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The Role of Information Technology in Nigerian Economy

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ABSTRACT

Information and Communication technology play a central role in the economic, social and political life of every nation, thus, this study examined the role of information technology on economic growth in Nigeria. This was done using ordinary least square estimation technique. The study found that investment in the telecommunication sector and improved level of communication and information technology significantly influence economic growth in Nigeria. Adequacy of information technology infrastructures such as computer and internet devices as well as high level of internet usage will achieve rapid economic growth and development if the resources are channeled efficiently. Therefore, this study suggests an improvement in the supply of information and communication infrastructures.

Keyword : Information Technology, Economic growth, Internet users and Telecommunication

I. INTRODUCTION

Information technology is an electronic technology for collecting, storing, processing and transmitting information (Sagarmay, 2014, Butcher, 2003). IT is regarded as electronic technologies that process information like computer systems and telecommunication system that disseminate information. According to Oladunjoye and Audu, (2014), information technology refers to the diverse methods, and tools that human beings employed throughout history to help manage and transmit information. Information technology is the technology used to store, manipulate, distribute or create information (Sagarmay, 2014). These definitions emphasized the role of technology in disseminating information as fast as possible and at the lowest possible costs. The technological advancement in information transmission influence virtually all aspects of economy of any country in the world. Information Technology (IT) refers to several forms of information exchange between two or more computers through any of the several methods of interconnection, principally the Internet. These technologies provide speedy, inexpensive and convenient means of communication. The diffusion of these technologies in many countries by different sectors of the economy have been found to have a direct positive impact on the organization's efficiency and have led to more rapid acceleration of development in these countries (Achimugu et al 2009). Over the years in Nigeria, transformation has taken place in every sector of the economy, which required knowledge as an asset for implementation of projects in the different sectors of the Nigerian economy.

Information Technology has played a huge role in the different sectors of the Nigerian economy. Information Technology encompasses several industries such as; computer hardware, software, electronics, computer networks and many more. These industries in information technology have played a huge role in the implementation of project/business ideas in the different sectors of the Nigerian economy. These sectors include agriculture, automobiles, banking, clothing and textiles, education, energy, health care and pharmaceuticals, transportation, etc. These sectors have been experiencing the positive impact of Information Technology in terms of economic growth. However, Nigeria is still faced with low development of information technology, this is because Nigeria lacks innovation, capacities and capabilities in information technology (IT) management and hardware maintenance. Despite the fact that Nigeria import and use a wide range of durable consumer electronics, computers and telecommunication equipment, she still lacks the maintenance culture to enjoy the full benefits of these technologies. There is need to fully understand the role of IT in Nigeria for the country to understand the need to accumulate the capabilities to repair and maintain these technological

infrastructures. It is against this background that this study will examine the role of IT in the Nigerian economy. The rest of the paper is organized into eight additional sections. Section two and three examine the role of IT in business and banking sectors of the economy. Section four and five examine the growth trends of IT indicators and its effects on economic growth while section six reviews related literature and the rest of the sections dwell on the theoretical and methodological framework, discussion of results, conclusion and recommendation.

II. Role of Information Technology in the Business sector

Information technology provides a commercial advantage in the business sector, evidence from Sagarmay, (2014) showed that advances such as computer aided design, relational database technologies, spreadsheets, and word processing software all provide a commercial benefit to the business, as does automation of manufacturing processes. The use of information technologies in commercial business stand to increase the owner's profit, especially when sale is channeled through various technological means such as online advertisement. Advancement of high-tech means such as websites and satellite television has improved media and increase audiences through which business organizations can advertise their products and services and disseminate their information to attract a large population of customers. Similarly, information technological infrastructures such as internet can also provide a means through which people priced and pay for their choice goods without any physical contact with the seller. The impact of information technology on the firm's cost structure can be best demonstrated with the electronic commerce, which is the key areas of cost reduction when carrying out a sale via electronic commerce rather than in a traditional store that involve physical establishment, order placement and execution, customer support, staffing, inventory carrying, and distribution. E-Commerce is perhaps the most powerful business tool to be developed after the computer. According to Robinson, (2000), e-commerce is the use of the internet to perform business transactions, business-to-business and business-to-consumer. A fully integrated systems for e-commerce restructure the purchase, manufacturing, and delivery of products to save costs. Although setting up and maintaining an e-commerce website might be expensive, it is certainly less expensive to maintain such a storefront than a physical one because it is always open, can be accessed by millions around the globe, and has few variable costs. Sagarmay, 2014. However, the use of information technology to enhance a business performance can also enable business organizations to highlight areas where they are not making the most use of their resources. A technology infrastructure that provide 24-hour service of transmitting information between buyers and sellers at a low cost about price and product information, will lead to efficient market operation, but this infrastructure might also provide the means for effecting real-time transactions and make intermediaries such as sales clerks, stock brokers and travel agents, whose function is to provide an essential information link between buyers and sellers redundant (Sagarmay, 2014)

III. Role of Information Technology in the Banking Industry

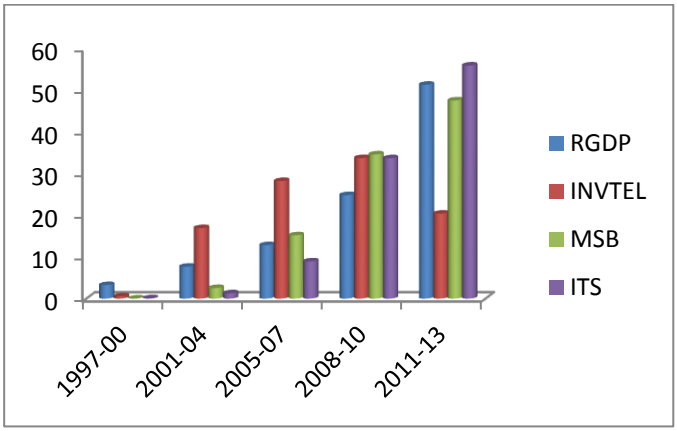
Information technology has created new products and services, efficient delivery channels and new markets for the banking industry. The payment system has been fastracked through technologies such as e-banking, mobile banking and internet banking among others. The payment systems are made feasible by ICT gadgets such as Automated Teller Machine (ATM), Electronic Fund Transfer (EFT), Clearing House Automated Payments (CHAPs), Electronic Purse (E-PURSE), Automated Cheque Sorter (ACS) and Electronic and Transfer at Point of Sale (EFTPOS), which have made transactions easy and convenient. Dandago and Rufai, (2014) conceded that it is information technology that enables banks in meeting high expectations of the customers who are more demanding and are also more technologically inclined, whenever these customers demand for instant banking facilities. Information technology has been providing solutions to banks to take care of their accounting and back office requirements. This has, however, now given way to large scale usage in services aimed at the customer of the banks. Information technology also facilitates the introduction of new delivery channel in the form of Automated Teller Machines, Net Banking, and Mobile Banking. Dandago and Rufai, 2014. Information Technology has also provided banking industry with the wherewithal to deal

with the challenges the advance global economy poses. The information technology revolution has set the stage for an unprecedented increase in financial activity across the globe. The progress of technology and the development of worldwide networks have significantly reduced the cost of global funds transfer. Information technology has been the cornerstone of recent financial sector reforms aimed at increasing the speed and reliability of financial operations and of initiatives to strengthen the banking sector. It is information technology, which enables banks in meeting such high expectations of the customers who are more demanding and are also more techno-savvy compared to their counterparts of the yester years. Information technology has been providing solutions to banks to take care of their accounting and back office requirements. This has, however, now given way to large scale usage in services aimed at the customer of the banks. Information technology also facilitates the introduction of new delivery channel in the form of Automated Teller Machines, Net Banking, Mobile Banking (Dandago and Rufai, 2014). However, the phenomenon of little interruptions at times due to network failures, may make customers unable to carry out transactions at that point in time. This little shortcoming is not in any way comparable to the days when banking halls were characterized by long queues mainly as a result of delays in the traditional. More interestingly, almost all the banks in Nigeria have internet and on-line real time banking facilities which have improved the scope of Nigerian banking. It has aided transfer of funds from one location to another without any involvement of physical transactions, but not without a tendency to fraud. Notwithstanding the numerous benefits of IT, IT procurement requires a huge investment outlay since no bank can afford to ignore the need to adopt measures that will quicken the processing and transmission of business information and as well saving time and cost. Whether the level of investment done in IT actually brings real benefits to the banks, is still a matter of debate in academic circles (Willy and Obinne, 2013).

IV. Economic Growth and Information Technology in Nigeria

The Nigerian economy is predicted to have naturally gained from emerging into information technology age, with a licensing process universally adjudges to be rare display of transparency, openness and non-intervention, has turned the fortunes of the country around, and consequently raises investor's confidence in the Nigerian Telecoms market and economy. Likewise, Telecommunication has also increased employment generation, reduced transportation costs, increased business efficiency, attracts foreign funds, and a host of other benefits (Gold, 2011). Technologies allow a country production intensity to be capital intensive that improves productivity level. Technological progress unavoidably leads to reliance on technology. Indeed the creation of vital infrastructure ensures dependence on that infrastructure. Such technological progress hinges on Moore's Law, which states that the density of semiconductor chips double every 18 months. Miniaturization of ICs enables faster speed of processing which enhances performance of information communication technology equipment. Due to this rapid performance improvement, constant quality IT output as well as the investment grows much faster than its nominal values. Jorgenson and Vu (2005). As the world is now dependent on its transport, telephone, and other infrastructures, it will be dependent on the emerging information infrastructure. Information technology fields of applications are to some extent global and limitless, it has outpaced the role of support services. Its infrastructures such as World Wide Web (www) and modern computer email facilities through the Internet have further supported early inventions like fax and telephone. Other commonly used ICT devices include data recognition equipment, factory automation hardware and services, tele-computing and teleconferences that use real time and online system among others. Information technology is a concept that has a remarkable effect on almost entire aspects of the human endeavors (Willy and Obinne, 2013). However, over-dependence on technology also has its own risks. For instance, failures in the technological infrastructure can cause the collapse of economic and social functionality. Blackouts of long-distance telephone service, credit data systems, and electronic funds transfer systems, and other such vital communications and information processing services.

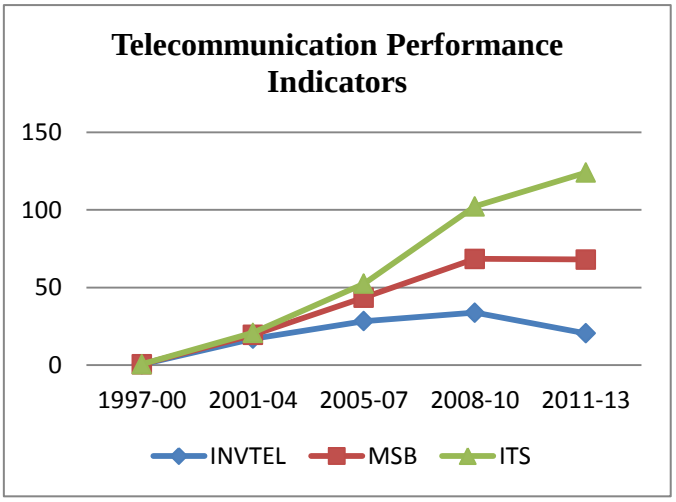
The Trend analysis of Telecommunication Performance Indicator and Economic Growth in Nigeria (1997-2013)



Source: Author's Compilation Culled from NBS Statistical Bulletin, (2012)

The diagram above shows the trend of telecommunication indicators over the period of time. It was observed that the number of Internet Users constantly increased by over 50 percent from 0.53 percent in 1997-2000 to 56% in 2011-2013. The number increased sharply in 2001-2004 with about 50 percent and the highest value was recorded in 2011- 2013. Its growth rate as shown above outpaced the other telecommunication indicators. These statistics show a tremendous improvement in the use of information technology infrastructure in Nigeria, especially the use of internet. However, a decrease trend was observed in the level of investment in the telecommunication sector in 2011-2013. The highest level of investment in the telecommunication sector was recorded in 2008-2010 while the lowest level of investment occurred in 1997-2000. Economic growth as proxied by Real Gross Domestic Product (RGDP) increased steadily at a higher rate over the years with slight fluctuation. It was also noted that the growth rate of the amount of Mobile Cellular Subscription (MSB) constantly increased over the years. In 1997-2000, it stood at 2.5% and increased sharply to 8.9% in 2005-2007 with a further increase in 2008-2007. This shows that notable development has occurred in the telecommunication sector in relation to economic growth over the years.

Growth Trend analysis of Telecommunication Performance Indicator in Nigeria



Source: Author's Compilation Culled from NBS Statistical Bulletin, (2012)

The diagram above shows the trend of telecommunication indicators over the period. The growth rate in the key IT infrastructure in Nigeria was compared and it was observed from the diagram that the number of Internet Users (ITS) has constantly increased by over 50 per cent from 0.08 per cent in 1997-2000 to about 56% in 2011-2013. The growth rate of the number of Internet Users stood at 33.8% in 2008-2010 period followed by a sharp increase in 2011-2013 with about 25 percent. The highest growth rate was recorded in 2011-2013 and its growth rate as shown above outpaced the other telecommunication indicators. However, in the level of investment in the telecommunication sector, the highest rate stood at 33.8% in 2008-2010 period followed by a decrease trend while the lowest level of investment occurred in 1997-2000. The number of Mobile Cellular Subscription (MSB) increased steadily at a higher rate over the years with slight fluctuation. It was also noted that the growth rate of the number of mobile cellular subscriptions stood at 34.7% in 2008-2010 with the highest rate of 47.6% in 2011-2013. These trends in telecommunication performance indicators show that more improvement can still be recorded even at a greater rate if the resources are channeled efficiently. Pedro, (2012) emphasized that IT plays a very important role in today's Nigerian knowledge–based economy and its applications in the Nigerian economy will brings about value and competitive advantage among global economies. However, for the effective application of

Information Technology, government must at least devote a significant amount of national income to Information Technology.

V. Indicators of Information Technology in Nigeria

Indicators of Information Technology according to Achimugu et al (2009) include a fixed telephone lines per 100 inhabitants, the number of mobile cellular subscribers per 100 inhabitants. Mobile cellular telephone subscriptions are subscriptions to a public mobile telephone service that provide access to the PSTN using cellular technology. The indicator includes (and is split into) the number of postpaid subscriptions, and the number of active prepaid accounts (i.e. that have been used during the last three months). The indicator applies to all mobile cellular subscriptions that offer voice communications. It excludes subscriptions via data cards or USB modems, subscriptions to public mobile data services, private trunked mobile radio, telepoint, radio paging and telemetry services. Also, the number of internet users is also another good indicator. This number includes individuals who have used the Internet (from any location) in the last 12 months. The internet can be used via a computer, mobile phone, personal digital assistant, games machine, digital TV etc.

Furthermore, the level of government investment in telecom projects with private participation also indicates the level of Information Technology in the economy. Investment in telecom projects with private participation covers infrastructure projects in telecommunications that have reached financial closure and directly or indirectly serve the public. Movable assets and small projects are excluded. The types of projects included are operations and management contracts, operations and management contracts with major capital expenditure, greenfield projects (in which a private entity or a public-private joint venture builds and operates a new facility), and divestitures. Investment commitments are the sum of investments in facilities and investments in government assets. Investments in facilities are the resources the project company commits to invest during the contract period either in new facilities or in expansion and modernization of existing facilities. Investments in government assets are the resources the project company spends on acquiring government assets such as state-owned enterprises, rights to provide services in a specific area, or the use of specific radio spectrums.

Other indicators the number of computers per 100 inhabitants, percentage of population covered by mobile cellular telephony, percentage of localities with public internet access centres by number of inhabitant (rural/urban). Indicators on access to and use of ICT by Household and Individuals include proportion of households with satellites/cable television connections, proportion of households with a fixed line telephone, proportion of households with mobile cellular telephone, proportion of households with a computer and proportion of households with Internet usage at home while indicators of ICT Usage by Businesses include proportion of businesses using computers, proportion of employees using computers, proportion of businesses using the Internet, proportion of employees using the Internet. Also the indicators on the ICT Sector and Trade in ICT Goods are proportion of total business sector workforce involved in the ICT sector, value added in the ICT sector (as a percentage of total business sector value added), ICT goods imports as a percentage of total imports and ICT goods exports as a percentage of total exports.

VI. Literature Review

The role of information technology in the actualization of various organizational objectives cannot be over-emphasized. Many business organizations, operate in a complex and competitive environments that are characterized with Information and Technology at the center. Using a primary data sourced through a structured questionnaire administered to selected banks in south-west Nigeria and the Ordinary Least Square (OLS) techniques, Obasan, (2011) examined the nature of the relationship that exist between Banks Profitability and the Adoption of Information and Communication Technology. The data analysis showed that a positive correlation exists between ICT and bank's profitability in Nigeria. This implies that a marginal change in the level of the investment and adoption of ICT in the banking industry will result in a proportionate increase in the profit level. This is confirmed by the level of the regression coefficient as well as the factor analysis, which revealed that an insignificant size of profits exist without the introduction of the ICT. However, Willy and

Obinne, (2013) evaluated the effect of information technology investment on bank returns. Data obtained from the annual reports of some selected banks that survived the 2005 regulatory bank consolidation exercise in Nigeria were analyzed using OLS. The analysis suggests that information technology expenditure has a negative relationship with bank profitability indicating that IT expenditures of all the studied banks do not increase bank profitability, but rather decreases it insignificantly.

Yusuf et al., (2013), also reviewed the role of information and communication technologies (ICTs) in all aspects of the economy. The authors found that the use of ICT has fundamentally changed the practices and procedures of nearly all forms of endeavor within business, government and civil service. They identified that in education, ICT has begun to have a presence, but the impact has not been as extensive as in other fields of endeavor. This is because the movement of the world to digital media and information has made the role of ICT in education to become more important and this importance will continue to grow and develop in the 21st century. In developing countries, Nigeria precisely, preliminary investigations shows that only a few organizations in the economy have adopted the IT, therefore, Achimugu et al (2009) examined the level of IT diffusion in the Nigerian economy, and the impact on the operations of business organizations. The authors also investigated the factors responsible for the present level of diffusion of these IT technologies. It was shown that access to IT doubtless the most fundamental prerequisite for an inclusive information society. Measuring access is therefore a key priority for a set of indicators that are relevant in order to judge the effect of ICT on the socioeconomic growth of developing nations.

Ayeni et al, (2016) highlighted the role of information technology in building a knowledge-based economy in Nigeria. The study was focused on the perceived paucity of the role of Information Technology in building, developing and actualizing knowledge based economy in Nigeria. It also highlights core functionalities for managing issues relating to privacy and security in knowledge repositories. The authors conceded that since knowledge based systems came into existence in the early 1980s, Nigeria and many other African countries are yet to explore the diverse importance and use of these technologies when Investigations and surveys have revealed that most practitioners in the I.T industry are concerned about the business risks in terms of profitability, investment risks and working capital management instead of using their Information Technology capabilities to build knowledge based economy which would also serve as synergy to foster national development. Oladunjoye and Audu, (2014) explored the impact of ICT on youth and its vocational opportunities in Nigeria. The researchers elicit data from both primary and secondary data. The paper concludes that development of ICT will provide employment opportunities to the youths thereby securing the nation both socially and economically and recommends that, potentials of youth should be upgraded to encourage the application of ICT.

Furthermore, the reports form developed countries have been controversial, Hitt and Brynjolfsson (1994) report positive effects of IT on productivity based on output and consumer surplus measures. Also, Berman, Bound and Griliches (1994) also find that increased use of non-production workers is strongly correlated with investment in computers and in R&D. He found computer-using workers earned 10% - 18% higher wages than non-users. In 1984, 24.6% of workers were using computers at work. By 1989, this number had grown to 37.4 %. Assuming that workers are paid according to their productivity, this implies that computers at work increase the level of GDP by 3%. Moreover, Siegel and Griliches (1992) used industry and establishment data from a variety of sources to examine several possible biases in conventional productivity estimates. Among their findings was a positive simple correlation between an industry's level of investment in computers and its multifactor productivity growth in the 1980s. Their findings was contradictory to those of Berndt and Morrison (1995) but Berndt and Morrison (1995) document positive correlations between IT capital and some measures of economic performance in the specifications where cross-sectional effects were emphasized. In addition, Berndt and Morrison's level of aggregation is broader than that of Siegel and Griliches (1992). Also Strassmann (1985) reports disappointing evidence in several studies. In particular, he found that there was no correlation between IT and return on investment in a sample of 38 service sector firms: some top performers invest heavily in IT, while others do not.

Similarly, Landauer (1995) de-emphasizes the findings of recent studies and documents various cases of the trouble with computers. Jorgenson and Stiroh's (1995) calculation shows that average multifactor productivity growth dropped from 1.7% per year for 1947-73 period to about 0.5% for the 1973-1992 period. Although productivity growth, especially in manufacturing, has rebounded, the overall negative correlation between economy-wide productivity and the advent of computers drives many arguments proposing that information technology has not helped U.S. productivity or even that information technology investment has been counter-productive. At this stage, the academic research results are inconsistent on a number of dimensions, including measures of performance, methodologies, and data sources. Krueger (1993) study on importance of computer-using workers indirectly supports this view.

VII. Theoretical framework and Methodology

Most of the new growth theories have shown that technological advancement encompasses a new concept of human capital, the skills and knowledge that influence productivity of workers. These theories identify that, contrary to physical capital, human capital has increased the rate of returns and as such, research works which fall in the same direction have given importance to drivers of human capital such as education and technological changes/advancement. The Schumpeterian growth model views growth as a creative destruction process which composes the dual nature of technological progress. The creative destruction process identifies that it is a process that renders old technologies inappropriate or obsolete. A destruction which is referred to as the annulment of previous technologies which makes them obsolete and theoretically, the aggregate improvement effect translates to economic growth. Jorgenson (1995), in order to capture the size of IT output and input to the macro economy apply the production possibility frontier approach where aggregate output consists of, computer production, software production, communications equipment production and aggregate inputs consist of non-IT capital services, computer services software services, communications equipment services, and labor services. The adopted methodology follows the new growth theory that expresses a mathematical explanation of impact of technological advancement on economic output. The data used in this research work are secondary data that cover the period from 1997 to 2014. The data are obtained from the World Development Indicators (WDIs). Annual data on Nigerian real gross domestic product (RGDP) which measure the level of economic growth was gathered from the CBN statistical Bulletin. The variables include; Mobile Communication Subscription (MCS) the number of mobile communication prepaid accounts. The users are the people who connect to mobile networks. The number of telephone lines (TELLINE) which represent the total number of telephone lines in use in the economy, the government investment level in telecoms along with private participation (INVEL), the number of internet users in the country (ITS) and Dummy variable which is used to capture the level of information technology.

Model Specification

$$RGDP = f(MCS, DVIT, TELLINE, ITS, INVEL, \varepsilon)$$

$$lnRGDP = \alpha_0 + \alpha_1 + MCS + \alpha_2 DVIT + \alpha_3 TELLINE + \alpha_4 ITS + \alpha_5 INVEL + \varepsilon \quad (2)$$

Where
RGDP- *Real Gross Domestic Product*
MCS*- The number of mobile cellular subscription*

TELLINE- *The total number of telephone lines*
DVIT*- dummy variable for the level of information technology*
IVTEL*- Investment level in Telecoms with private participation*
ITS*- Number of Internet Users*
α *- adjusted measure of change in the variables*
ε *– Error term*

To commence the estimation procedure, the unit root test for achieving stationary of time series variables was first conducted to test for stationary of the variables, and it was found that all the variables are stationary at levels and first difference stationary. In other word, all the variables converged and stabled at level and first difference. By implication, the variables are amenable for further use in the estimation of the specified model.

Table 1. Regression Result on the impact of Information Technology on Economic Growth in Nigeria.

Dependent Variable: LOG(RGDP)
Method: Least Squares
Date: 03/05/16 Time: 03:15
Sample: 1997 2014
Included observations: 18

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	29.10231	0.241117	120.6978	0.0000
DVIT	0.886288	0.230283	3.848685	0.0023
INVTEL	2.90E-11	1.75E-10	0.165627	0.8712
MCS	0.050477	0.026821	1.881968	0.0843
TELLINE	0.463235	0.556900	0.831810	0.4218
ITS	0.043315	0.050988	0.849510	0.4122

R-squared	0.720117	Mean dependent var	30.36412
Adjusted R-squared	0.687666	S.D. dependent var	1.171959
S.E. of regression	0.241133	Akaike info criterion	0.254264
Sum squared resid	0.507740	Schwarz criterion	0.551054
Log likelihood	3.711627	Hannan-Quinn criter.	0.295187
F-statistic	77.91403	Durbin-Watson stat	1.311543
Prob(F-statistic)	0.000000		

Source: Authors computation from E-View 7, (2016)

VIII. Discussion of Result

The coefficient of the determination of the model shows that out of the five independent variables (MCS, TELLINE, ITS, INVEL and DVIT), only MCS and DVIT proved statistically significant in determining the extent of total variation in real RGDP up to a tune of 72%. This implies that the coefficient of the variation indicates good fit and high predictive power of the model. Thus, information technology indicators significantly influenced economic growth in Nigeria for the period of time covered in this. The value of the adjusted R^2 correlates with that of R-square. Thus, improvements in information technology sector via telecommunication industry have a potential impact on the rapid increase of economic growth in Nigeria. The estimated parameters are free from the problem of autocorrelation.

From the coefficients of the variables above, it is established that the key variables which are MCS and DVIT are significant in determining the rate of growth in RGDP. In terms of the contribution or effect of MCS and DVIT indicators on RGDP, the results showed that 1% increase in the number of mobile phone subscription and in the level of information technology will lead to about 50% and 88% increase in the value of real RGDP. Specific impacts of each of the parameters are similarly shown in the coefficient of each of the variables from the table above. It is theoretically expected that as the number of effective labor (labor quality and performance) increases (augmented by improvement in technology), economic output. The result of this study is consistent with the theoretical expectation.

IX. Conclusion and Recommendation

The study examined the economic effects of the level of information technology on the level of output in Nigeria using Ordinary Least Square (OLS) estimation technique. The study shows that increased amount of mobile cellular subscription and increase level of information technology will significantly influence economic growth in Nigeria. For communication and information technology play a central role in the economic, social and political life of every nation. Nigeria, like most developing nations, requires massive investment in this vital sector in order to extend affordable telecommunications facilities and access to all Nigerians. It is one this note that this study concludes that if the level of information technology increase via increase mobile phone subscription, adequacy of information technology infrastructures such as computer and internet devices as well as high level of internet usage, then

Nigeria will record rapid economic growth and development that ever before. Therefore, this study suggests an improvement in the supply of information and communication infrastructures Furthermore, policy makers should ensure the implementation of the policy reforms that will increase investment levels in information technology strictly followed in the telecommunication sector in order to yield the best of results for Nigeria.

X. REFERENCES

[1]. Ayeni. F., Olokunde T., Olaperi, S., Adekunle, D (2016). The Role Of Information Technology In Building A Knowledge Based Nigerian Economy: A CRITICAL REVIEW. https://www.researchgate.net/publication/265466674. Retrieved on: 12 February 2016.

[2]. Baily, Martin Neil [1986a], "Taming the Information Monster," Bell Atlantic Quarterly, Summer, pp. 33-38.

[3]. Baily, Martin Neil [1986b], "What Has Happened to Productivity Growth?" Science, Vol. 234: 443-451.

[4]. Berman, E., Bound, J., and Griliches, Z. [1994], "Changes in the Demand for Skilled Labor within U. S. Manufacturing: Evidence form the Annual Survey of Manufactures," Quarterly Journal of Economics, Vol. 109(2): 367-397.

[5]. Dandago, K.I., Rufai, A.S. (2014) Information Technology and Accounting Information System in the Nigerian Banking Industry. Asian Economic and Financial Review, 2014, 4(5):655-670

[6]. Gold, K.L (2011) Aggregate Analysis of the Impacts of Telecommunication Infrastructural Development on Nigerian Economy. Proceedings of the 1st International Technology, Education and Environment Conference (c) African Society for Scientific Research (ASSR) Co-Published By: Human Resource Management Academic Research Society.

[7]. Hitt, Lorin and Brynjolfsson, Erik. [1994], "Three Faces of IT Value: The Theory and Evidence," The Proceedings of the Fifteenth International Conference on Information Systems, (December).

[8]. Jorgenson, Dale W. and Stiroh, Kevin. [1995], "Computers and Growth," Economics of Innovation and New Technology, Vol. 3: 295-316.

[9]. Jorgenson, D.W., Vu, K (2005) Information Technology and the World Economy. Cambridge, the MIT Press.

[10]. Jorgenson, Dale W. and Landau, Ralph (Ed.), [1989], Technology and Capital Formation, MIT Press, Cambridge, MA.

[11]. Landauer, Thomas K. [1995], The Trouble with Computers, The MIT Press, Cambridge, MA.

[12]. Obasan, K.A (2011) INFORMATION AND COMMUNICATION TECHNOLOGY AND BANKS PROFITABILITY IN NIGERIA. Australian Journal of Business and Management Research Vol.1 No.4 [102-107] | July-2011 102.

[13]. Oladunjoye I.M., Audu, J.S (2014) The Impact of Information and Communication Technology on Youth and its Vocational Opportunities in Nigeria. Journal of Good Governance and Sustainable Development in Africa, Vol. 2, No 1, Jan., 2014 Website: http://www.rcmss.com ISSN: 2346-724X (Print) ISSN: 2354-158X

[14]. Roach, Stephen S. [1989b], "America's White-Collar Productivity Dilemma," Manufacturing Engineering , August , pp. 104.

[15]. Robinson, J (2000) The Role of Information Technology in the Economic Development of Inner City Communities. Graduate School of Business, 3022 Broadway, 311 Uris Hall New York, NY 10027-6902 jar84@columbia.edu. DRAFT COPY

[16]. Sagarmay, D. (2014). Information Technology, Its Impact on Society and Its Future. Advances in Computing, Central Queensland University. Vol. 4(1): Pg. 25-29 DOI: 10.5923/j.ac.20140401.07.

[17]. Siegel, Donald and Griliches, Zvi [1992], "Purchased Services, Outsourcing, Computers, and Productivity in Manufacturing," in Griliches et al. (Ed.), Output Measurement in the Service Sectors, University of Chicago Press.

[18]. Strassmann, P. A. [1990], The Business Value of Computers: An Executive's Guide. New Canaan, CT, Information Economics Press.

[19]. Willy, U and Obinne, U.G (2013) Evaluation of Information Technology (It) Investments on Bank Returns: Evidence from Nigerian Banks. Research Journal of Finance and Accounting www.iiste.org ISSN 2222-1697 (Paper) ISSN 2222-2847 (Online) Vol.4, No.4, 2013