factors influencing E-commerce adoption

From the literature review for this specific study, we have seen different factors that influence E-commerce in different countries that are in different economic levels/situations. Since E-commerce and internet are acting at a global level, its impact or advantages to the countries appear to be similar. To generalize different factors obtained from different country, we can put them into groups of about for factors, which are; ICT infrastructures, ICT security Government support and policies towards E-commerce adoption and Consumer culture and/or behaviour
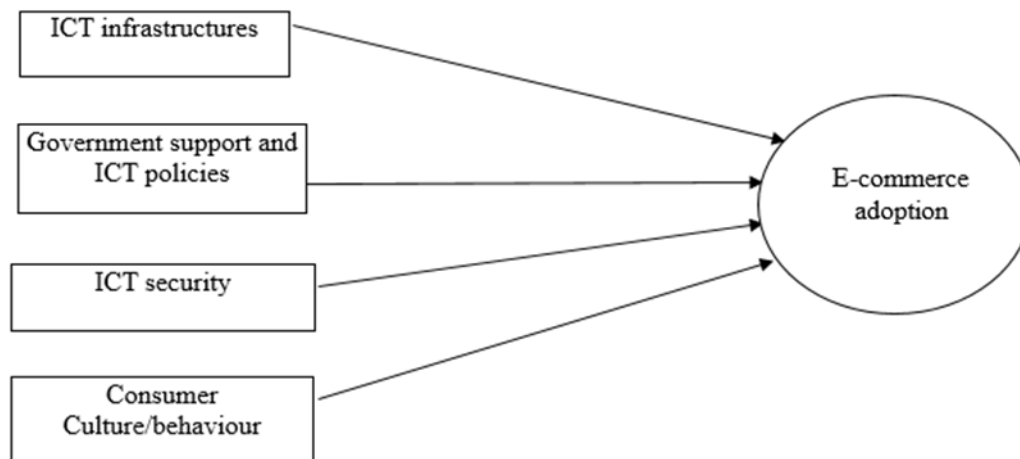
Conceptual framework

Conceptual framework is a conceptual model of how the theorizes or makes logical sense of the relationships among the several factors that have been identified as important to the study. Conceptual framework helps to hypothesize and test relationships and thus to improve understanding of the topic. The following is a conceptual framework for the study based on the factors identified from literature.

Conceptual Framework

Fig.1: Conceptual framework

Definitions of constructs
E-commerce adoption

This is the state of a starting the usage or acquiring electronic commerce in the day-to-day business transaction (Ahmad et al., 2015). E-commerce adoption differs from country to country depending on country's economic, social and political situations. These differences in adoption are also referred to the implementation of E-commerce in the respective country. For this study E-commerce adoption was measured by the number and/or percentage of E-commerce users in The United Republic of Tanzania, this percentage obtained by doing the analysis of the data collected through questionnaire prepared (for data collection).

ICT infrastructures

These are the physical hardware and/or software used to interconnect computers and computer users. Infrastructure includes the transmission media, telephone lines, cable television lines, and satellites and antennas, and also the routers, repeaters and other devices that control transmission paths (Taragola and Gelb, 2005). ICT infrastructure also includes the software used to send, receive, and manage signals transmitted. This study measured the effect of ICT infrastructure on E-commerce adoption the same measure was used by (Pavic, et al., 2007). The measurement was done by checking the relationship of the two variables and see if the increase in infrastructures quality and quantity leads to any effect on E-commerce adoption. Correlation between the two variables gave the effect of ICT infrastructure on E-commerce adoption. Presumable, high quality of ICT infrastructures has high positive influence on the E-commerce adoption.

Government support and ICT policies

For success of E-commerce in any country ICT plays a great role, Lip-Sam and Hock-Eam (2011) argued that there is no E-commerce if there is no ICT in place. Government support is the level by which the government takes part in the ICT sector by giving it needed/required support so as to smooth ICT deployment in the country. These supports can be seen in form of rules and regulations formed by the government in support of ICT, rules such as tax reduction on ICT equipment is a clear government support. Jahanshahi and Zhang (2013) defined ICT policies as policies made by the government and/or non-government sectors/institutions to ensure proper use of ICT, further used ICT policy as a measure of E-commerce adoption. It has been the case for many countries, if the government support on ICT sector increases and there are strong and sustainable ICT policies then the adoption and implementation of E-commerce in the country will react on the same direction on increasing. This study tested the relationship between government support and the adoption of E-commerce in The United Republic of Tanzania.

ICT security

Lehtinen et al (2006) explained ICT security as the ability to keep all ICT equipment's in a secured manner against any physical or software security threats and put the system to be free of risks, danger or threat. Security has been a major and serious threat for ICT sector, and hence it hinders development and adoption of E-commerce in many countries in the world. E-commerce mainly deals with private and banking data, these data must be secured for the user to be confident to use the service otherwise the adoption rate will be low. Susanto et al. (2012) found that

as the security goes up, users confidence goes up as well and hence increases the adoption level of E-commerce in business and social transactions. The study tested the relationship of the two variables and see if the increase or decrease of ICT security level in Tanzania has any effect to the E-commerce adoption level.

Consumer culture/behaviour

Consumer behaviours concern with characteristics that guides consumers to make decision to or not to buy products. It blends elements from psychology, sociology, social psychology and economics and attempt to understand the buyer decision making process. Studies about Tanzanians buying cultures shows that Tanzanians prefer to see and or touch product before buying it (Mushi and Noor, 2016; Jani and Mzalendo, 2014). As far as E-commerce is concerned, a customer might see the product but he/she will not be able to touch the product until the product is delivered to the buyer. This study tested relationship between consumer culture and ecommerce adoption.

Hypothesis Development

Hypotheses for this study were developed based on the objectives of conducting this research. Hypotheses were divided into two parts that are null hypothesis and alternative hypothesis.

Null hypothesis

Is untested statement of fact which does not show any relationship between the dependent and independent variable in the specific hypothesis, statistically null hypothesis means that the difference between the means of the two variables in question is equal to zero.

Alternative hypothesis

Is an untested statement of fact which shows that there is a positive or negative relationship between the dependent and independent variable in the given hypothesis, it is the opposite of null hypothesis.

Hypothesis one

Null Hypothesis $(H1_0)$; ICT infrastructures does not influence E-commerce adoption in The United Republic of Tanzania
Alternative Hypothesis $(H1_1)$; ICT infrastructures influences E-commerce adoption in The United Republic of Tanzania

Hypothesis two

Null Hypothesis $(H2_0)$; Government support and ICT polices has no influence on E-commerce adoption in The United Republic of Tanzania
Alternative Hypothesis $(H2_1)$; Government support and ICT policies does influence the adoption of E-commerce in Tanzania

Hypothesis three

Null Hypothesis $(H3_0)$; ICT security does not influence E-commerce adoption in The United Republic of Tanzania
Alternative Hypothesis $(H3_1)$; ICT security influences E-commerce adoption in The United Republic of Tanzania

Hypothesis four

Null Hypothesis $(H4_0)$; Tanzania's consumer culture/behaviour does not influence E-commerce adoption in The United Republic of Tanzania
Alternative Hypothesis $(H4_1)$; Tanzania's consumer culture/behaviour influences E-commerce adoption in The United Republic of Tanzania

Methodology

The population for this particular study is all the literate Tanzanians; these are those who can read and write and hence they are capable of using internet and its facilities. The study adopted convenience sampling method to obtain 66 respondent of the study because it gathers information from members of the population who are conveniently available to provide it.

This study used two different methods of data collection which are questionnaires and documentary review. In this study, both secondary data and primary data have been used. Secondary data has been used in the preparation of literature review and getting the insight of the topic before going to the field. Primary data has been used to collect firs hand information about E-commerce adoption (specifically in Tanzania). The data collection (survey) was self-administered by the researcher with minimum involvement in the process. Due to the distance problem a mailed questionnaire method was used for data collection. Few questionnaires were backed up by phone interviews between the researcher and the respondents in order to get respondents attitude and perceptions on the E-commerce adoption in Tanzania.

Information collected using questionnaires were coded and analysed using the Statistical Package for Social Scientists (SPSS). SPSS measure was used to identify and substantiate relationships between the dependent and independent variables using descriptive analysis, Chi square test, independent sample tests, ANOVA test and regression analysis.

Descriptive Analysis

This deals with demographic data of respondents such as age, gender and education. Table 1.1 shows that, male respondents were 48, which are 72.7% of all the respondents and female respondents, were 18 which are 27.3% of the respondents. This shows that in Tanzania male are the major user of internet services, this can be supported by the fact that more male are educated that female in Tanzania (TPHS 2012).

Table 1.1: Gender

	Frequency	Percent
Male	48	72.7
Female	18	27.3
Total	66	100.0

The findings in table 1.2 gives the findings about age and education of respondents. It can be observed that majority of the respondents are young, this shows that most of Internet users and adopters are young. 45.5% of the respondents are aged between 18 and 25 years old, 39.4% are aged between 26 and 35 and lastly 15.2% are aged between 36 and 45. The results tells that young people are heavy user of Internet services and hence are the immediate adopters of e-commerce. Beside age groups, education also seems to play a role in E-commerce adoption and usage among youth (internet users) in Tanzania. From the survey made, it shows that educated people more than form six)

are more prone to internet and are potential E-commerce adopters in the country. 16.67% of the E-commerce users have diploma qualification, 50% are advanced diploma or bachelor degree holders and 33.33% are Master's Degree or PHD holders. This shows that majority of E-commerce adopters in Tanzania are holding advanced diploma and higher education qualification.

Table 1.2: E-commerce users by age and education level

	Group	Frequency	Percent
Age	18 – 25	30	45.5%
	26 – 35	26	39.4%
	36 – 45	10	15.2%
Total		**66**	**100%**
Education	Diploma	11	16.67%
	Advanced diploma or bachelor degree	33	50%
	Masters degree or PHD	22	33.33%
Total		**66**	**100%**

Hypothesis one

Null Hypothesis $(H1_0)$; ICT infrastructures does not influence E-commerce adoption in The United Republic of Tanzania

Alternative Hypothesis $(H1_1)$; ICT infrastructures influences E-commerce adoption in The United Republic of Tanzania

The purpose of this hypothesis was to investigate the relationship between the ICT infrastructure level/quality and the level of E-commerce (online purchase) adoption in Tanzania. Two SPSS tests were used to check the relationship of these two variables. The tests are correlation analysis and the regression analysis.

From the correlation tables (from SPSS software computation) it gives the significance level of 0.307 which is higher than 0.05. This shows that there is a significant relationship between the level of infrastructures and the E-commerce adoption in the country. The correlation between the two variables is 0.628; this means that the two variables have a positive relationship. Table1.3 summarises the results of the correlation of the two variables.

Table 1.3: Correlations

		Online purchase	Infrastructure
Online purchase	**Pearson Correlation**	1	.628
	Sig. (2-tailed)		.307
	N	66	66
infrastructure	**Pearson Correlation**	.628	1
	Sig. (2-tailed)	.307	
	N	66	66

Table 1.3 tells that there is a significant relationship between the two variables and there is a positive direction of the relationship. This leads us to the next test so as to get more confidence on the direction of the relationship of these two variables of the first hypothesis for this study. The next test is the regression analysis. This test provided the direction of the relationship, the main question of this test is, "Does infrastructure level influence the usage/adoption of E-commerce in Tanzania?"

Model summary table gives the R Square value of 0.016 and the alpha value of 0.307 which is higher than 0.05. This shows that there are significant chances that the variations in E-commerce adoption level can be accounted by the variations in the infrastructure level and quality. Therefore from this test it shows if infrastructure level goes up there significant chances that the E-commerce adoption level increases and vice versa is true. Table1.4 gives results of the test.

Table 1.4: Model Summaries

R Square Change	F Change	df1	df2	Sig. F Change
.016	1.062	1	64	.307

ANOVA table from the regression analysis results also justifies the relationship between infrastructure level and E-commerce adoption in Tanzania. The test gives the p-value of 0.307 which is higher than the confidence level of 0.05. This shows that there is significant evidence that changes in E-commerce adoption level can be predicted by the changes in the infrastructure level. This means the higher the infrastructure level the higher the adoption rate and vice versa is true. Table1.5 provides ANOVA test results.

Table 1.5: ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	**Regression**	.249	1	.249	1.062	.307(a)
	Residual	15.023	64	.235		
	Total	15.273	65			

a Predictors: (Constant), infrastructure
b Dependent Variable: online.purchase

Coefficients table shows the mathematical relationship between the two variables in the first hypothesis; the relationship gives the quantitative measure of the effect of infrastructure level on the E-commerce adoption level. The

test gives use a p-value of 0.307 which is equal to the p-value in both model summary and ANOVA tables, and hence gives the same theoretical meaning that there is significant evidence that changes in infrastructure level can be used to predict changes in the E-commerce adoption level. Furthermore, the coefficients tables give the model equation which quantifies the relationship between the two variables. The model equation is;

E-commerce adoption = 1.46 + 0.078(Infrastructure)
The equation means that, for every unit increase in infrastructure level and quality, E-commerce adoption level goes up by 0.078 units. Therefore, this model equation shows that there is a positive relationship between infrastructure level and E-commerce adoption level. Table1.6 below best describes the finding obtained from analysis.

Table 1.6 Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.460	.182		8.033	.000
	infrastructure	.078	.076	.628	1.030	.307

a Dependent Variable: online purchase

Results given by the two tests done (correlation analysis and regression analysis) give the same interpretation and direction of the relationship of the two variables. The two tests collectively answer the main question of this hypothesis, "Does infrastructure level influence the usage/adoption of E-commerce in Tanzania?" with YES; infrastructure level influences the adoption of E-commerce in Tanzania. From the above analysis, we are rejecting the null hypothesis and accept the alternative hypothesis, "ICT infrastructures influences E-commerce adoption in The United Republic of Tanzania".

Hypothesis two;
Null Hypothesis (H2$_0$); Government support and ICT polices has no influence on E-commerce adoption in The United Republic of Tanzania
Alternative Hypothesis (H2$_1$); Government support and ICT policies does influence the adoption of E-commerce in Tanzania

The purpose of this hypothesis was to investigate the relationship between the Government support and ICT policies and the level of E-commerce (online purchase) adoption in Tanzania. Two SPSS tests were used to check the relationship of these two variables. The tests are correlation analysis and the regression analysis.

Two correlation tests were done for this hypothesis, the Pearson test and Spearman's rho correlation test. The Pearson correlation test gives us a correlation value of 0.506 and the Spearman's correlation test gives a correlation value of 0.533. Both tests give a p-value of 0.00 which is less than 0.05 level of confidence. The two tests give a positive relation between the two variables under this hypothesis; this means that there is a positive relationship between the level of government support and ICT policies and the E-commerce adoption rate in the country. Table1.7 provides a summary of the findings of correlation analysis for the second hypothesis.

Table 1.7: Pearson Correlations

		Online purchase	Govt policies
Online purchase	**Pearson Correlation**	1	.506**
	Sig. (2-tailed)		.000
	N	66	66
Govt policies	**Pearson Correlation**	.506**	1
	Sig. (2-tailed)	.000	
	N	66	66

** Correlation is significant at the 0.01 level (2-tailed).

The second analysis for this hypothesis is the regression analysis; three tests were done, the tests are Model summary, ANOVA and coefficients test.
Model summary test (SPSS software computation) gave an R Square value of 0.256, which means that there are 25.6%

chances that the variations in the E-commerce adoption rate in Tanzania can be predicted by the changes in the level of government support and ICT policies. Results can be seen on table1.8.

Table 1.8 Model Summaries

Model	R	R Square	Adjusted R Square	Std. Error	Durbin-Watson
1	.506(a)	.256	.245	.421	2.368

a Predictors: (Constant), govt policies
b Dependent Variable: online purchase

The ANOVA test gave a p-value of 0.00 which is less than 0.05. This shows that there is enough evidence to support that government support and ICT policies can be used to

predict the direction of E-commerce adoption in the country. Table1.9 gives output of this test.

Table 1.9: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.915	1	3.915	22.061	.000(a)
	Residual	11.358	64	.177		
	Total	15.273	65			

a Predictors: (Constant), govt policies
b Dependent Variable: online purchase

The third and last test for this hypothesis from regression analysis is the coefficients test. This test gives us a model equation to show the quantitative and direction of the relationship between the two variables which makes this hypothesis. From the Coefficients table we get the model equation which is; E-commerce adoption = 2.49 + 0.301(Govt. support)

The above model equation means that, for every unit increase in unit government support and ICT policies, the E-commerce adoption level goes up by 0.301 units. Therefore, this test also shows there is a positive relationship between government support & ICT policies and the E-commerce adoption level. Table1.10 gives the t value and the p value of the analysis;

Table 1.10: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.490	.189		13.178	.000
	Govt policies	.301	.064	.506	4.697	.000

a Dependent Variable: online purchase

The tests done gave results which have the same interpretation and direction of the relationship of the two variables. The tests collectively answer the main question of this hypothesis, "Does government support and ICT policies influence the usage/adoption of E-commerce in Tanzania?" with YES; Government support and ICT policies influences the adoption of E-commerce in Tanzania.

From the above analysis, we are rejecting the null hypothesis and accept the alternative hypothesis,

 "**Government support and ICT policies does influence the adoption of E-commerce in Tanzania**".

Hypothesis three;

Null Hypothesis (H3$_0$); ICT security does not influence E-commerce adoption in The United Republic of Tanzania
Alternative Hypothesis (H3$_1$); ICT security influences E-commerce adoption in The United Republic of Tanzania

The purpose of this hypothesis was to investigate the relationship between the ICT security level and the level of E-commerce (online purchase) adoption in Tanzania. The analysis is based on how secured does E-commerce users

feel when they are doing online purchases. Two SPSS tests were used to check the relationship of these two variables. The tests are correlation analysis and the regression analysis.

From the correlation analysis which measures the liner relationship between the variables; the relationship between ICT security and E-commerce adoption were measured. For this analysis only E-commerce users' responses were used to measure the relationship between the variables.

Two correlation tests were done for this hypothesis, the Pearson test and Spearman's correlation test. The Pearson correlation test gives us a correlation value of 0.639 and the Spearman's correlation test gives a correlation value of 0.664. Pearson test gave a p-value of 0.01 and Spearman's test gave a p-value of 0.00; both values are less than 0.05 level of confidence. The two tests give a positive relation between the two variables under this hypothesis; this means that there is a positive relationship between the level of ICT security and the E-commerce adoption rate in the country. Table1.11 describes a summary of the findings of correlation analysis for the third hypothesis.

Table 1.11: Pearson Correlations

		Purchase frequency	ICT security
Purchase frequency	Pearson Correlation	1	.639(**)
	Sig. (2-tailed)		.001
	N	24	24
ICT security	Pearson Correlation	.639(**)	1
	Sig. (2-tailed)	.001	
	N	24	24

** Correlation is significant at the 0.01 level (2-tailed).

The second test to measure the validity of this hypothesis is the regression analysis. For this analysis, three tests were taken; the tests are Model summary, ANOVA and coefficients test.
The model summary test/table gave the R square value of

0.409; this value means that there are 40.9% chances that changes in the E-commerce adoption rate can be predicted by the level of ICT security provided/available. Consider the tabular results (table 1.12 below) of the model summary test.

Table 1.12: Model Summaries

Model	R	R Square	Adjusted R Square	Std. Error	Durbin-Watson
1	.639(a)	.409	.382	.491	2.261

a Predictors: (Constant), ICT security
b Dependent Variable: purchase frequency

The next test is the ANOVA test; the ANOVA test gave a p-value of 0.001 which is less than the given level of confidence of 0.05; this means that there is enough evidence to support that ICT security can be used to predict the changes in E-commerce adoption rate. Consider the results of ANOVA test in table 1.13 below;

Table 1.13: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	3.663	1	3.663	15.215	.001(a)
	Residual	5.296	22	.241		
	Total	8.958	23			

a Predictors: (Constant), ICT security
b Dependent Variable: purchase frequency

The last test for this hypothesis from regression analysis is the coefficients test. This test gives us a model equation to show the quantitative relationship between the two variables which makes this hypothesis. From the Coefficients table we get the model equation which is;

E-commerce adoption = 0.993 + 0.556(ICT security)
The above model equation means that, for every unit increase in ICT security level, the E-commerce adoption level goes up by 0.556 units. Therefore, this test also shows there is a positive relationship between ICT security level and the E-commerce adoption level. as can be observed on table1.14.

Table 1.14: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.993	.451		2.202	.038
	ICT security	.556	.143	.639	3.901	.001

a Dependent Variable: purchase frequency

The tests done gave results which have the same interpretation and direction of the relationship of the two variables. The tests collectively answer the main question of this hypothesis, "Does ICT security influence the usage/adoption of E-commerce in Tanzania?" with YES; ICT security influences the adoption of E-commerce in Tanzania. From the above analysis, null hypothesis was rejected and alternative hypothesis was accepted, therefore, "ICT security influences E-commerce adoption in The United Republic of Tanzania".

Hypothesis four;
Null Hypothesis (H4$_0$); Tanzania's consumer culture/behaviour does not influence E-commerce adoption in The United Republic of Tanzania
Alternative Hypothesis (H4$_1$); Tanzania's consumer culture/behaviour influences E-commerce adoption in The United Republic of Tanzania
This is the fourth hypothesis for this study. It was derived from the fourth objective of conducting this study. The purpose of this hypothesis is to investigate, analyse and measure the relationship between consumers' behaviour and E-commerce adoption in Tanzania. Two SPSS tests are used to check the relationship of these two variables. The tests are correlation analysis and the regression analysis.
The correlation analysis was used to measure the liner relationship between the two variables in this hypothesis; the relationship between consumers' behaviour and E-commerce adoption were measured. All the responses were used to measure the influence of consumers' behaviour on E-commerce adoption and see if it hinders them (for those who doesn't use) to adopt E-commerce on their day to day business and social transactions.

Two correlation tests were done for this hypothesis, the Pearson test and Spearman's correlation test. The Pearson correlation test gives us a correlation value of -0.185 and the Spearman's correlation test gives a correlation value of -0.202. The two values shows that consumers' behaviour and E-commerce adoption are negatively related. Pearson test gave a p-value of 0.137 and Spearman's test gave a p-value of 0.104; both values are higher than 0.05 level of confidence. The two tests give a weak negative relation between the two variables under this hypothesis; this means that there is a weak negative relationship between the consumers' behaviour and the E-commerce adoption rate in the country. The findings in this test mean that, consumers' behaviour has no considerable influence on E-commerce adoption rate in Tanzania. Table 1.15 below as a summary of the findings of correlation analysis for the fourth hypothesis.

Table 1.15: Pearson Correlations

		Purchase frequency	Consumer behavior
Purchase frequency	Pearson Correlation	1	-.185
	Sig. (2-tailed)		.137

		66	66
Consumer behavior	**Pearson Correlation**	-.185	1
	Sig. (2-tailed)	.137	
	N	66	66

The second test to measure the validity of this hypothesis is the regression analysis. For this analysis, three tests were taken; the tests are Model summary and ANOVA test.

The model summary test/table gave the R square value of 0.034; this value means that there are only 3.4% chances

that changes in the E-commerce adoption rate can be predicted by the level of ICT security provided/available. The percentage is very low (nearly zero). Consider the tabular results in table 1.16 of the model summary test.

Table 1.16: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error	Durbin-Watson
1	.185(a)	.034	.019	1.351	2.445

a Predictors: (Constant), consumer behavior
b Dependent Variable: purchase frequency

The next test for analysis the validity of this hypothesis is the ANOVA test. The ANOVA test gave a p-value of 0.137 which is higher than 0.05. This means that, there are no

enough evidences to support that consumers' behaviour have influence on E-commerce adoption rate in Tanzania. Consider ANOVA test results in table 1.17.

Table 1.17: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	**Regression**	4.130	1	4.130	2.262	.137(a)
	Residual	116.855	64	1.826		
	Total	120.985	65			

a Predictors: (Constant), consumer behavior
b Dependent Variable: purchase frequency

The tests done for this hypothesis all gives the same direction of the relationship. The interpretation of the results shows that there are no enough evidences to support that consumers' behaviour have considerable influence on the E-commerce adoption rate in Tanzania. Therefore, the null hypothesis was accepted, "Tanzania's consumer culture/behaviour does not influence E-commerce adoption in The United Republic of Tanzania".

Why internet users are not adopting E-commerce in Tanzania

On finding out the influential factors hindering adoption of E-commerce in The United Republic of Tanzania respondents provided different views as can be observed on the table 1.19.

Table 1.19

Reason	Frequency	Percentage	Rank
Poor infrastructure	22	33.33%	2
Am unaware of how to do it	14	21.21%	5
Security	25	37.87%	1
It is expensive	7	10.60%	6
Slow internet connection speed	15	22.73%	4
I don't trust online business	20	30.30%	3

Table 1.19 above shows that the major reason which refrains internet users in Tanzania from adopting E-commerce services is security followed by poor ICT infrastructures, lack of trust for online business, slow internet connection speed, lack of knowledge about E-commerce and perceived expenses embedded with E-commerce (online transactions).

Conclusion

The primary motive towards undertaking this study is E-commerce adoption in The United Republic of Tanzania. The main objective of the study is to know all the factors which influence E-commerce adoption in Tanzania. This study stood on five hypotheses that were formulated in chapter three and analysed in this chapter. The analysis of these hypothesis shows that, E-commerce adoption in Tanzania is influenced by ICT infrastructure level, ICT and E-commerce security level, government support and ICT

policies; consumer behaviour has seen to have no significant effect/influence on adopting E-commerce in Tanzania.

Furthermore, the reasons which hinder internet users from adopting E-commerce services in their day to day transactions were also examined. The results were obtained in an order of effects of the hindrance factor; the factors are as follows (in a ranking order); Security reasons, poor ICT infrastructures, lack of trust for online business, slow internet connection speed in Tanzania, lack of knowledge about E-commerce and lastly is the cost embedded with online purchases. The ranking shows that security is the major hindrance and expense is the least. These hindrances must be cleared so as to get more internet users in Tanzania to adopt E-commerce in their day to day transactions.

E-commerce adoption rate is still low compared to other countries like Malaysia who are now enjoying the benefits of adopting e-commerce. Since security was ranked the

highest hindrance for individuals to adopt e-commerce, the respective measures should be taken to make internet users secure and comfortable to adopt E-commerce for their day to day transactions.

Implications

Its undeniable fact the internet technology and E-commerce requires huge investment in terms of monetary capital and knowledge/human capital. Therefore, stakeholders in Tanzania must really look into prospective adopters and take respective measures to make sure that they adopt and make use of E-commerce services in the country.

From the conducted survey we have seen important factors which influence and affect E-commerce adoption in Tanzania. Therefore, the sector must survey each of the factors in details and see how they can take advantage of each factor in increasing E-commerce usage in Tanzania. This can only be achieved with more research on each factor and put the findings of the researches into practical use and hence accelerate the rate of E-commerce adoption in Tanzania.

ICT security was ranked as the highest factor towards E-commerce adoption in Tanzania. Every internet user needs to feel secured when using the service or otherwise they won't use the service. E-commerce needs personal information and banking information of an individual; this makes it so important for internet and E-commerce service providers to assure security to their clients and customers while and after using their services. By dealing with this security threat, confidence on internet and E-commerce services will grow among internet users and hence it won't be a threat to those who are using E-commerce services and even to those who are adopting e-commerce. The comparison between E-commerce adopters and non-adopters differ in direction. Adopters perceive E-commerce in a more positive way while non-adopters perceive it in a negative direction due to the factors explained above. Government must employ extensive and sustainable measure to make sure that even non-adopters perceive E-commerce as a positive move towards economic development of the country and its citizens.

Limitation and Recommendations for Further Research

Most of the information collected for the literature review are from other countries and explain E-commerce situation in other countries. This countries E-commerce literature might not be very accurate and suitable to explain E-commerce condition in Tanzania due to differences in culture and economic strength. On the other hand, the study adopted convenience sampling which is difficult to generalize. The study recommends future research to use other sampling methods to improve the accuracy and reliability of the findings. Factors discovered by this study are not the only factors influencing E-commerce adoption in The United Republic of Tanzania. More additional factors that were not included in this study can be explored to further explain the E-commerce adoption in Tanzania.

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