

E-Commerce: An Overview of Adoption and Its Effective Implementation

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Abstract

Electronic commerce is a concept that is gaining acceptance in businesses, like other papers related to e-commerce this paper objective was to shed light on e-commerce adoption, trend and issues that are facilitating and hindering its effectiveness through comprehensive reviewing of literatures in the related area. It is observed that there has been a growing trend of e-commerce adoption globally even to the least developing countries, which is motivated by e-commerce adoption benefits by businesses such as expansion of business opportunities, businesses enjoying being cost effectiveness with widened coverage and increased customers services. There are challenges highlighted for effective e-commerce adoption and implementation such as poor e-commerce supporting infrastructures for instance reliable Internet connections, poor transport and logistics system also presence of socio regulatory barriers. Moreover it was recommended for better improvement of e-commerce affordable and reliable Internet facilities is vital for instance the intensity, the cost for accessing Internet, also reasonable level of e-readiness to all levels of business is important to its effectiveness, formulation of Government policies that catalyze improvement of e-commerce effectiveness is similarly vital.

Keywords: E-commerce, adoption, barriers and importance

Introduction

Electronic Commerce (e-commerce) is defined as the conduct of commerce in goods and services, with the assistance of telecommunication and telecommunication-based tools such as the Internet. E-commerce is often used in a much broader sense, to mean essentially the same as “electronic business” (e-business) but the reality is e-commerce is a sub component in e-business .Where e-business refers to company operations conducted with the help of Internet and on-line technologies, this includes for example, buying and selling products with digital cash via Electronic Data Interchange (EDI).

The term e-commerce was originally conceived to describe the process of conducting business transactions electronically using technology from the Electronic Data Interchange (EDI) and Electronic funds transfer (EFT). These technologies, which first appeared in the late 1970’s, allowed exchange of information and execution of electronic transactions between businesses, typically in the form of electronic purchase orders and invoices. EDI and EFT were enabling technologies that laid the groundwork for what we know as e-commerce (Ma'aruf & Abdulkadir, 2012). Electronic Business (e-business) is the broadest concept of all “e-terms” used in this paper.

For the purpose of this study the concept of e-Business as defined by Chaffey(2002), e-business is made up of information exchanges that are electronically effected, that is either within an organization or with external stakeholders supporting the range of business processes, since businesses undertakings are very heterogeneous groups having various patterns of activities which range from engaging in producing agricultural products to the very sophisticated engineering ventures in inside and outside the countries markets. These Businesses may be small, medium or large scale (Cudjoe Dan, 2014). E-commerce concept contains tools that are of strategic importance to businesses ranging from products offered to the processes undertaken by electronic oriented businesses at any capacity/category of the business. E-commerce concept has strategical importance to business from the tangible products offered to process oriented one at any capacity/category. E-commerce concepts cover many areas, such as electronic catalogs which are locale for sellers to communicate their offerings to their potential buyers. Also, electronic data interchange (EDI) concept that refers to a particular standards for expressing the structured data that represent E-commerce transactions; and electronic auctions which is a particular set of mechanisms that help in the setting of prices. E-commerce is therefore like on-line stores that may be used to manage orders and inventory and process transaction, people have opportunity to buy products of their choices such as sports products, antiques, automobile, holiday services, electronic tickets, and booking hotels anywhere around the globe. The goods and services availed through e-commerce can therefore range from raw materials, finished goods even services that are provided for certain reasons.

E-commerce definitions are narrowed to e-commerce as a term that describes all information that are electronically mediated and exchanged electronically within the firm or with external members (Turban et al., 2002, 2004; Chaffey, 2002). Specifically the buying, selling, or exchanging products, services, and information via ICT (Information and Communication Technology) between the business and any third parties it deals with. Those third parties are either general business that may be termed as business to business (B2B), these transactions or interactions usually concern activities in the supply chain, such as the process of transferring data collected at the point-of-sale to the wholesaler or even directly to the supplier, or between businesses most of the time using private networks shared among businesses, which at times may consume time due to negotiation that has to take place between two parties. Example when an importing company of raw materials like newsprint is paying to newspaper manufacturing companies from Finland or Russia by opening a letter of credit (LC) then submit payment to bankers electronically and when the cargo arrive at the port. The payment of import duty and VAT (Value Added Tax) to TRA (Tanzania Revenue Authority) is done using ASCUDA system where all entry forms are done electronically, then submitted to clearing agent electronically, assessment done electronically and final payment done by swift through importers banker e.g. standard charter, get, release via Tanzania International Container Services Ltd TICTS and Tanzania Port Authority (TPA) without involving many paper work.

Also e-commerce may be between Businesses to Consumers (B2C). In B2C all activities of businesses serving the consumers with goods and services are performed, where customer, credit and billing information are transmitted, at times products information are being displayed on on-line catalogue, moreover customers may visit the linking sites which link them to number of merchants and customers start shopping, the linking sites get commission for every referring that is made. For example when a person visits Amazon.Com so as to buy books, amazon will provide various details of books sellers and the customer based upon his/her favorites may choose the merchant to buy from, therefore amazon gets commission from the merchant whose books have been bought by a customer.

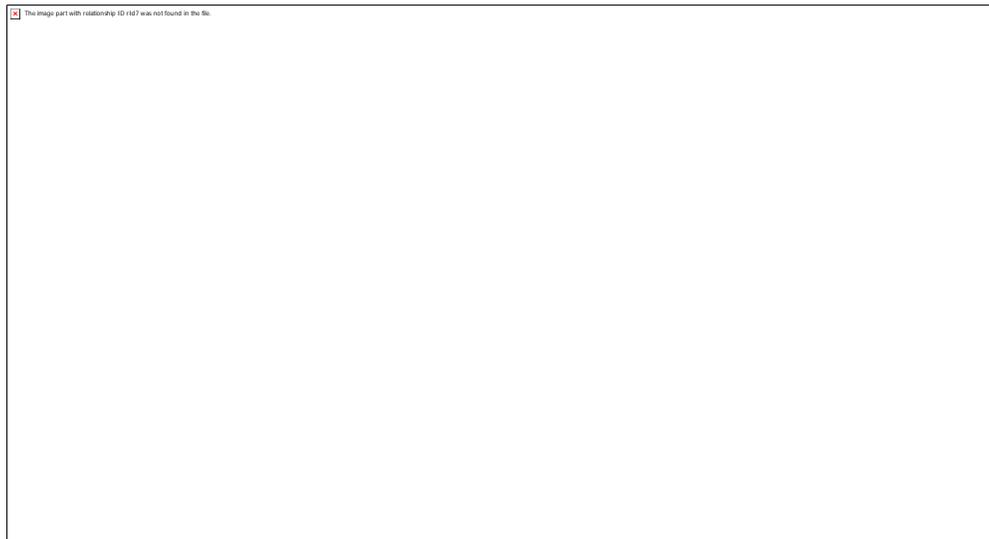
On the other hand Consumer to Consumer e-commerce (C2C) involves interaction between consumers where a consumer sells to another consumer through buying portals such as auction portals which facilitate this kind of model. What generally happens is the buyer who has a product registers with a specific portal and then customers interested are linked with the seller of the product. Consumer to Business (C2B) involves the business consumes the value that has been created by consumers. It may be in the form when the consumer writes contributory reviews or ideas pertaining the development or improvement of a new product. It is commonly viewed as a reciprocal of the B2C model. This model has gain fame due to mushrooming of various customer oriented platforms that customers are free to interact, challenge and opionate the businesses. E-commerce has gradually developed to having its own tools that have enhanced users to be able to communicate, buy, sell and have interaction in the market place. With improvement and adoption of E-commerce many business new concepts and issues have arisen such as ability of companies to privately do their business transaction through different available private network and small businesses can now pursue their businesses through web technologies engagement.

McNabb stated that companies cannot stay stagnant, and they always need ears to the ground and eyes open to new trends, changes in social media, and new opportunities with different selling platforms. Advancement in technology and growth of the scope of doing businesses resulted many businesses being flexible and shifting from traditional ways of doing business and opting modern ways with the help of technological systems so as to be able to cater all the potential markets available. Deitel and Associates (2004), pointed out the advancement of business process through e-commerce such as electronic presentation of offers such as facility of auctioning on-line, ability of customers to post their prices, willing to pay, and bargaining, on-line ordering and billing, automated customer account database, on-line transaction handling and payment processing, on-line cataloging, viral coverage, portals that facilitate bartering, with many other benefits which increase the value of the businesses.

2. Objective

A new millennium has witnessed a profound change and dramatic increase in the way business and trade takes place electronically. Each day, more users in least-developed and developing countries are accessing the Internet through gateways that facilitate the transfer of information on the Internet. According to UNCTAD (2010), there is an increase growth of users of mobile technology in accessing the web, therefore it is predicted the use of mobile and Internet will expand in decades ahead. As shown in diagram below, portraying the trend of cell internet usage.

Figure 1;



Source: Pew Internet and American Life Project Spring Tracking Survey, 2013.

As seen in the diagram representation of data in Figure 1, there is significant increase in usage of E-mail and Internet facilities in the interval of five years from April 2009 to May 2013 which indicates almost a double growth usage of electronic facilities which is used effectively may have direct impact in e-commerce growth.

This fast and vast development of technology calls for businesses to be proactive in changing their modes of doing businesses, these changes have resulted to businesses blending in new ways of conducting businesses which has transformed them from traditional systems of doing businesses to technological supported businesses.

Electronic based technologies with the help of Internet have played a major role to catalyze the changes in the ever changing business environment. Therefore this paper aims at understanding e-commerce and the adoption process hence making contribution to literature on the related issues. Important issues that may be of concern to developing countries in relation to the adoption of e-commerce may be highlighted. Issues that are discussed are related to understanding the adoption trend of e-commerce, finding reasons that drive businesses to e-commerce oriented businesses also highlighting bottlenecks behind effective adoption of e-commerce, which will ultimately explain the way commerce affect the community across. It may also provide a room for further studies in the area concerned in relation to different variables.

3. Methodology

The content in this paper is based upon reviewing literature of various authors that have authored writings with inputs on subject matters that are related to the discussed issues under this paper. Since the main aim of the paper is getting an overall understanding of e-commerce and its adoption, the literature review method was an ideal method to view the general perspective of e-commerce by reviewing various authors' works who have written on key issues in e-commerce that are on the same wavelength which ultimately provide more insight on ideas and significant gaps for researchers to explore more.

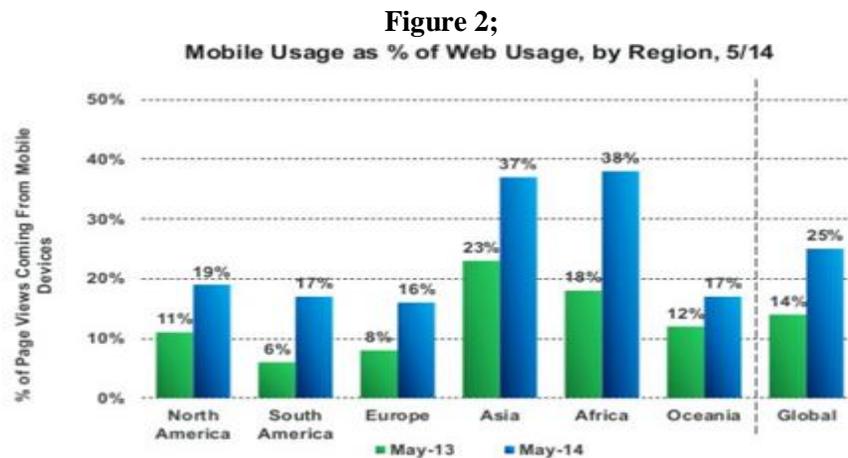
4. Materials and Literature Review

4.1 Trend of E-commerce globally.

Internet use worldwide is growing fast. Between 1993 and 1997, the number of Internet hosts (computers connected to the Internet) grew from 1 million to 20 million, by 2001 that figure is expected to rise to 120 million where in 2015 as from International Telecommunication Union report the estimate is 3.2 billion out of the world population which is 7.2 billion (BBC, 2015). Estimates of the value of global Internet commerce range from 1.3% to 3.3% of global gross domestic product by 2001 - equivalent in size to the economies of Australia and the Netherlands added together (Peter Gallagher, 2001). According to e-commerce-europe, e-commerce seems to be gaining popularity, in 2013 around 4.1 billion users found their way through internet where a good number even made purchase of goods or services on-line which has totaled to \$1552 billion, where in 2014 the forecast is on 22.9% increase. Evolution of various e-commerce platforms such as Jambo Pay in Kenya and ZOOM Tanzania is a result of blossoming e-commerce activities (UNCTAD, 2015).

Regardless of the attractive forecasting still Africa remains to be the region with the lowest penetration of e-commerce. As per the data in 2013 it accounted for only 2.2 percent of all the global Business to Consumer (B2C) e-commerce that is according to (World Pay, 2013). According to Henry Lancaster (2015), in the report of Tanzania-Telecomm, Mobile and Broadband Analyses it shows the increase of Government efforts through embracing changes by forming and incorporating various policy reforms that have ended transiting Africa to the reliable information technology zone, through adoption of new technology such as optic fiber adoption and reduction of interconnection fibers has been acting as a catalyst platform for e-commerce to grow. Example in Tanzania the Government reforms on Information Communication Technology policy has liberalized the Telecommunication Sector moreover the landing of fiber optic international submarine in 2010 has revolutionized the market which mostly was dependent on satellite connections (Henry Lancaster, 2015).

Mobile phone is the ICT application that is progressing in a rapid way especially in Africa and Asia particularly India being the key case. Arnifield (2014) indicated as per World Pay, Africa and Middle East account to 3.6% of the e-commerce payment the leading being Nigeria, Kenya and South Africa. Users without terminal connections are mostly using mobile phones to perform various electronic related activities where in 2013 Barithi Airtel made an estimate in Tanzania over 10% of the contribution of Gross Domestic Product is retrieved from transaction through mobile commerce (Henry Lancaster, 2015). M-Commerce (Mobile Commerce), also known as the next e-commerce generation is a form of electronic commerce that uses cellular phones and Personal Digital Assistance (PDAs) which are enabled by Wireless Application Protocol to the websites where various electronic commerce transactions take place; these are such as mobile phones, tablets, I-pads, personal computers. Mobile commerce is expected to grow and most businesses are extending their operations and research so as to come up with effective supporting mobile applications for electronic commerce, since these gadgets have become part of life. The chart below shows the global mobile users where Africa and Asia are among the leading continents.



Source: KPCB, 2014

The above graphical presentation of Figure 2 shows the rate of mobile usage where Africa and Asia are leading in the usage of mobile, though the reality still stands that Africa is still not at the peak in term of e-commerce potentiality. Regardless of these progress most of developing and transitional countries are still reluctant using on-line facilities for purchasing products through on-line facilities unlike social networking which are very high in developing countries, the influencing reason may be lack of trust, limited choices, language barriers and poor delivery services (UNCTAD, 2015). The Middle East and Africa are expecting to see their growth of shares by 2018; this scope will be increasing thanks to the expanding change in the market and technology. Rising social networking activities greater reliance to mobile network, continues innovation in delivery and entrance of private sector in the industry has facilitated evolving of e-commerce in developing countries.

4.2 Benefits behind adopting E-Commerce

A study by the United Nations Conference on Trade and Development (UNCTAD) has shown Small Medium Enterprises while generally lagging in Information Communication Technology, have the most to gain if they effectively put e-commerce into practice especially in productivity. Adoption of E-commerce offers a great deal of opportunity to Small enterprises even to gain greater global market access, lowering transaction cost, facilitate access to potential customers, customization of products and services and effective management of information and exchange process (Wanjau et al, 2012). E-commerce has been acclaimed as an opportunity especially in developing countries since it assists in gaining a strong foothold in the current existing multilateral trading system. Thus can act as a better instrumental role so as to enjoy more from trade. For instance in developing countries mobile payments mode have been effectively in use to facilitate payments which speed up business activities though it accounts for only one percent for e-commerce transactions but it is useful for limited Internet facilities in these least developing countries (Innopay, 2012).

Unlike the requirements necessary to run a business from a physical building to physical attributes, e-commerce does not require storage space, insurance or infrastructure investment on the part of the retailer. The only requisite is a well-designed and reliable web storefront to reach customers which allows reaping higher profit margins as the cost of running a business is markedly less (WTO, 2013). For instance in Kenya, entrepreneurs have organized an on-line auction through comparatively affordable technology (UNCTAD, 2003). Better and quicker customer services can be enhanced by e-commerce, customers can access their own personal accounts on-line which reduces the compulsion of calling the respective companies on the phone which ultimately saves both time and money. Moreover the flexibility/convenience of time has been enhanced since the purchasing can be done at any time not only during official hours. On line tracking services help customers to be able to check the whereabouts of their packages in transit which enhances the delivery process. In additional social networking platforms have been helpful to consumers to compare prices and features and other useful information of products rather than relying on traditional information sources. Websites are extended with sections containing reviews of other consumers which give details to buyers before making purchasing (UNTCAD, 2015). These social networking platforms have also acted as a source of demand stimulation to customer based on information encountered pertaining the availability of suppliers and offerings which customers may not have known before hence triggering the demand for the products.

Suppliers have been enjoying the benefit of reduced cost when adopting new ICT applications which have proven to be cost effective, ability of leveraging different on-line and mobile channels enable sellers to reach a number of potential customers (both final consumers and businesses) both in domestic and foreign market in a more targeted way comparably to the common traditional ways. In addition to distribution, investment cost is also reduced since the physical infrastructure (buildings) is not the fundamental concern present to them, for businesses oriented with e-commerce entirely (UNCTAD, 2015). According to UNCTAD report (2003), Internet enables producers to reduce the number of intermediaries, where producers are able to obtain enough details about the market that may facilitate bypassing some of the intermediaries hence increasing the earning of producers, example in case of agricultural products that are being exported from which the returns are shared among a chain of members which results to the producers sharing a very small portion of the final price, which is the opposite to when the intermediaries are not involved in the distribution process.

According to the UNCTAD (2015) report it states the Econometric analysis using different model specification and controlling for industry, country and time effect shows a positive and significant relationship between labor productivity and the changes in the country engaged in e-selling. Industries with an increase proportion of selling on-line experience labor productivity growth, which may act as a reminder of the emphasis that was made nearly ten years ago in the UNCTAD (2003) report that urged developing countries to focus on implementing information technology policies which may foster long term productivity and economic growth.

4.3 Barriers to effective adoption of E-commerce;

Upon enjoying various benefits there are identified drawbacks to businesses when implementing e-commerce models in their business practices; security issues which rise concern to the stakeholders of electronic commerce, the ever changing software development industry, network stability to certain countries may be an issue, difficulties in integrating e-commerce software's with existing databases or operating software's. According to Kishetri (2007), in the paper titled Barriers to E-commerce and competitive business model has indicated a positive economic feedback occurring in the presence of increasing returns to scale, which results from the fall of unit cost when output increases but barriers associated with attaining the economies of scale in e-commerce in small developing countries are widely recognized.

Mann (2000) in the paper electronic commerce in developing countries has highlighted some obstacles behind e-commerce adoption and implementation where there is a need of developing countries addressing a number of socio economic and regulatory barriers that face electronic commerce at large so as to at least match or near with those countries that have experienced overall competitiveness in the sector such as United States and European countries. Socioeconomic challenges may prove difficult to surmount and may take time to achieve but the regulatory challenges may be easily rectified and the benefits observed quickly. High Internet access charges that has to be borne by the customer for instance additional charges that are added up on the customer to bear for using an international recognized card which may amount to 5 to 7% may be perceived to be taxing for the customer to bear, low penetration of electronic means of payment (such as credit, debit, or Smart cards), and difficult delivery systems of purchased products are the primary/basic obstacles to electronic commerce growth in most developing countries. Furthermore Mann (2000) identified fraudulent acts associated with usage of credit cards limits the optimum utilization of e-commerce, for instance in other countries, such as Taiwan, people are unwilling to use credit cards for Internet transactions because there is unlimited liability which may result to this fraudulent acts and the card owner becomes the liable one. Also Mann (2000) depicted most of the Central banks and financial institution are not well up to the task of risk free, efficient rapid authorization of payments and settlements of accounts between internet oriented businesses and payment institution in real time which is considered to be the heart of electronic commerce and point of difference to traditional business, which ultimately results to immediate delivery of products.

In order to have effective electronic commerce, distribution and delivery systems are key components, speed is one of the most important manifestations behind effective electronic commerce, For instance having overnight delivery, just-in-time processing, 24 by 7 operations all are indicators of how much faster and more precisely timed economic activities are in the e-commerce world. Therefore a country with inefficient distribution and delivery systems that is poor logistics and transport services which may need multi modal support for transportation will be difficult to catch up with the pace in electronic commerce (Mann, 2000; UNCTAD, 2015).

Moreover UNCTAD (2015) in the Information Economy report it has highlighted lack of confidentiality of data results to decline of buyers confidence over the use of on-line facilities which lead to reluctance to usage of on-line facilities, the fear is the data being used without permission from the owners and at times manipulation of those data may ultimately costs the buyer heavily, and the disability of consumers preference to touch and feel the products before making a decision to buy may be a catalyst of fear to engage on on-line business transactions.

Most of developing countries are still not much conversant on the opportunities that electronic commerce present to them, lack of Information Communication Technology skills is a limiting factor, but also having in-house organizational facilities that may be able to handle orders appropriately, observing and controlling the quality of services given, which currently provides a loop for a lot of uncertainties, increased costs, also poor vision on strategic value of e-commerce to businesses has resulted to businesses losing the interest to engage in e-commerce (Ben Aoun-Peltier and Vicente, 2012; Hollenstein and Woerter 2007; Grandson and Pearson, 2004). According to Terzi (2011) in his paper on the impact of e-commerce on international trade and employment expressed the importance of Internet on reducing barriers to international trade that result from distance but still various factors constrain cross border e-commerce, unreliable and lengthy transit time, complex and ambiguous return processes, customs delays, lack of transparency on delivery and prices has reduced efficiency in implementing e-commerce across borders. Mercer (2006) in the paper Telecentres and transformation, modernizing Tanzania through Internet depicted the market and infrastructural factors attribute to the slow Internet diffusion. For instance, in Tanzania lack of reliable electrical supply, low tele density (the number of mobile connection for every individual) and lack of purchasing power results into low rural Internet usage. Based on UNCTAD (2000) report, many developing countries lack laws that provide legal validity of digital and electronic signatures, while some developing countries treat ICT products as a luxury and impose duty, surtax, VAT, sales tax etc.

Nambisan and Wang (1999) in Roadblocks to Web Technology highlighted knowledge barrier as a key role hindering effective adoption and application of e-commerce to ventures, those knowledge barriers are related to projects, application of e-commerce and technology based. Where in multiple conceptualization of small business Web use and benefits, Pflughoeft et al (2003) discussed the level of IT knowledge base which may support the usage, managerial support and willingness to commit resources as core reasons for failure of organization being flexible to adopt implement electronic commerce in their organizations. Moreover Akbulut (2002) and Ma'aruf & Abdulkadir, (2012) in an overview to implementation of e-commerce in developing and developed countries and argued the complexity of technology that is perceived by user in understanding and using e-commerce application affects the pace adoption and implementation of e-commerce in businesses.

Among non-English speaking consumers, lack of capability in English has been an inhibitor towards e-commerce implementation (Stephens, 2001). Taking into consideration most of e-commerce application are in English or foreign languages that are not conversant to users especially in Africa. Regardless of the barriers, e-commerce still is continuing to gain fame and its adoption is so rapid to the extent not only giant companies have shifted to web based businesses even small retailing businesses are trying to gain their scope of doing business by orienting themselves to the modern systems of doing business. For an example in Dar es Salaam, mobile commerce has cascaded down to the level of the push cart, can be paid through mobile phone to deliver bunches of bananas from the main offloading market 'Mahakama ya ndizi' to individual banana vendors glossary stores.

4.4 Recommendations to improvement of e-commerce adoption

In order to access the potential of e-commerce in a country, there are several facilitating factors that facilitate the scope for implementing e-commerce effectively; buyers and sellers are required to have affordable internet access so as to pursue their trading activities effectively. According to International Telecommunication Union (2013), there were 2.7 billion users of Internet worldwide in 2013, implying at least four in ten people make on-line purchase from different locations theoretically. Therefore reliable web facilities that facilitate the acceptance and processing of orders is vital for secured and faster trading but still there is a big gap between developed and the developing countries especially the Least Developing Countries (LDCs) where it is estimated to be eight hundred secured servers per million users while in developed countries the estimate are one secured server against one million population users in developing countries which hinders efficiency for on-line oriented businesses in these developing countries.

The intensity of the broadband which entails faster and reliable connections and all other related technologies is the catalyst for e-commerce growth. The intensity helps in the increase of exchanging information but at the same time attracts new consumers, which ultimately increases the rate of adaptability the opposite may lead to users feeling demotivated and discouraged to use the e-commerce based systems (Beardsley, Domain and Edin, 2003; OECD, 2001), therefore for developing countries responsible authorities should create environment that will provide room for licensing multiple service providers so as to give subscribers alternative wide choices to the most reliable choices basing on their demand, ultimately it will be possible to attain the level of penetration that may impact the pickup of on-line operations. In order to achieve this effectively having substantial hardware's, software's and reliable network services (Teo and Pian, 2004).

Electronic readiness of all important participants engaged and influencing the business from individual, industrial and national level are important factor behind successful implementation of e-commerce (Kanchanopast, 2014; Cloete, Courtney and Fintz, 2002; AlHudhaif and Alkubeyyer, 2011; Alzoogol and Kurnia, 2010). Thus implying owners being able to accept e-commerce by investing enough resources and employing latest technology on the other hand consumers and other parties that the business is dealing with should be on the same wave length so as to cement the implementation. Kanchanopast (2014) extended his view on the security issue, that is embracing technology should not be at the expense of risking business security that includes important information which may be catastrophic to the organization, therefore the ability of securing information while the company operates in e-commerce should be viewed as an indicator of successful adoption and implementation of e-commerce. Government support in policies and laws formulated, infrastructure and training program are important in encouraging e-commerce implementation especially in SMEs (Kanchanopast, 2014).

Governments especially in developing countries should work on having good accommodative policies that are inviting, motivating and promising as well as having laws that act as guidance for e-commerce and its practices at large. For instance according to Premkumar and Roberts (1999) and Kinyanjui and McCormick (2002), identified having healthy competition also as a reason for e-commerce growth therefore having policies that may attract new entrants who are modernized and IT capable may intensify the need for e-commerce to locals so as to compete.

Moreover it is important to strive on improving the infrastructure facilities that catalyze and fasten the implementation of e-commerce such as adoption of new Internet facilities such as fiber optics that increases the effectiveness of the bandwidth. In addition to that, providing awareness knowledge on e-commerce and related issues is vital, for instance addressing on the value role that e-commerce plays to businesses, the security concerns and protections which may assist in changing the perceptions of users and ultimately gain confidence, as stated by Gibbs, Kraemer, and Derick (2003) that government regulation on privacy protection are key issues that support e-commerce, not to be taken for granted.

5. Conclusion

With the growth of e-commerce model as means of doing businesses and other economic related activities this paper has exhausted various issues that are of interest in the adoption of e-commerce in practice, where the benefits behind countries engaging in e-commerce have been highlighted together with the challenges that have to be faced head on to enjoy e-commerce existence. It should be well recognized that the world is no longer a set of isolated regions rather it is now considered to be a village, new technical approaches of doing businesses using Internet are being invented so as to increase its efficiency and so the whole world is expected to embrace the phenomena and its changes thus moving at the same pace, there should be expected no country to be left behind in adopting these changes. Therefore, this calls for more research on the areas related to e-commerce that may prove to be contributory to the growth and development of e-commerce practices especially in developing countries.

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