

Impact of Information Communication Technology on E-Commerce Transactions in Nigeria: Evidence from Covid-19 Pandemic

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Abstract

The world has been shocked by the outbreak of the Covid-19 pandemic and no country is spared of the effects of the pandemic. The Internet has brought about the emergence of virtual markets with four primary distinct characteristics, which are real-time, shared, open and global. The growing rate of ICT utilization particularly the Internet has influenced at an exponential rate, online interaction and communication among the generality of the populace. The study examines the impact of ICT on E-commerce transactions in Nigeria; evidence from Covid-19 pandemic. The study found out that virtually all organizations in Nigeria have online presence and Internet access. In fact, it is a status quo. Their goods and services are displayed online but no sales because of poorly embraced payment instrument and fear of scammers. Sales are still done the traditional way. Similarly, Internet access is fairly popular among the citizens, particularly for sending mails and sourcing for information. This is primarily due to the high number of cybercafés that offers Internet access to all and sundry for a fee. Therefore, it is recommended that government and private initiatives be encouraged to improve this sector of the economy. There is need for improved national image on the international arena and an appropriate legislation put in place to guide the operations of e-commerce.

Keywords: Information Communication Technology (ICT), E-Commerce, Covid-19

INTRODUCTION

Firms across sectors are looking to leverage new opportunities during the pandemic through e-commerce. New evidence in the paper using World Bank's (2020) 'Impact of COVID survey' data from 1182 firms across four African countries- Niger, Togo, Zambia, Zimbabwe- shows that 266 firms (22.50%) of the sample report adopting a digital response to the pandemic. Over 70% of the firms with digital response (in manufacturing, retail and other services) report having adjusted or converted production, compared to roughly 40% of firms with no digital response, and over 50% of firms with a digital response report having started or increased delivery of goods and services, compared to less than 25% of firms with no digital response. A significantly higher share of firms with a digital response in manufacturing and retail sectors report witnessing an increase in demand for their goods and services and a higher share export over 10% of sales directly compared to firms with no digital response to the pandemic. Interestingly, 6.77% of firms in retail sector and 4% of firms in other services sectors report an increase in monthly sales compared to a year ago, with 3.5% of retail firms also reporting a permanent increase in employees. But e-commerce revenues remain relatively small in Africa, with physical retailers in low and middle-income countries faring better than pure-play e-commerce retailers (or e-tailers), which sell goods and services online through an online channel with no physical stores.

However, there exist significant differences across regions in B2C e-commerce, with Africa lagging behind the rest of the world, particularly in terms of delivery infrastructure. Supply-side shocks to e-commerce during the pandemic are making things worse; shortages of delivery workers due to sickness, delays in parcels due to cargo, air and transport disruptions, increasing air freight prices due to cancellation of flights etc. On the demand side as well, there exists significant differences in online buying across income status, gender, age and education. On average, 24% of the world's population is engaged in online buying, but only 2-4% of the population in low and lower middle-income countries is buying online. While 57% of females in high-income countries are engaged in online buying, it falls to 1% in low-income countries. Similarly, over 60% of the youth in high-income countries is buying online, but this falls down to 44% in upper-middle income countries, 7% in lower middle-income countries and 3% in low-income countries. E-commerce in Nigeria has numerous challenges and these challenges have

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impacted negatively to the rapid growth of the economy. One of the major problems that have hindered the growth of e-commerce is the low broadband penetration in Nigeria most especially in the rural areas and this is supposed to be a high priority growth for the ICT industry in the country.

It has been reported that 97% of Nigerian firms experience power outages, and such outages lasts on the average for some 196 hours per month. As a result of this situation, 86% of Nigerian firms have their own generators which produce over half of their electricity needs. (Larossi, Mousley & Radwan 2009). Therefore, firms will have to incur extra costs in the consumption of petrol or diesel. One huge challenge is the low consumer confidence in using electronic payment means because of lack of diverse internet security and forensic intelligence to contain cybercrime in the country. There is the problem of high cost of accessing the web. Most Nigerians access the web through their mobile phones, meanwhile most of the e-Commerce website are configured for PCs. A critical challenge to e-Commerce growth is the issue of poverty in the country. A greater percentage of the population live on less than \$1 hence, they see shopping online as a thing for the rich. The coming of e-Commerce in the country has only received awareness in few big cities such as Lagos, Abuja, and Port-Harcourt. There is the challenge of timely delivery of goods bought online to the customers. Hence, this study is timely and will provide insight on Impact of Information Communication Technology (ICT) on E-Commerce Transactions in Nigeria: Evidence from Covid-19 Pandemic.

LITERATURE REVIEW

Conceptual Framework

Information Communication Technology (ICT)

James (2004) defines information technology as a term used to describe the act of computing and communication devices that capture data (input) processes and convert data, store data and present data (output). Information technology is an electro-mechanical device, which accepts to input data, process it according to programmed logical and arithmetic rules, store and output or calculate results (Cash and James, 2000). Technology is knowledge of methods to perform certain tasks efficiently and solve problems pertaining to products and services (Lockett & Littler, 2001). ICT is one of the most crucial determining factors for the growth of e-commerce. The growth of e-commerce requires reliable access to modern technologies which is typically lacking in most developing economies.

ICT's relevance in the growth of e-commerce cannot be overemphasized because it integrates all communication channels such as phones, computers, internet and so on for us to use in our everyday life. The impacts of ICT on the growth of e-commerce in Nigeria are: (i.) ICT has brought a major paradigm shift in e-commerce in the entire world. It has made access to buying and selling of goods and services less complicated, (ii.) ICT is a tool that helps in improving communication among businesses and commerce activities in different parts of the world. In fact, ICT is so commonly used in commerce field to communicate various financial matters such as acceptance of money, producing receipts and transferring funds that ICT and e-commerce have become almost tantamount terms. (iii.) ICT has help business organisations in cost savings by using e.g. VoIP instead of normal telephone, e-mail instead of post, video conferencing instead of travelling to meetings, e-commerce web sites instead of sales catalogues. Access to larger, even worldwide, markets. Web sites can be seen from all parts of the world and orders can be taken wherever there is a compatible banking system to process payments, e.g. credit / debit card, PayPal, bank transfer facility. (iv.) ICT enhance efficiency in e-commerce by provide access to new markets or services which in turn create new favourable condition for income generation that can lessen poverty, improve governance, improve per capita income, and reduce unemployment. (v.) Through the help of ICT, e-commerce can reduce the delivery time by using efficient integrated computer systems which allows buyers to browse a wide selection of goods and services from their home. (vi.) ICT has made e-commerce to become the cheapest means of doing business since costs of trading are lower and there is savings on staff, premises and storage of goods and services.

Electronic Commerce (E-commerce)

The concept of Electronic commerce (E-commerce) predates the Internet. However, initial growth of e-commerce started prior to 1960s, although many applications linked with the innovations emerged around 1970s in form of transferring cash electronically (Solomon and Ajagbe, 2014; Abiso, 2017). However, subsequent Innovations that followed around that era are known as electronic data interchange. Okoro and Kigho (2013) posited that the electronic data interchange allowed business transactions such as purchase orders or invoices to be forwarded through electronic means from organisation to organization. Nonetheless, the Internet, a linkage of computer networks, was introduced in 1969 by the government of America to boost academic and scientific research. As the years passed by, the number of organizations using the internet substantially increased, hence, encouraging the exchange of goods and services amongst businesses (B2B e-commerce), and between organisations and individual consumers (B2C e-commerce). Oliveira and Martins (2011) opined that the growth of e-commerce has been seen to be slower than that expected initially with B2B becoming more popular than B2C. In view of this, many descriptions of the term electronic commerce are bound in existing literature. Hence, Abiso (2017) perceived e-commerce as an online interaction between a business and its customers or a business and its suppliers for the placement of orders. He added that the internet becomes an essential component of the business organization adopting the technology. In addition, the e-business involves several stakeholders, including the business that concludes the transactions, its customers and suppliers.

Thulani et al. (2010) argued that the implementation of electronic commerce technology allows firms of all sizes and in all market segments to enhance their competitiveness. It cuts across geographic locations and time zones to save time and costs, to open up new market opportunities and enable even the smallest of firms to compete internationally (Mkomange et al., 2013; Okoro and Kigho, 2013). Electronic commerce spans established processes such as barcode scanning, electronic data interchange, electronic mail, the Internet, the World Wide Web and mobile. The prosperity recorded by firms that implement e-commerce encouraged other businesses that previously do not implement the technology to start to consider adopting electronic commerce in their daily operations. Oliveira and Martins (2011) reported that the different changes that firms experienced by the implementation of e-commerce have restructured the boundaries of businesses, thus resulting to a new but strong international economy never anticipated before and at a much faster rate than the industrial revolutions.

Effects of the Covid-19 Pandemic in Nigeria

Generally, the Covid-19 pandemic has social, religious, political and economic effects on the economy. Some people might argue that it is too early to discuss the effects of the pandemic. However, the pertinent question is, when likely will the pandemic be over? According to experts, the Covid-19 pandemic may not go away anytime soon or completely (Brito, 2020). Besides, there is no cure for it now. Therefore, it is important to discuss the effects now so that measures or actions can be taken to cushion the effects of the pandemic. With that said, the following are the effects of the Covid-19 pandemic in Nigeria.

Job Losses

Many people have lost their jobs as a result of the outbreak of the Covid-19 pandemic and many jobs are in jeopardy in the near future. The pandemic has worsened the unemployment situation in Nigeria. For instance, the unemployment rate in Nigeria before the pandemic stood at 23.1 per cent (National Bureau of Statistics, 2018). However, due to the pandemic, the unemployment rate is estimated to rise to about 33 per cent by the end of 2020 (Obiezu, 2020). An upsurge in unemployment has negative effects on the economy. For example, when unemployment increases there is the likelihood that social vices or criminal activities would increase and this portends grave danger for the country. Also, an upsurge in unemployment could lead to more hunger and poverty in the country.

A Sharp Drop in Income of the Informal Workers and the Poor

The informal workers and the poor are the hardest hit by the Covid-19 pandemic because they live on daily income. This category of people includes street vendors or hawkers, petty traders, taxi drivers, motorcycle (i.e. “Okada”) riders, artisans, hairdressers and garbage collectors, etc. They engage in daily trading activities for their daily bread. The lockdown and other containment measures have threatened their means of livelihoods and subjected them further to poverty and hunger. It is important to note that the informal workers constitute about 60 per cent of the global labour force (International Labour Organization, 2020) and they live on less than \$2 per day.

Business Closures

Many businesses, particularly small and medium enterprises (SMEs) have been closed down as a result of the Covid-19 pandemic. SMEs are badly hit by the outbreak of the pandemic due to their vulnerability and limited resources. Measures such as self-isolation or quarantine, social distancing, ban on social gatherings and closure of markets taken to contain the spread of the disease have impacted negatively on their operations, sales and profits. Many SMEs have experienced demand and supply chains shocks during this pandemic. Demands for goods have reduced drastically due to lockdown and restrictions of movement. Additionally, the supply chains have been badly affected. For example, business organizations in Nigeria import their goods from China (Ozili, 2020). With the ban on foreign travels during this pandemic, the supply of such goods and the continuity of such businesses would be negatively affected. Needless to say, border closures have negative impacts on import and export businesses.

Agriculture and Food Insecurity

The Covid-19 pandemic has affected the production and marketing of agricultural products. No doubt, the pandemic has worsened the food insecurity situation in the country. The demand and supply chains of agricultural products and foods internally and externally have been affected as a result of the measures adopted to contain the spread of the disease. Farmers find it difficult to obtain seedlings, fertilizers, pesticides and farm implements. Moreover, labour-intensive agricultural production processes have been affected due to labour shortages and logistical constraints. Additionally, the timing of the outbreak of the Covid-19 pandemic in Nigeria disrupts farming activities. For some farmers, the timing of the outbreak of the disease coincides with the planting season whereas, for others, the timing of the outbreak of the pandemic coincides with the period of harvest. These disruptions, no doubt, have devastating effects on the production and marketing of agricultural products.

A Steep Decline in Oil Revenues

Nigeria is a mono-product economy (Agbaeze&Ukoha, 2018; National Bureau of Statistics, 2019). It depends heavily on the export of crude oil for economic growth and development. The outbreak of the Covid-19 pandemic has affected negatively the price of crude oil in the international market. For example, the price of crude oil dropped from about \$60 per barrel to less than \$30 per barrel (Ozili, 2020) and this has affected negatively the revenues from the sales of crude oil for Nigeria. The demand and patronage of Nigeria’s crude oil has reduced drastically due to the pandemic. The plunge in the price of crude oil has far-reaching effects on the Nigeria’s economy. Specifically, it affects Nigeria’s 2020 budget. The steep decline in oil revenues has led to the review of the budget. The Nigeria’s 2020 budget was originally N10.594 trillion. It has been reduced to N10.276 trillion. Likewise, the oil benchmark that was originally pegged at \$57 per barrel has been reduced to \$30 per barrel (Ozili, 2020). It is important to note that revenues from the sales of crude oil form the largest part of the money expected to fund Nigeria’s 2020 budget (BudgI, 2020; PWC, 2020).

School Closures

The Covid-19 pandemic has posed a huge challenge to education systems. With the ban on social gatherings and the social distancing measure adopted to contain the spread of the disease, many schools

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(primary, secondary and tertiary) have been closed down. Academic activities have been suspended and many academic calendars have been disrupted. The implication is that students would not graduate at the expected time.

Death Toll

The coronavirus pandemic has claimed many lives across the country. The statistics released by the NCDC as at 23rd May, 2020 shows that 221 deaths have been recorded since the outbreak of the disease. The number of active cases as at 23rd May, 2020 stands at 5,123 (NCDC, 2020). This is a serious cause for concern considering the poor state of the health facilities in the country.

Economic Uncertainties

The Nigeria's economy is bleak, sliding towards a recession or an economic contraction as a result of the Covid-19 pandemic. Indices of economic recession abound. Prices of goods and services have skyrocketed during this pandemic. Unemployment has increased and exchange rate has become volatile. Moreover, economic activities have been greatly disrupted and the Covid-19 pandemic has no cure for now. This situation makes the economy unpredictable. Additionally, production and job losses and change in buying habits have strained the economy. Moreover, the steep decline in oil revenues occasioned by the sharp fall in crude oil price is likely to deplete Nigeria's external reserves, thereby making the future unpredictable.

2.2 Empirical Review

Otache (2020) examined the effects of the Covid-19 pandemic on the Nigeria's economy and possible coping strategies. In addition to the viewpoint of the author, this paper undertook a review of the related literature regarding the Covid-19 pandemic and how Nigerians and the Nigerian government can cope with the effects of the pandemic. The review reveals that the effects of the Covid-19 pandemic in Nigeria include jobs losses, a sharp drop in income of the informal workers and the poor, food insecurity, business and school closures, a steep decline in oil revenues and economic uncertainties. This paper has recommended some measures to be adopted by Nigerians and the Nigerian government in order to cope with the devastating effects of the Covid-19 pandemic and similar pandemics in future. The measures include monetary and fiscal policy measures, diversification of the economy through agriculture, revamping of the manufacturing sector, acquisition of relevant ICT skills, adoption of e-learning model by schools, adoption of e-business model by business organizations and the need to have multiple sources of income.

Abioye, Ogunniyi and Olagunju (2020).Examines the effect of COVID-19 related cases and lockdown measures on the issues related to Small and Medium Scale Enterprise in Nigeria. Using an electronic data collection approach, this study analyzes the data using the linear probability model to estimate the effect of the pandemic on the entrepreneurs and model the factors influencing coping strategies using a multivariate probit model. We found that majority of the entrepreneurs have been affected (both severely and slightly) by the COVID-19 pandemics through the partial and total lockdown and movement restrictions. We found that the COVID-19 pandemic's effect differs by sector of the economy (agriculture versus non-agriculture). For instance, partial lockdown measures had an increasing likelihood effect on low sales among the enterprises especially for the non-agricultural sector but there is a contrary result in the context of the food and agriculture sector. In addition, partial lockdown increases the likelihood of switching approaches of business (coping strategies) whereas total lockdown has a negative influence on the coping strategies. One of the policy implications of our study is the need to address social protection approaches (such as palliative measures) which can help to cushion the effect on the pandemic on the Small and Medium Scale Enterprise in Nigeria.

2.3 Theoretical Framework

2.3.1 Transaction Cost Theory

Transaction cost was first introduced by Williamson (1981). Economists have classified transactions among and within organizations as those that (a) support coordination between buyers and sellers, that is, market transactions, and those (b) supporting coordination within the firm. Figure 2 depicts a typical market hierarchy progressing from manufacturer to wholesaler, retailer, and consumer. The associated respective transaction costs are shown as well. Williamson (1981) points out that the choice of transaction depends on a number of factors, including asset specificity, the parties' interests in the transaction, and ambiguity and uncertainty in describing the transaction. Transactions may then be broken down into production and coordination costs (e.g., Wigand et al., 1997; Benjamin & Wigand, 1995; Malone et al., 1987). In this context, coordination costs include the transaction (governance) costs of the information processing necessary to coordinate the work of people and machines performing primary processes (Malone et al., 1987). Transaction costs may be viewed as the economic equivalent of friction in a physical system that is, if friction is too great, no or at least impeded movement will occur suggesting that if transaction costs are high, no or little economic activity is likely to occur.

These costs are comprised of the following four types; Search costs the cost of searching for products, sellers, and buyers; Contracting costs - the cost of setting up and carrying out the contract; Monitoring costs - the cost ensuring that the terms of the contract have been met and; Adaptation costs - the cost incurred in making changes during the life of the contract. Firms will choose transactions that economize on coordination costs. As information technology continues its rapid cost performance improvement, the unit cost of coordination transactions will approach zero, thus enabling the design of innovative coordination transactions to fit new business needs (Benjamin & Wigand, 1995). The ever-increasing and innovative use of the World Wide Web (WWW) to conduct business and WWW-related forms of electronic commerce are clear examples of firms' desires to economize on transaction costs. Figure 1 suggests that transaction cost savings may be achieved through the use of information technology within the entire market hierarchy and resulting market or industry value chain. Benjamin and Wigand (1995) present an example of the purchase of a high-quality shirt with empirical cost figures clearly demonstrating actual savings in transaction costs resulting in lower purchase costs for the consumer. Moreover, this example demonstrates nicely how the potential elimination of entire levels within the market hierarchy (such as; wholesalers, retailers, etc) may occur.

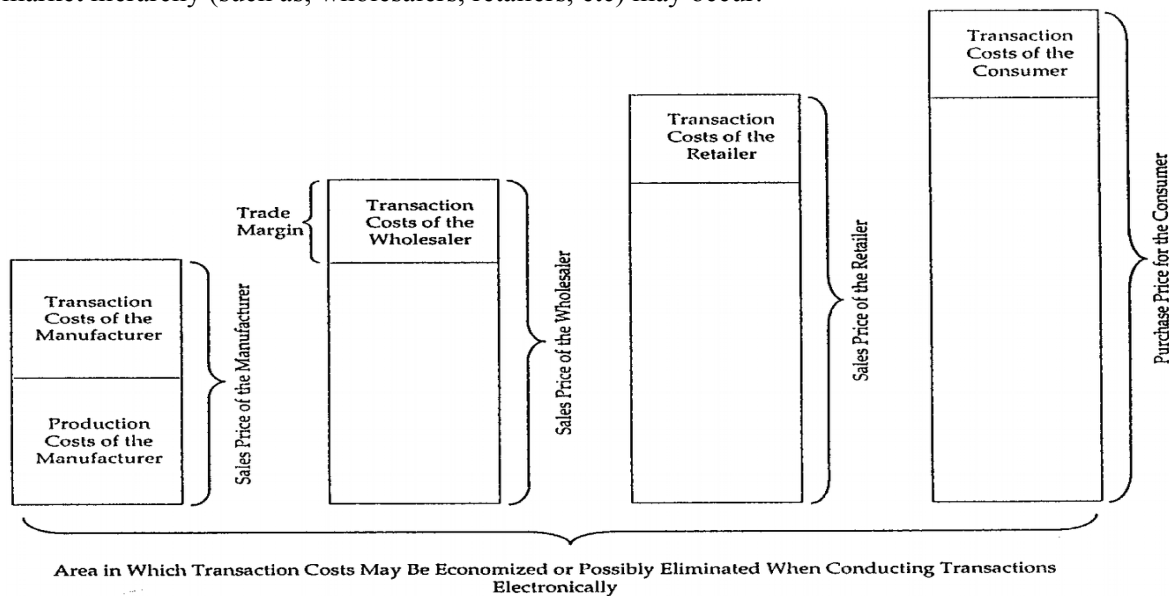


Figure 1: Market hierarchy and transaction costs in a stepwise fashion. From Wigand (1995).

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The latter is clearly observable in several markets and industries, as already mentioned in the discussion on disintermediation versus reintermediation. One may argue that with cheap coordinative transactions, interconnected networks and their strategic deployment, and easily accessible databases, there would be a proportional shift of economic activity to cheaper electronic communications channels to conduct a firm's business.

METHODOLOGY

For the purpose of this study, the research design adopted is ex-post facto research design. There are at least two major parties involved in e-commerce transactions. They are the customer and the merchant. Some of the other parties involved are the acquirer, the issuer and the switching/clearing house. In this research, interest is on both the customer (the individual who is interested in purchasing goods) and the merchant (the organization or individual who is interested in selling some goods). Therefore, two separate sets of questionnaires were administered across these entities.

A total of 100 questionnaires were administered randomly among the major organizations within the Abuja metropolis. The organizations cut across the aviation, finance, conglomerates, petroleum, IT and private organizations. The organizations within a particular sector were randomly selected but with fair coverage and representation. 99 of the questionnaires were returned which represents 99% of the total number administered. Pertinent questions such as web presence, Internet access, level of web patronage, level of web marketing and the nature of problems encountered were posed to them. Similarly, a total of 150 questionnaires were administered and 139 of them were returned, which represent 93% of the total. Relevant questions such as: Internet access, availability of payment cards, level of web commerce patronage and likely challenges were posed to them. This group is composed of randomly selected individuals who are predominantly working-class part-time postgraduate students of an institution, and some few members of the general public.

Available research has identified three major factors that impact message elaboration and message evoked thinking as motivation, opportunity and ability (MOA) that moderate or serve as antecedents to information processing by individuals (Hallahan, 2000). Ramaswani et al (1998) presented the same model as AMO model. That is, a determinant for online purchasing characteristics by determining the customers' ability to purchase online, their motivation to do that, and the available opportunities for Internet access. Therefore, the collected data was analyzed based on the ability, motivation and opportunity (AMO) framework, and descriptive statistics using the SPSS package.

RESULT AND DISCUSSIONS

Descriptive Analysis of Data on Relevant Variables

Respondents indicated whether they "Strongly Agree", "Agree", "Undecided", "Disagree", or "Strongly Disagree" with the statements provided. Below are the statements and the tables showing the frequency and percentage distribution of responses along with their interpretations are:

Table 1: The E-commerce ability analysis table

- A** - S/N
- B** - FEATURES
- C** - Individuals Yes
- D** - Individuals No
- E** - Organizations Yes
- F** - Organizations No

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A	B	C E	D F
1	Web presence	68 (49%) 88 (89%)	71(51%) 11 (11%)
2	Internet access	94(68%) 97(98%)	45 (32%) 2(2%)
3	Payment card availability	57(41%) NA	82(59%) NA
4	Participation in online purchase	28(20%) (***)	111(80%) (***)

(***) Most of the payment activities are limited to payment for utilities/services with ATM cards and credit cards used in supermarkets and filling stations and not for purchases on the web.

Table 2: Level of E-commerce participation table

- A - Feature
- B - Very High
- C - High
- D - Average
- E – Low

A	B D	C E
Individual		
Level of E-Commerce	5 (5%) 36 (36%)	11 (11%) 47 (48%)
Organization (Merchant)		
Level of E-Commerce	9 (7%) 42 (30%)	24 (17%) 64 (46%)

Discussion of Findings

Virtually all organizations in Nigeria have online presence and Internet access. In fact, it is a status quo. Their goods and services are displayed online but no sales because of poorly embraced payment instrument. Sales are still done the traditional way. Similarly, Internet access is fairly popular among the citizens, particularly for sending mails and sourcing for information. This is primarily due to the high number of cybercafés that offers Internet access to all and sundry for a fee. Furthermore, the percentage of individuals with payment card is low (41%) considering the sample and population used (working-class part-time postgraduate students). The reason for this low result is not unconnected with the economy of the country which is cash-based coupled with the fact that the available cards are mostly ATM cards that are used for settlement of local transactions. Accordingly, the percentage of individuals that is involved in online purchase is pretty low (20%). The present study corroborated with the study of Abioye, Ogunniyi and Olagunju (2020) who in their findings found that Sales are still done the traditional way by most SMEs in Nigeria but disagreed with the study of Otache (2020) who opined that e-commerce improved Nigeria economy growth.

With respect to the motivation for E-Commerce Participation, motivation refers to availability, affordability, security and trust in the use of the medium and it arouses the interest, willingness and readiness of customers to patronize a medium. Therefore, in addition to web presence, Internet access, and availability of payment cards, the tables above show the level of web commerce. The level of web commerce as presented in table 2 above is generally low. The total percentage below average is 36% for individuals and 42% for organizations. This goes a long way to corroborate the perception that consumers source for information online but make purchases the traditional way. Furthermore, the poor response may

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have been as a result of lack of popularity and low patronage of web commerce. Therefore, there is need for awareness and sensitization campaign, motivation and availability of payment instruments for better result.

CONCLUSION AND RECOMMENDATIONS

On the basis of ability, virtually all companies in Nigeria have Internet presence and access. Thus, they have the ability to display their goods and services on the web. However, considering the location of administration of the questionnaire (Abuja), the best result is expected because of its commerce centric nature, with a lot of telecoms and cybercafé operators but the result of 68% internet access for individual is just fair and much is desired particularly in the provision of basic ICT infrastructure. Considering motivation, the level of e-commerce participation is generally low, although there are other forms of e-payment through the use of ATM and credit cards in the supermarkets and payment for utilities, which are very prevalent. However, for e-commerce, because of the rejection of payment cards that originate from the country, some individuals offer payment services through their international payment cards to consumers for a fee.

Furthermore, the available opportunities for e-commerce are very limited considering the number of PC owners, the number of Internet users and the number of available payment cards which are ridiculously low among other things. Therefore, it is recommended that government and private initiatives be encouraged to improve this sector of the economy. There is need for improved national image on the international arena and an appropriate legislation put in place to guide the operations of e-commerce. Similarly, concerted efforts are required for the provision of basic infrastructure in the areas of web presence, Internet access, and e-payment. The entire populace must be encouraged to embrace the e-banking culture as this will in turn reduce the amount of cash in circulation and boost the e-commerce culture.

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