EFFECT OF NATIONAL INFORMATION TECHNOLOGY DEVELOPMENT AGENCY (NITDA) INTERVENTION ON JOB CREATION IN SELECTED LOCAL GOVERNMENT AREAS OF RIVERS STATE, NIGERIA.

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ZARIA, NIGERIA

MARCH, 2021

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A THESIS SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES, AHMADU BELLO UNIVERSITY, INPARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF DOCTOR OF PHILOSOPHY (Ph.D) IN PUBLIC ADMINISTRATION.

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ZARIA, NIGERIA

MARCH, 2021

DECLARATION

I declare that the work in this thesis entitled 'EFFECT OF NATIONAL INFORMATION TECHNOLOGY DEVELOPMENT AGENCY (NITDA) INTERVENTION ON JOB CREATION IN SELECTED LOCAL GOVERNMENT AREAS OF RIVERS STATE', has been performed by me in the Department of Public Administration. The information derived from the literature has been duly acknowledged in the text and a list of references provided. No part of this thesis was previously presented for another degree or diploma at this or any other institution.

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NAME OF STUDENT	SIGNATURE	DATE

CERTIFICATION

This Theses entitled 'EFFECT OF NATIONAL INFORMATION TECHNOLOGY DEVELOPMENT AGENCY (NITDA) INTERVENTION ON JOB CREATION IN SELECTED LOCAL GOVERNMENT AREAS OF RIVERS STATE' by Godwin ORLUCHUKWU WUZOIGWE, meets the regulations governing the award of the degree of PhD in Public Administration of Ahmadu Bello University Zaria, and is approved for its contribution to knowledge and literary presentation.

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DEDICATION

This Thesis is dedicated to God Almighty for preserving my life till this day, my late father, Mr Orlu Weyi, elder brother, Dr. Joseph Orluchukwu and my late mother, Mrs Abigail Orluchukwu.

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My profound gratitude goes to the Almighty God for protecting my life till date.

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ABSTRACT

This study is on the Effect of National Information Technology Development Agency (NITDA) Intervention on Job creation in Selected Local Government Areas of Rivers State. . Unemployment is one of the developmental problems that face every developing economy. It is also an established fact that unemployment rate is a very significant factor to be considered in the quest for economic development in Nigeria. One of the impediments to socio-economic development in Nigeria is high rate of unemployment. Countries all over the world are battling to stem the tides of unemployment. As part of e-governance, this study examines government policies in relation to creating the necessary awareness in this regard and the setting up of regulatory body such as National Information Technology Development Agency (NITDA) to empower and educate Nigerians on the need to embrace the new technology. Specific objectives are to;(i) determine the effect of public user-ability, Public access, Public Awareness, Public acceptance and government(NITDA) created enabling environment for the use of ICT on job creation in selected local government areas of Rivers state. The target population are the staff of NITDA, staff and students of the tertiary institutions in Rivers state, as well as residents of the local governments studied. The population of study is 766,300 and 440 copies of questionnaires were administered to the sample respondents in the three local governments. The sample size was 414, determined through the application of Yamane's formula. In technique of data analysis, multiple regression technique was adopted to determine the relationship between the dependent and independent variables. The data collected was through the primary source(questionnaires and interview) from the respondents and processed through the SPSS version 20, scientific package. The question is with five likert scale response option. In conducting this research, five hypotheses were formulated. These are; public user-ability, Public access to ICT, ICT awareness, ICT Acceptance and government created enabling environment have no significant effect on job creation in Rivers state. The null hypotheses were all rejected in favor of alternate hypotheses. The study revealed that ICT has significant effect on job creation in the local governments studied. It was recommended among other things that; ICT should be integrated into economic activities, the price of ICT should be subsidized, more awareness should be created and government should encourage the study of ICT by awarding scholarship to ICT bias students.

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ABBREVIATIONS

ATM	Automated Teller Machine
B.P.O	Business Process Outsourcing
EU	European Union
EGDI	E-government Development Index
FDI	Foreign Direct Investment
GSM	Global System for Mobile Communication
GDP	Gross Domestic Product
GPT	General Purpose Technology
IT	Information Technology
ITU	International Telecommunication Union
JAMB	Joint Admission and Matriculation Board
LGA	Local government Area
NIRA	National Internet Registration Authority
NII	National Information Infrastructure
NLSS	Nigeria Living Standard Survey
NBS	National Bureau of Statistics
NEPAD	New Partnership for African Development
NEEDS	National Economic Empowerment and Development Strategies
NCC	National Communication Commission
NOC	Network Operating Centre
NITEL	National Telecommunication
NITDA	National Information Technology Development Agency
OECD	Organization for Economic Cooperation and Development
PPP	Public Private Partnership
PWD	People with Disability
PC	Personal Computer
PAV	Public Access Venue
RUST	Rivers State University of Science and Technology
RITC	Rural Information Technology Centre
RSSEC	Rivers State Special Employment Committee

RSSDA	Rivers State Sustainable Development Agency
SME	Small and Medium Enterprises
SURE-P	Subsidy Reinvestment and Empowerment Program
TSA	Treasury Single Account
UNIPORT	University of Port Harcourt
UK	United Kingdom
USA	United States of America
USD	United States Dollar
WAN	Wide Area Network
OIC	Organization of Islamic Conference

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Following the global recognition of the relevance of Information and Communication Technology (ICT) to socio-economic development, various countries of the world including Nigeria have set up agencies and commissions to fastrack development in this sector. Nigeria in 2001, established National Information Technology Development Agency (NITDA) as ICT implementing organ of the federal ministry of communication. NITDA is saddled with the responsibility of providing ICT skills to the youths in order to make them employable through training as stated in chapter four of this work. The world is now a global village on account of technological advancement. The contemporary world is one where every single detail of our daily life is a reflection of what transpires across continents. To that effect, emphasis has shifted from manual to digital innovations. This has increased the level of commerce and trade, education and knowledge etc. Technology facilitates communication; manage virtually every aspect of human lives. In the context of being a global village, technology has enhanced co-operation in various aspects of human lives. Technology impacts on the world, such that it is almost impossible to do anything in today's world without it. At a time of slowed growth and continued volatility, many countries are in search of policies that stimulate growth and create new jobs. Information and communication technology (ICT) is not only one of the fastest growing industries, directly creating millions of jobs, but it is also an important enabler of innovation and development (Posu, 2006). As a platform for innovation and development, ICT brought to the fore, concepts such as e-government, e-learning, telemedicine, e-commerce etc. ICT has made impact in education, agriculture, research, health, finance, business,

communication, administration, entertainment etc. The anti-graft war by the Federal Government has made a significant progress due to ICT, through treasury single account (TSA)

Information and communications technologies (ICTs) are becoming an essential part of everyone's life. An increasing amount of economic activities now take place with the support of these technologies. They give people the ability to quickly obtain information anytime and from anywhere in the world. Data that can be accessed through networks and software applications have made tasks much easier. Meanwhile, over two billion people now own phones with an Internet connection, and these have brought a wide range of conveniences to average people. These connections now allow people to control their home thermostats, track their exercise and heartbeat, monitor their diets, share their homes and cars, and have groceries delivered to their door. These technologies have also expanded capabilities for companies and governments. In the private sector, companies are able to control a building's energy consumption, allow access to it, find failures in production and, of course, automate many tasks that were previously done by humans, which has reduced the cost of production (Chorafas, 2011).

It is clear that technology has brought about significant changes in our lives, including, of course, the types of employment available to us, especially in Rivers state. This is often desirable. We want to be able to engage in employment that is less routine and repetitive and more stimulating. People also rely on jobs for their livelihood, but the skills on ICT they possess can not be able to give them access to a certain portfolio of opportunities (Garcia-Murillo, 2016)

Attempts to ensure sustainable economic development and poverty reduction of most nations usually involve the development of agriculture, mining, industrial as well as the service sectors. At the wake of 2000, the Federal Government of Nigeria embarked on an aggressive drive

towards the provision of more efficient services in the nation through its privatization and deregulation policies. The policy drive led to the establishment of National Telecommunication Policy in December 2001. The policy, among other things, recognized the need for the establishment of an enabling environment for deregulation and rapid expansion of the telecommunication services in the country. The mission statement of the government was to use ICTs for Education, Creation of Wealth, Poverty Eradication, Job Creation, and Global Competitiveness. The policy objective was to develop globally competitive quality manpower in ICTs and related disciplines. This entails developing a pool of ICT engineers, scientists, technicians and software developers. Consequently, attractive career opportunities will emerge in addition to development of Made in Nigeria softwares and computer components that can earn the nation some foreign exchange. The implementation of ICTs policy led to the adoption of Global System for Mobile-Communications (GSM) and its related components in Nigeria (Posu, 2006).

Emergence of new services and industries is one of the benefits of ICT where numerous public services have become available online and through mobile phones. The transition cloud computing is one of the key trends for modernization. The governments of different dispensations have ensured improved IT infrastructure into the cloud which instigated the launched of mobile and e-services for citizens and businesses. ICT has enabled the emergence of a completely new sector, the application industry, assembling industry even outsourcing of different kind of retail businesses. This can be ascertained through the assertion of International Labor Organization that explained that Facebook applications alone created over 182,000 jobs worldwide and that the aggregate value of the Facebook application economy exceeds $12 billion (ILO, 2018).

Workforce transformation is an experience made available by ICT, this has influenced job situation in Rivers state. The Micro work platforms allow entrepreneurs to significantly cut costs and get access to qualified workers. This trend had spillover effects on other industries, such as online payments system. ICT has also contributed to the rise of entrepreneurship, making it much easier for self-starters to access best practices, legal and regulatory information, and marketing and investment resources. ICT provides countries a window of opportunities, especially when it comes to business innovation where more than 95% of business have an online presence. The internet provides them with new ways of reaching out to customers and competing for market share. Over the past few years, social media has established itself as a powerful marketing tool. ICT tools employed within companies help to streamline business processes and improve efficiency. Global System for Mobile Communications (GSM) is the world's most popular wireless phone technology used by over one billion people around the world. The unprecedented explosion of connected devices throughout the world has created new ways for business to serve their customers. Thus, countries that embrace ICT, benefit from direct job creation.

Proper service delivery is vital for the survival of a modern democracy or government and access to government information by citizens and organizations is therefore a fundamental ingredient in effective service delivery. To this end, ICT is seen as a tool to support the work of governmental institutions and agencies with the objective of delivering public services and information in a more convenient, citizen centric and cost effective manner. Thus, in Nigerian public service, ICT can be an effective tool to ensure increased access to government services, improved value for money as well as increased productivity, transparency and better service delivery (Achimugu, 2011).

Apparently worried by the high level of poor performance in the public sector, especially in the area of service delivery in Nigeria and the desire to check the situation, the Federal government has come up with a number of measures to stem the tide of poor performance, by encouraging the use of ICT related facilities in public institutions. A reasonable part of Nigeria's annual budget is being used to provide ICT facilities to enable Nigerians acquire necessary knowledge. This is sequel to the understanding that development is technology driven. A special ministry was created in 2011 to handle ICT related programs (Ministry of communication). Other steps taken by the Federal Government to encourage development of ICT include establishment of National Information Technology Development Agency (NITDA), Nigeria Communication Commission (NCC), National Internet Registration Authority (NIRA) and other bodies. Employment into public and private sectors are mostly done through ICT related procedures, knowledge of ICT has taken over production and administration in schools as admissions are done through internet as well as recruitment of personnel. Financial transactions, commerce and general administration are made easier than ever with the advent of ICT. Banks are making progress, especially as it affects changes and improvement in banking procedures in Rivers state and Nigeria in general.

The Federal Government has initiated or adopted several policies and laws aimed at guiding the development of the ICT sector and housing its huge potential for national development. But Nigeria, like other nations, face the inevitability of the technical, content, economic, institutional and regulatory conveyance in a digital era of the global ICT industry. This national ICT policy aims to produce a framework that will enhance the ability of the ICT sector to propel the socio-economic development which is critical to Nigeria's vision of becoming a top 20 economy by

the year 2020 with the main objective of creating job to the populace. This was supported by NITDA in 2015 that government is expected to boost wealth creation, job creation and socio-economic wellbeing by making available infrastructure that enables women and youths easy strategic access to e-commerce, e-government, e-education and e-society infrastructure. The agency commitment in using ICT tools to create over 1.2 Million jobs in two years with the proposed 200,000 community digital access centers across the country, with a triangular business models to cater for corner shops, internet access centers and business centers. This step is in line with the belief that effective use of ICT knowledge is becoming the most critical factor for rapid economic growth and wealth creation and for improving socio-economic well-being, making Nigeria globally competitive in the 21st century (The Sun, 2015)

Meanwhile, job creation is central in the minds of Nigerians and it is one of the components of development. Governments at all levels are making frantic efforts towards eradicating unemployment in Nigeria. The unemployment rate in Nigeria as reported by the National bureau of statistics, 6.4 in 2014, 9.9 in 2015, 13.9 in 2016 and 18.8% in 2017 respectively (NBS 2018). Rivers state recorded high rate of unemployment in 2019. The high level of unemployment in Rivers state has given rise to social vices, such as armed robbery, kidnapping, insecurity etc.

In considering the level of employment in Nigeria, National Bureau of Statistics in 2016 explained that the working population (20-64 years) were 110.3 million, 111.1 million in 2016 and 2017 respectively only 52.7 million and 51.1 million were fully employed. Among this, River State has 544,776 people being employed. Also, the number of people that are being employed in informal sector are 220,623 while in information and communication sector are 69, 513 in which Rivers State has 1,768 employed people in information and communication sector. Owing to this, given the current unemployment rate in Nigeria, it is clear that the situation is not

only worrisome but alarming and shows that government must go extra mile in tackling the menace. This was buttressed by Garcia-Murillo (2016) that countries that have a greater penetration of ICTs are more likely to experience job creation faster than those with lower penetration.

More so, the level of ICT user-ability, accessibility, awareness, acceptability and government created enabling environment for the use of ICT have being of great help to job creation that will affect the socio-economic development of the people of the local governments studied. Availability implies the presence of these ICT resources, accessibility means the degree to which these ICT resources are easily accessible by as many people as possible .User-ability refers to the capability of the populace to use these resources to achieve specified goals.

It is on this note that this study examines the level at which ICT user-ability, accessibility, awareness, acceptability and government created enabling environment for its usage have addressed the problem of unemployment in Rivers State with particular reference to Eleme, Ikwerre and Ahoada East local government areas.

1.2 Statement of the Research Problem

Unemployment is a global problem that has engaged the minds of governments at all levels, especially in developing countries. Steps have been taken to stem the tides of unemployment in various countries, especially in Nigeria. One of the impediments to socio-economic development in Nigeria is the ever-increasing rate of unemployment. One of the cardinal objectives of the National Information Technology Development Agency (NITDA) is to develop as rapidly as possible, opportunities in education, health, and other sectors for creation of more jobs. But unfortunately, the incidence of unemployment and poverty across all strata and geographical entities in the country has grown deeper and become widespread especially within Rivers state

economy. In order to achieve these objectives, NITDA has embarked on various programs, which includes, training of the youths in ICT, building of ICT hubs in tertiary institutions, award of scholarship to ICT biased students in tertiary institutions within and outside Nigeria etc.

Unemployment is a problem that has almost defied solutions and various strategies employed by successive governments in Rivers State have not yielded the desired result. According to 2006 National population census, Rivers State has over five (5) million people out of which four (4) million are youths. According to National Bureau of statistics (NBS 2019) unemployment rate stands at 36.4% presently in the State. This trend accounts greatly for youth restiveness, anti-social violent activities, prostitution, kidnapping, armed robbery, brutality, criminal clashes, criminality and other crimes perpetrated by idle minds.Lending his voice in condemnation of high level of unemployment in Rivers State, Diejomoah and Orimalada (1991) described the situation thus:

> *"Although, the precise magnitude of unemployment and underemployment is unknown. The gravity of the situation can be a gauged act where as in the 1970s most university graduates were employed within the first three months of graduation. Because of the level of unemployment and youth restiveness in Rivers state, a lot of graduates have decided either to take to crime or go in for post graduate programme as a way of whiling away time while waiting for jobs."*

In a similar vein, Agioberibo (1998) observed that: Youth restiveness in Rivers state has taken a different dimension, as criminals from other neighboring states come to perpetrate crime, hiding under the auspices of Niger Delta militias. Worried by the level of unemployment in Rivers State, the State government has come up with pro-active measures to address the problem of unemployment in the state. The state government has created a comprehensive data bank of unemployed youths in the state to enable her determine the level of unemployment and to know what jobs to create.

Tackling unemployment menace in Rivers State received a major boost with the setting up of a 13 man committee (RSSEC) under the chairmanship of Dr Minaibi Dagogo Jack. The committee was charged with the responsibility of using the SURE-P Fund to engage about 75,000 Rivers state indigenes, by paying them monthly to cushion the effects of unemployment among the youths in the state. Rivers State government established a fish farm at Buguma where youths are today engaged. According to the then chairman of Asari Toru local Government Area, Mr. Ojukaye Flag Amachree "the establishment of the Buguma Fish farm by the Rivers State Government is a source of employment to the youths in kalabari kingdom. Rivers State government has created employment opportunities through public-private partnership (PPP) in the State. The state government signed a long lease contract with SIAT firm to revamp and manage RISONPALM. The company is fully operational and has created about 4,000 jobs, in order to develop an employable workforce. The state has offered scholarships to over 2, 000 students in Nigeria higher institutions and has spent about N5 billion for her students in foreign institutions. The state has recently recruited 13,000 teachers, to teach in primary and post primary institutions in the state. The state recently recruited 400 medical Doctors making a total of 600 to take care of the health sector. In order to attract foreign investors. The state government purchased two equipped and modern helicopters for aerial surveillance to fight crime.

In recognition of the harmful effects of unemployment in Rivers State and the need for the government to address it, the then Governor, RT, Hon Rotomi Chibuike Amaechi enjoined the Youths to be more entrepreneurial in their pursuits as a way of checking unemployment. Speaking at the flag-off ceremony of the Rivers State Sustainable Development Agency (RSSDA) job fair 2013, in conjunction with the Ministry of Employment Generation and Empowerment in Port Harcourt, he observed that, militancy and Boko Haram are all as a result

of poverty and unemployment, until government deals with the twin issues of unemployment and poverty, we will continue to have insecurity. The Governor promised to make available N5 billion to provide financial support to people who are ready to be self-reliant and innovative.

Thousands of Rivers people are employed through the following agencies established by the Rivers state Government, the Sanitation Environmental Authority, Greater Port Harcourt Authority and sports. Jobs are created through turning Rivers state into a massive construction site, involving construction of roads and educational facilities. The Rivers state government explored a new area in her search for employment of youths in the state. This new area is information and communication technology (ICT). This sector has provided employment for 1,000 ICT instructors in both primary and secondary schools in the state. The Rivers state government through the office of the new partnership for Africa's Development (NEPAD) successfully organized series of workshops and seminars to improve ICT awareness among students of primary and secondary schools in all the 23 local Government areas of the state. Scholarships were offered to students with bias in ICT to study in Nigeria and overseas, this has to an extent addressed the problem of government created enabling environment. The introduction of ICT by the Government in 2010 led to the free ICT training of civil servants in the state. ICT Farm was held on 30th August 2012 in Port-Harcourt in which about 300 students were drawn from other parts of the country, who were resident in the state. They enjoyed free ICT and vocational training, this has invariably improved ICT awareness. At the end of the exercise, free Laptops as well as certificates were given to participants, this development has therefore improved access to ICT and acceptance. The efforts of the government has given rise to the emergence of ICT related jobs such as computer engineers, programmers, system analysts,

website designers, skilled computer operators, sale of internet accessories, typesetting, designing of cards and calendars etc. This has addressed the problem of user-ability to a reasonable extent.

Meanwhile, Opira (2014) opined that learning remains central in any achievement debate. ICT provide a window of opportunity for educational institutions and other organizations to harness and use technology to complement and support the teaching and learning process that would create innovational opportunities for the populace. However, despite the enormous advocacy of ICT aided learning, investment and donation of ICT equipment by the government, the State still faces the challenge of how to transform people learning process to provide them with the skills to function effectively in this dynamic, information-rich, and continuously changing environment. The cause of concern is that despite the efforts made by the Rivers State government to create jobs, especially via ICT, unemployment rate remains as high as 36.4% (NBS2019) in the state, particularly in Ikwerre, Eleme and Ahoada east local government areas of the state. Why is it so?

1.3 Research Questions

Based on the problem statement, the following research questions are raised:

i. How has the user-ability of ICT affected Job creation in Ikwerre, Ahoada east and Eleme local government areas of Rivers State?

ii. To what extent has public access to ICT affected job creation in Ikwerre, Eleme and Ahoada east local government areas of Rivers State?

iii. To what extent has ICT awareness affected job creation in Ahoada east, Eleme and Ikwerre local government areas of Rivers State?

iv. How has public acceptance of ICT affected job creation in Ahoada east, Eleme and Ikwerre local government areas of Rivers State?

v. To what extent has government created enabling environment on the use of ICT affected job creation in Ahoad east, Eleme and Ikwerre local government areas of Rivers State**.**

1.4 Objectives of the Study

The main objective of the study is to examine the effects of ICT on Job creation in selected local government areas of Rivers state. Specific objectives are to;

i. Determine the effect of public user-ability of ICT on Job creation in Ahoada east, Eleme and Ikwerre local government areas of Rivers State.

ii. Examine the extent to which public access to ICT has affected job creation in Ahoada east, Eleme and Ikwerre local government areas of Rivers state.

iii. Ascertain the effect of ICT awareness on job creation in Ahoada east, Eleme and Ikwerre local government areas of Rivers state.

iv. Examine how public acceptance of ICT has affected job creation in Ahoada east, Eleme and Ikwerre local government areas of Rivers State.

v. Determine the extent to which government created enabling environment for the use of ICT has affected job creation in Ahoada east, Eleme, and Ikwerre local government areas of Rivers State.

1.5 Statement of Hypotheses

The following hypotheses were generated and tested in the study

H01. Public user-ability of ICT has no significant effect on job creation in Ahoada east, Eleme, and Ikwerre local government areas of Rivers state.

H02. Public access to ICT has no significant effect on job creation in Ahoada east, Eleme and Ikwerre local government areas of Rivers state.

H03. Public awareness of ICT has no significant effect on Job creation in Ahoada east, Eleme and Ikwerre local government areas of Rivers State.

H04. Public acceptance of ICT has no significant effect on job creation in Ahoada east, Eleme and Ikwerre local government areas of Rivers state.

H05.Government created enabling environment for the use of ICT has no significant effect on job creation in Ahoada east, Eleme, and Ikwerre local government areas of Rivers state.

1.6 Significance of the Study

Unemployment is a global problem that has engaged the minds of governments at various levels, especially in developing countries. The advent of ICT is helping countries to surmount the problem of unemployment in various ways. This study will address the problem of unemployment in the local governments under study, through the creation of ICT related jobs via the Intervention programs of the National Information Technology Development Agency (NITDA). The knowledge from this work will guide the Rivers state government in her effort to address the problem of unemployment in the three local governments under study by creating ICT awareness to enhance effective ICT penetration in the local governments under review. Governments at all levels would find it useful in carrying out policies and programs

that would create jobs with a view to reducing insecurity and social vices occasioned by joblessness among the youths. Entrepreneurial skills of the youths would improve in the three local governments thereby making them job creators instead of job seekers.

There are scanty literatures on this, as few scholars have carried out research on it. This study is the first on the effect of ICT on job creation in Ahoada East, Eleme and Ikwerre Local Government areas of Rivers State. Some few scholars such as (Ann 2013, Ajidahun 2007, and Hamid 2013 etc) have conducted researches on the job creating effects of ICT. They were generic in their studies as none touched the rural communities in the three local governments of Ikwerre, Ahoada East and Eleme, to show how the indigenes abandoned their culture of fishing and farming for technology as a means of livelihood. The reactions of the people of Ikwerre, Eleme and Ahoada East local government to the introduction of technology (ICT) and how they applied it to improve their living conditions, especially in the area of job creation is highlighted here and this will add to the existing body of knowledge in this field.

Public and private organizations would find this work useful in carrying out their day to day activities. Governmental and non-governmental bodies, policy makers, administrators etc, would use the opportunities offered by this study to improve their activities with a view to getting better results. It would guide students carrying out research in this field. It is beneficial to everybody, given its global outlook and relevance to socio-economic development.

1.7 Scope and limitation of the Study

This study is on the Effect of National Information Technology Development Agency(NITDA) on job creation in selected Local Government areas of Rivers State. The selected local governments are Ikwerre, Eleme and Ahoada East local governments of Rivers

state. The choice of the local governments was informed by the high rate of social vices among the youths, occasi76yoned by unemployment. The three local governments were selected from the three Senatorial Districts of Rivers State due to the reason that they are crisis prone, as well as having higher incidence of unemployment. The senatorial zones are Rivers-East senatorial District, Rivers-West senatorial District and Rivers-South East Senatorial District. The role of the government in taking ICT to the people through a regulatory body like NITDA is examined, with particular reference to two broad roles namely, human capital and infrastructural development. The time frame for this study is 10 years (2008-2019). The state witnessed more crisis and rise in unemployment within this period. It is within this period that Rivers State government encouraged computer education in the state. Schools were provided with computers to enhance ICT knowledge, coupled with incentives such as scholarships, cash rewards for students with bias in computer, organized series of ICT seminars/workshops to create awareness in the 23 local government areas of the state. It is however a disturbing scenario that crime rate is high within this period.

In spite of the study's contributions, it suffers some limitations, which are common with most studies of this nature. One of the limitations is that it focuses on only three local government areas in Rivers State. These local governments have different demographic setting and ICT infrastructure from other local government areas in Nigeria. The findings of the study therefore may not be the same in other states of the federation such as the Northern and Southern parts of the country. Access to information posed a big challenge, as people were not ready to respond to the questions in the questionnaires. There was dearth of data on the subject investigated, however, we were able to overcome the challenges. The study relied on

internet publications, relevant to the study. The limitations did not affect the findings of the study as we supplemented the available data with textbooks, journal and interviews.

1.8 Definition of Concepts

Public Access to ICT

This can be simply explained as the means or opportunity to approach or enter a place, obtain or retrieve.(https://wwwmerriam.com>dictinary>access

For the purpose of this study, public access is the population or number of people that can own or operate ICT related materials. It is the ability of people to purchase ICT and ICT related materials. These ICT related materials include; computers, phones, fax, radio, television, digital systems, videos, satellite systems etc.

Public acceptance of ICT

Acceptance is the action of consenting to retrieve or undertake something offered. It is the process of being received as adequate, valid or suitable(https://wwwmerriam-webster.com dictionary>accept).ICT acceptance refers to individual or firm's attitudes regarding technology and their intentions to use it.

For the purpose of this study, public acceptance of ICT simply means the readiness of the people to welcome the introduction and the use of ICT among themselves and application of it to enhance their economic wellbeing. It also means the willingness of the people to use ICT to improve their economic wellbeing through job creation.

ICT Awareness

Awareness refers to the knowledge or permission of a situation, concern about and well informed interest in a particular situation or development. It can also mean the knowledge and understanding that something is happening or exist.(Izu 2010)

For the purpose of this study, ICT awareness is being aware of how ICT looks and functions. This doesn't mean just what programs you can load into a computer but also the parts that makes up a computer on the inside. ICT awareness means having knowledge of what computer is all about. This can be achieved through computer training, workshop, seminar etc. In order to create the desired awareness that can lead to job creation. Rivers State government through NEPAD organized workshops to sensitize the people of Ikwerre, Ahoada East and Eleme local government on the need to embrace the new technology (ICT).

User-ability.

This simply refers to the ease in which a person or general consumer uses or interacts with a product. It may also mean the specific user's ability to use the device, and not necessarily the device's ease of use. However, the term may have just been used as an abbreviated way to refer to a user's competence for a certain product. It is obviously a compound of user and ability, but it is unclear if the ability meane the user's skills or the products ease of use (Kemmer 2014)

For the purpose of this study, user-ability refers to the ease and willingness of the people to operate or use ICT. It means the ability of the people of the local governments under study to use ICT for the purpose of job creation.

Government created enabling environment

This refers to the provision, adjustment or removal of norms, customs, laws, regulations, policies, international trade agreements and public infrastructure that either facilitate or hinder the movement of a product or service along its value chain by the government.(Uche 2015)

For the purpose of this study, government created enabling environment is the removal of obstacles to the use and learning of ICT by the government. It can also be expressed as the readiness of the government to encourage the learning and the use of ICT among the citizens. The government can create enabling environment for the use of ICT, by organizing workshop to create awareness, subsidizing the price of ICT products, providing stable power supply, addressing poverty, awarding scholarship to ICT bias students, especially the indigent ones, adequately funding the regulatory agencies such as NITDA, tertiary institutions and others. This will make ICT to be used as an instrument for job creation.

Job Creation

Job creation refers to the process of providing new jobs, especially for people who are unemployed.(Igwe 2003)

For the purpose of this study, job creation is the empowerment or development of human capital for the purpose of self-reliance. It could also be defined as the creation of enabling environment for human capacity development which is aimed at the attainment of social, financial and economic sustenance.

CHAPTER TWO

LITERATURE REVIEW AND THEORITICAL FRAMEWORK

2.1 Introduction

This section reviews the works of other scholars in relation to ICT and job creation, in Nigeria and other countries, as well as the variables, which include; job creation (dependent variable), user-ability, public access to ICT, public awareness of ICT, public acceptance of ICT and government created enabling environment (independent variables). Some of the major topics discussed here are; conceptual framework, The notion of Technological unemployment, End of work approach, Skill biased Technological change, ICT and Globalization, ICT's contribution to Nigeria's GDP, Technological Growth and Employment, ICT and Employment, Nigeria's ICT

Sector; Growth, Gains and challenges, Technology and unemployment in the 21st century, Sensitization Workshop/Seminars on ICT Organized by NEPAD and Rivers State Government and Theoretical Framework.

2.2 Conceptual Framework

2.2.1 Concept of ICT

Information and Communication Technology is a broad concept which is impacting so much on the way we live these days. It has become a global must for any efficient standard life. It does not include only electronic devices, but also the overall understanding of citizens about communication technologies, community development, poverty, healthcare, education and agriculture. Information and Communication Technologies are an umbrella term that includes any communication device or application, encompassing: radio, television, cellular phones, computer and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as videoconferencing and distance learning (Measuring information society, 2014).

ICTs are also defined as tools or techniques that allow recording, storing, using, diffusing and accessing electronic information (World Bank, 2002). ICTs are 'tools that facilitate communication and the processing and transmission of information and the sharing of knowledge by electronic means (UNDESA-GAIG, 2009).In 1998, OECD member countries agreed to define the ICT industry as a combination of manufacturing and services industries that capture, transmit and display data and information electronically (OECD, 2002).

Information and communication technology is an electronic technology for collecting, storing, processing and communicating information (Butcher, 2008). ICT according to Butcher is

categorized into two, namely those that process information such as computer systems and those that disseminate information such as telecommunication system. According to Trowel and Laudon (1994), ICT include all the different means, methods, tools that humans have used throughout history to help manage information, conduct business and communication with others and better understand the world around them.

Frenzel (1996) observed that ICT is computer system, telecommunication networks and multi-media application while the term information and communication technology (ICT) has a variety of definitions. These are electronic industry and parallel changes in the key user industries of telecommunication and communication and computing. These changes are all concerned with the information, handling and processing capability of modern microelectronics and include the application of related technology optoelectronics and artificial intelligence, in practical terms, this involves the use of storage and retrieval system of new forms of process such as robotics as well as new ways of analyzing information such as computer aided designs (Okoye, 2015).

Osabuohien (2008) concurs with Olasanmi, Ayoola and Lareem (2012) that ICT is the application of knowledge for the execution of given task which entails skills and processes necessary for carrying out activities in a given context. Information and communication technology according to Wanywe (2007) refers a myriad of standalone media, including telephone and mobile telephony, radio, video, tele-text, voice information system and fax, as well as computer-mediated networks that link a personal computer to internet. ICT is an integrated system that incorporates the technology and infrastructure required to store, manipulate, deliver and transmit information, the legal and economic institutions required to regulate ICT access and usage, and the social and interpersonal structures which allow

information to be shared facilitate access to the ICT infrastructure and through which innovation takes place.

By itself, the information and communication technology (ICT) literacy rate has become a key tool that has revolutionized how we see the world and how we live in it. ICT literacy is the capability (knowledge, skills and aptitude) of a person to identify, search effectively and present specific information in order to build knowledge and develop critical and creative thinking pertinent to a field of study. This phenomenon has given birth to advances in our ways of life. ICT is having a revolutionary impact on educational methodology both at conventional and distance educational levels globally. However, this revolution is not widespread and needs to be strengthened to reach a larger percentage of the population. Therefore, an interdisciplinary and integrated approach is very necessary to ensure the successful development of Nigeria's economy and society (Mac-Ikemenjima, 2005). Having seen various definitions of other scholars on ICT, it is imperative that we state our view of what it is. ICT is an umbrella word for communication devices that transmits, store, process and retrieve information through internet and other wireless network. Examples of such devices are radio, computer, television, telephones, fax and other digital systems.

Job creation is the provision of new opportunities for paid employment, especially for those who are unemployed. Job creation is the process by which the number of jobs in an economy increases. Job creation often refers to government policies intended to reduce unemployment. Job creation programs may take a variety of forms. For example, a government may lower taxes and reduce regulation to make hiring less expensive. On the other hand, a government may employ workers itself, for example, to build a road.

Creating more and better quality jobs is key to boosting growth, reducing poverty and increasing social cohesion. At the national level, job creation requires a stable macroeconomic framework coupled with structural policies that encourage innovation, skills and business development. Policy makers can boost local job creation and achieve sustainable inclusive growth, while meeting challenges such as youth unemployment, population ageing and climate change. In order to create jobs, government must;

* Boost skills supply and demand to create quality local jobs;

* Support enterprise development and growth to create jobs; and

* Build adaptable local economic strategies and systems.(www.skillsforemployment.org>KSP>

2.2.2 The Notion of Technological Unemployment

Technological unemployment is the loss of jobs caused by technological change. The National Information, Technology Development Agency (NITDA) has embarked on training and retraining of Nigerians in order to address the problem of technological unemployment, in line with the views expressed by the optimists. Though, the pessimists still hold the view that an unfriendly change in the labour market stares us on the face, a development that is an invitation to poverty. Such change typically includes the introduction of labor-saving machines or more efficient processes. Historical examples include artisan weavers reduced to poverty after the introduction of mechanized looms. A contemporized example of technological unemployment is the displacement of retail cashiers by self-service tills.

> *That technological change can cause short-term job losses is widely accepted. The view that it can lead to lasting increases in unemployment has long been controversial. Participants in the technological unemployment debates can be broadly divided into optimists and pessimists. Optimists agree that innovation may be disruptive to jobs in the short term, yet hold that various*

> *compensation effects ensure there is never a long term negative impact on jobs. Whereas pessimists contend that at least in some circumstances, new technologies can lead to a lasting decline in the total number of workers in employment. The phrase "technological unemployment" was popularized by Lord Keynes in the 1930s.*

John Maynard Keynes used the term as early as 1930, warning: “We are being afflicted with a new disease of which some readers may not yet have heard the name, but of which they will hear a great deal in the years to come- namely, technological unemployment. This means unemployment due to our discovery of means of economizing the use of labor outrunning the pace at which we can find new uses for labor. But this is only a temporary phase of maladjustment”. (Keynes and Maynard 1930)

Economist Alex Tabarrok’s summary of the concept states that “if the Luddite fallacy were true we would all be out of work because productivity has been increasing for two centuries”.(Tabarrok 2003). Former U.S. Treasury Secretary and Harvard economics professor Lawrence Summers argues that this time will be different: “There are many reasons to think the software revolution will be even more profound than the agricultural revolution. This time around, change will come faster and affect a much larger share of the economy. There are more sectors losing jobs than creating jobs. And the general-purpose aspect of software technology means that even the industries and jobs that it creates are not forever. If current trends continue, it could well be that a generation from now a quarter of middle-aged men will be out of work at any given moment. “(Summers 2014).

Labor-displacing technologies can generally be classified under the headings of mechanization, automation, and process improvement. The first two fundamentally involve transferring tasks from humans to machines. The third fundamentally involves the elimination of tasks altogether. The common theme of all three is that tasks are removed from the workforce, decreasing

employment. In practice, the categories often overlap: a process improvement can include an automating or mechanizing achievement. The line between mechanization and automation is also subjective, as sometimes mechanization can involve sufficient control to be viewed as part of automation. Unemployment due to an increment in productivity generates an expectancy that no new jobs, or not enough new jobs, will arise to fill the void. Variants of this argument persist through the present day, as do counter-arguments to it. (Roberts 2011, Lyons, 2011). Average working hours have decreased significantly since the advent of modern efficiency producing technologies and continue to fall as less and less labor is needed to meet demand. (Robert, 1991).

The notion of technological unemployment leading to structural unemployment (and being macro economically injurious) is labeled the Luddite Fallacy. If a firm's technological innovation results in a reduction of labor inputs, then the firm's cost of production falls, which shifts the firm's supply curve outward and reduces the price of the goods limited by the price elasticity of demand. (Jerome, Harry, 1934). The widespread adoption of the innovator's technology could lead to market entry by new firms, partially offsetting the displaced labor, but the main benefit to the innovation is the increase in aggregate demand that results from the price decrease. As long as real prices fall (or real incomes rise), the additional purchasing power gives consumers the ability to purchase more products and services. With technological innovation, these are often products and services new to the consumer, such as better health care or wireless communication devices and services. This increase in aggregate demand leads many economists to believe that technological change, although disruptive of individual careers and particular firms, cannot lead to systemic unemployment, but actually increases employment due to its expansionary effect on the economy. The Economist bases this belief on two assumptions- that machines are used as tools to increase workers' production, and that most workers were be able

to operate those machines- and argues that the increase in computerized automation can destroy works in a disruptive way, with the new jobs being out of reach of the capabilities of most workers. (Babbage, 2011)

Different views have been expressed on the rate of technological progress, with many, such as C. Owen Paepke, Tyler Cowen, and Robert W. Ayres claiming that it is decelerating others saying technological change is accelerating. (Paepke, Owen, 2011). Other economists contend that the rate of technological change has become so rapid in the area of information and communication technologies (ICT) that the adverse latent effects of productivity on employment may outpace job growth in an economy increasingly reliant on the development of these tertiary and quaternary economic sectors. The technological acceleration argument is counter to the fact that productivity in developed countries has been slowing down for decades. (Kendrick, John 1991, Field, Alexander, 2007). This has been explained in part by the claim that the remainder of labor and energy to be saved in important economic processes is trivial compared to what has already been saved. Examples are agriculture where 98% of the labor has been removed and electrical generation which is approaching thermodynamic limits. (Ayres, Rober, Leslie, Benjamin, 2002). Researchers from the University of Chicago have documented a worldwide downwards trend in the share of labor income in the last three decades, in the form of lower wages and benefits with increased inequality across industries. And a rising share going to capital income beyond what can be explained by recession, and attributed to structural changes in technology, market structures and labor unions (Bartlett, 2013).

> *In principle, technological unemployment may be distinguished from unemployment caused merely by the contraction phases of business cycles. In practice, such differentiation is difficult, owing to the multivariate nature of economics. Like unemployment in*

general, most technological unemployment is temporary, as unemployed workers eventually find new jobs. For several centuries, the main controversy about technological unemployment has been whether it can ever lead to structural unemployment.

2.2.3 Effect of Labor Saving Machine on Employment

Early concern about technological unemployment was exemplified by the Luddites, textile workers who feared that automated looms would allow more productivity with fewer workers, leading to mass unemployment. This dates back to the very beginning of Industrial Revolution, when a social movement of English textile machine operators in the early 19th century known as the Luddites protested against Jacquard's automated weaving looms. (The Luddites).The Luddites destroyed a number of machines, which they felt threatened their jobs. The original Luddites were hosiery and lace workers in Nottingham, England in 1811. They smashed knitting machines that embodied new labor-saving technology as a protest against unemployment, publicizing their actions in circulars mysteriously signed, "King Ludd" Works by scholars David F. Noble(Noble, 1984) and Jeremy Rifkin are dedicated to study the social history of automation and the potential impact of scientific and technological changes on the economy .They are sometimes mocked with disparaging label "neo-Luddite'' Rifkin, (1995) laid out a bold and disturbing hypothesis that computer driven unemployment was already upon us as we are entering a new phase in world history, one in which fewer and fewer workers will be needed to produce the goods and services for global population. Since then, several mostly North-American economists, Businessmen and politicians have expressed their concerns about jobless economic growth due to ICT based technological progress.

This hypothesis can be summarized as follows. All traditional sectors of the economy are experiencing technological displacement, forcing million into unemployment. The only new

sector emerging is the knowledge sector, made up of elite entrepreneurs, scientist, technicians, computer Programmers, top professional, educators and consultants. However, the increasing demand for these occupations is not expected to absorb more than a fraction of the workers displaced in the wake of the revolutionary advances in ICT (Rifkin 1995). Other analysts have suggested that employment will be substituted by ICT not only in traditional economic sectors but also in services. Hammer (1990) argued that computers would make management jobs redundant, while Rackhman (1999) predicted that e-commerce would lead to a radical shrinkage of sales job. Ford (2009) generalizes these predictions by suggesting that at some point in future ICT will be able to do the jobs of large percentage of "average" people, who will not be able to find new jobs. The author however does not specify whether his notion of "average" refers to occupations, educations or general skills.

This stand of literature mainly predicts jobless economy or a near workless world using Rifkins terminology, these predictions however are generally rather speculative and not evidence based. By its very nature, the end-of-work literature tries to look into the future and rejects the idea that trends observed in the past, offer good guidance. For instance, it rejects the view that many human intelligence tasks, such as driving, cleaning or complex communication cannot be taken over by computers. The fact that these tasks have not been automated by computers is no guarantee that they will not be automated in the foreseeable future. This makes it difficult to test this theory empirically. Moreover, many analysts who support the end-of-work paradigm in the past decades are not accredited researchers but public activist, political advisers with various educational backgrounds, technology journalists and software executives. The position of the end of work theorists is as misleading as it is fallacious, given the reality on the ground in respect of the job creating potentials of ICT in Ikwerre, Ahoada East and Eleme local government areas of

Rivers state. ICT related jobs are currently in existence in the three local governments understudy. These include sales of recharge cards, computer accessories, computer engineering, call centers, cyber cafes, programmers etc. The intervention of NITDA, has resulted in the creation of more ICT related jobs in Rivers state.

The views expressed by Brynjoltsson and Mcafee (2011) represents a sharp contrast to the one earlier expressed. They tried to bring the end-of-work discussions closer to economic academic reasoning. They attempt to summarize the arguments brought forward as the eroding effects of digital technologies on employment and welfare, using examples from case studies and descriptive statistics for the US. The authors warn of massive employment losses due to pervasive deployment of ICT in the financial sector, in advertising and among science and technology-based service sectors such as R and D, engineering and technical consultancy. Harrison/et al (2005) provide one of the most complete analyses of the employment effects of ICT which include innovations, taking into account the aforementioned compensation mechanism. They applied sound theoretical model to the community innovation survey data for four major European countries (France, Germany, Spain and the UK) in both service and manufacturing sectors. Overall, their results accord well with existing evidence at firm level, and provide explanations for both the strong positive effect of product innovation on employment and the typically ambiguous effects of process innovation. They find that compensation mechanisms offset the negative effects of ICT on employment with the outcome differing according to the specific production process. Thus, their results reveal that in manufacturing, although process innovation tends to displace employment, compensation effects are preventive, and product innovation is associated with greater employment growth. The destruction of jobs through process innovation appears to be partly counteracted by compensation mechanisms that

increase demand through lower price. At the same time, consistent with the literature, they find no evidence of displacement effects associated with product innovation. Compensation effect resulting from the introduction of new products is significant even when the discarding of old products is taken into account. In the service sector they find less evidence of displacement effects from process innovation and though less important than in manufacturing, growth in sales of new products accounts for a non-negligible proportion of employment growth.

Another compensation analysis of different compensation mechanisms that work to counterbalance technological unemployment through the process of creative destruction was proposed by Simonetti, (2000). A set of simultaneous equations in a macro economic model that jointly takes into account the direct labor saving effects of process innovation, the different compensation mechanisms (and respective hindrances) and the job-creating impact of product innovation. They ran the three stages learnt squares regression equations on the US, Italian, French and Japanese data over the period 1965-1993 and showed that the most effective compensation mechanisms acted through a decrease in prices and an increase in income (especially marked in Europe). While the authors do not specifically measure the ICT variables in the study, this generalized framework provide useful insights into the nature of the employment creation effect of different compensation mechanism. The compensation mechanism through a decrease in wages was particularly pronounced in the US's flexible labor market. Their result contain that both the history and the institutional structure of a country are important determinants in the creation of new jobs and must take into account the specific institutional settings in which they operate.

The main argument used in the end-of-work literature to explain massive layout in the developed economies is spectacular technological progress in computers and software that makes it possible to replace virtually all types of jobs performed by humans. This argument has been criticized by two leading economists. Levy and Muruane (2004), who analyzed the capabilities of computers and human workers and delimited the ability of ICT to substitute human workers. According to the authors, computers proved to be excellent in performing tasks within a job that can be expressed in rules, i.e the one that follow it-than-do algorithm. Both proponents and critics of the end-of-work framework seem to agree on the fact that ICT is affecting the mix of jobs, the changing demand for skills in the digital era, and income distribution. Brinjoltsson and Mcafee (2011) defined three overlapping sets, high-skilled vs low-skilled workers, superstars' vs everyone else, and capital vs labor.

2.3 Review of Empirical Studies on ICT and Job creation

This section presents the literature related to the objective of the study.

Unemployment is one of the developmental problems that face every developing economy. It is also an established fact that unemployment rate is a very significant factor to be considered in the quest for economic development in Nigeria. It is therefore very imperative to take a deep look into the significance of the various measures that have been adopted to enhance job creation, particularly, information and communication technology. Some studies that have investigated the relationship between ICT and different sectors in Nigeria include Kehinde, (2015), (Oladunjoye Oye, Audu 2014), (Muhammad, Gatawa, Kebbi, 2013), Okogun, and Oye Inuwa and Mohammed 2011). For example, Kehinde, (2015) analysed the relevance of agriculture in the Nigeria society and the need for employment and application of information and communication

technology into agricultural sector as a solution to unemployment problems in Nigeria. Data for the study was gathered through qualitative method with focus group and individual in-depth interviews. Participants were selected randomly from a group of farmers, students and traders in Ogun and Lagos States of Nigeria. The empirical results showed that although government support was essential in improving the agricultural sector in Nigeria, it was also imperative for institutions of learning and the private sector players to join hands in creating the much needed awareness amongst the youths on the significance of the agricultures and application of ICT as a veritable but untapped employment opportunity.

Oladunjo, Oladunjo and Audu (2015) investigated the relationship between vocational opportunities of youths and ICT in Nigeria. Using data from both primary and secondary data, the study argues that ICT development will enhance vocational opportunities to the youths if the application of ICT is encouraged among the youths. Another study by Muhammad (2014) investigated the Impact of ICT on the Nigerian banking industry using eleven selected Commercial Banks in Nigeria. Using bank annual data over the period 2001 to 2011 and a Fixed and Random Effects Models, the results showed that there is increase in the banking sector's return on equity because of the use of ICT. Other studies in the area include Okogun (2012) on ICT and poverty reduction, Oye (2011) on ICT and economic growth in Nigeria.

Sepehrdoust (2013) focused on the effects of information and communication technology (ICT) on the employment level of selected Organization of Islamic Conference (OIC) countries. The study used econometric panel data model to analyze the relationship between ICT and employment rate of OIC countries for the period 2000 to 2009. Adopting the Constant Elasticity Substitution (CES) category of production function, the findings showed that the introduction of technology has led to major structural changes in the economy of OIC member countries and

there is also a positive and significant effect of the ICTs on employment rate, but the effects are diversified among oil-based as well as non-oil economies.

2.4 ICT and Globalization

Information and Communication Technology is basically an electronic based system of information transmission, reception and retrieval, which has drastically changed the way we think, the way we live and the environment in which we live. It must be realized that globalization is not limited to the financial markets. But encompasses the whole range of social, political, economic and cultural phenomena. Information and communication technology revolution is the central and driving force for globalization and the dynamic change in all aspects of human existence in the key by-product of the present globalization period of ICT revolution. The world telecommunication system, the convergence of computer technology and telecommunications technology into the information technology, with all its components and activities, is distinctive in its extension and complexity and is also undergoing a rapid and fundamental change (Ogunsola 2015). The results of is that National Boundaries between countries and continents become indistinct and the capacity to transfer and process information increases at an exceptional rate. The global information communication has been called “the world’s largest machine” and it is very complex and difficult to visualize and understand in its different hardware and software subsystems. As Kofi Annan (1999) has put it, “the internet holds the greatest promise to humanity as known for long-distance learning and universal access to quality education. It offers the best chance yet for developing countries to take their rightful place in the global economy. And so our mission must be to ensure access as widely as possible.

ICT are increasingly playing an important role in organizations and in society's ability to produce access and apply information. This view informed the setting up of the National Information Technology Development Agency (NITDA) with a broad range of objectives, which majorly tilts towards achieving the goal of making Nigerians digital citizens, as well creating jobs. Nigerians are enjoying the creation of digital jobs, made possible by the ICT. They are being heralded as the tools for the post-industrial age, and the foundations for a knowledge economy, due to their ability to facilitate the transfer and acquisition of knowledge (Morale-Gomez and Imelesse, 1998). Their views seem to be shared globally, irrespective of geographical location and difference in income level and wealth of the nation. ICT may not be the only cause of changes we are witnessing in today's business environment, but the rapid developments in ICT have given impetus to the current wave of globalization. The use and production of ICT plays an important role in the ability of nations to participate in global economic activities. Apart from facilitating the acquisition and absorption of knowledge, ICT could offer developing countries unprecedented opportunities to change educational systems, improve policy formulation and execution and widen the range of opportunities for business and for the poor. It could also support the process of learning, knowledge networking, knowledge codification, teleworking, and science systems. In response to this, a number of ICT related programs have been rolled out for Nigerians via NITDA intervention. These include ICT training for women, provision of virtual libraries in tertiary institutions in Nigeria etc.

ICT could be used to access global knowledge and communication with other people. However, in major parts of developing countries ICT is available only on a very limited scale, and this raises doubts about developing countries ability to participate in the current ICT induced global knowledge economy. This has been the concern that this unequal distribution of ICT may in fact

further contribute to the marginalization of poor countries in reaction to developed countries, and to disruptions of the socio fabric. The wide gap in the availability, and use of ICT across the world, and the influence ICT exerts on globalization raised questions about whether globalization entails homogeneity for organizations and societies in developing countries. It also raises questions about feasibility and desirability of efforts to implement the development of ICT through the transfer of best practices from western industrialized countries to developing countries, and whether organizations can utilize ICT in accordance with socio-cultural requirements of the contexts (Wakshan, 2001). Information and communication Technology development is a global revolution. It has become a subject of great significance and concern to all mankind. Relevant studies have shown that the greatest impact of the ICT revolution revolves around the "Digital Divide" equation. The most important aspect of the ICT challenge is the need to plan, design and implement a national information infrastructure (NII) as the engine of economic growth and development (Ogunsola, 2015).

2.5 ICT and the Global Economy

Information and communication technology constitutes one of the global economy's most important industries and impact global value added by ICT industries more than doubled from $1.2 trillion in 1995 to $2.8 trillion in 2010 and today the ICT industry accounts for 6 percent of global GDP. ICT industries also account for a notable share of employment for example, in 2010, ICT industries employed 5.8 percent of workers in OECD economies, a 13percent increase over the 5.1 percent they employed in 1995 (Ezell, 2012).

ICT's impact on the global economy goes far beyond the industry direct contributions to GDP and employment, for ICT is the global economy's strongest driver of productivity, innovation, and ultimately economic growth. ICT achieves this status by virtue of being today's pre-eminent

general purpose technology, or "GPT".GPT's such as ICTs are transformative "platform" technologies that share the key characteristics, they are pervasive, touching all industries and sectors of the economy and society. They simultaneously experience rapid performance improvements and price declines over time, they make it possible to invent and to produce new products (i.e. smart phones or the IPad, processes, set check in at airports), business models, i.e. e-business or business models based on fractional ownership or the simultaneous aggregation of supply and demand, and even fundamental new innovations (i.e mapping the human genome)

ICTs are so powerful precisely because they enhance the productivity and innovative capacity of every individual firm, and industry they touch and this holds true for developed and developing countries alike (Atkinson, 2010). In fact, ICT workers contribute three to two times more productivity than non-ICT workers in Canada, ICT use has been associated with higher labor productivity in the industries that adopt it. In the United Kingdom, Innovation, so much of it enabled by ICT, has accounted for 63 percent of annual labor productivity growth since 2000, in Australia, ICT capital has been found to be more productive than other types of capital at the aggregate level in all industries. In Chile firms with lower ICT use, research performed in 2011 by Oxford Economics confirmed that ICT countries generate a bigger return to productivity growth than most other forms of capital investment. In other words, ICT is "super capital" that has a much larger impact on productivity than other forms of capital.

ICT's productivity enhancing and innovation enabling benefits at the individual, firm, and industry level then aggregate up to enable productivity and economic growth at an economy level. For example, ICT was responsible for 75 percent of US productivity growth from 1995 to 2002, and 44 percent from 2000 to 2006 (Saunders, 2010). Nigeria is not left out, as the National

Information Technology Development Agency (NITDA) has taken a number of steps to increase productivity, which include; training of women in ICT, creating digital jobs etc. According to Japan's Ministry of internal affairs and communications, Japan's ICT industry has contributed 34 percent of the country's economic growth from 2005-2010 likewise, ICT usage in China has played a critical role in growth, accounting for 38 Percent of TFP growth and as much as 21 percent of GDP growth (Mckay et al, 2006) in fact, the internet alone accounted for 21 percent of the aggregate GDP growth from 2006-2011 across thirteen leading economies- Brazil, Canada, China, France, Germany, India, Italy, Japan, Korea, Russia, Sweden, the United Kingdom and the United States. (Manyika) the internet accounts for, on average of 3.4 percent of GDP across the large economies that comprise 70 percent of global GDP. And this highlights a vital point while ICT production is important for economies, the vast majority of economic benefits from technology as much as 50 percent, come from the widespread usage of technology, while approximately 20 percent of the benefits from technology come from its production. This means that countries should focus just on ICT production, ICT is even more important.

Since ICT usage contributes greater benefits to economic growth tariffs and particularly pernicious when applied to ICTs, hunting the nation that impose them by raising the cost of ICT goods and services, this causing barriers (and individuals) to invest less in ICT which lower their productivity. Thus, not only do high tariffs on ICT products disadvantage more innovative, productive and efficient foreign competitors while protecting domestic enterprise often, they raise the cost of ICT goods for ICT using industries in an economy and inhibit the ability of those sectors to procure best of breed technologies at the best price. Hence, placing high tariffs on one sector of an economy (ICT) damages all the sectors of an economy. And, by distorting global markets for innovative products and services high tariffs disadvantages the economies

interests of the most efficient and innovation enterprises, leaving the world with less innovation and higher cost ICT products than would otherwise be the case (Ezell 2012)

In contrast, cutting tariffs lowers prices on ICTs and raises demand for them in fact; Gurbaxani et al (2003) find that for every percent drop in price in ICT products, there is a 1.5 percent increase in demand (Devick 2003). This is a nice example of what's called important demand elasticity lower import prices lead to increased demand for a product or service. Low tariffs have also contributed to the development of global supply chains and the globalization of ICT hardware development that has contributed to reducing ICT prices. In fact, Mann finds that the globalization of ICT hardware has resulted in ICT prices some 10 percent to 30 percent lower than they would have been based on domestic production and domestic technological advances alone in the United States in the 1990s. Many estimated that this made US GDP some $250 billion higher over the 1995 to 2000 period that it would have been difficult if there had been no globalization of IT hardware. That simply, ICT tariff elimination bolsters ICT usage, which in turn boosts productivity and generates innovation, and this is why the ITA and its expansion are so important (Ezell 2012). ICT has been criticized for its destructive effect on businesses which has some negative implications, for instance in Ikwerre, Eleme and Ahoada East local government areas of Rivers state many line of businesses are facing extinction, such as sale of greeting cards, cybercafés, post offices, photographers and producers of other personal effects like torch lights, calculators etc. Smartphones can be connected to screens. With Smartphones, apart from the traditional phone calls, you can take videos, share videos, take photos, share photos, record voice, share recorded voice, radio, scientific calculators, torch lights, timepiece, organizers, geographical maps and many other applications. Digital revolution has displaced workers and eliminated jobs, especially in Ikwerre, Ahoada East and Eleme local government

areas of Rivers state. Cybercafé business was money spinner between 2007 and 2012. Internet services thrived until the advent of GSM with various telecommunication service providers introducing internet modems and smart phones which sounded the death knell. Smart phones took over what was taking people to the cybercafés, leaving them with registration of examinations such as Joint Admission and matriculation Board (JAMB), GCE, NECO and occasionally online recruitments (Saturday Sun 10 Sep).

2.6 ICT'S Contribution to Nigeria's GDP

Nigeria's Information and Communications Technology (ICT) sector's contributions to the country's rebased Gross Domestic Product (GDP) have hit $50 billion, about 9.58 per cent. Also, the telecommunications sub-sector recorded fresh $6 billion investment between 2011 and 2013. Indeed, as at 2011, the sector's GDP contribution was 5.46 per cent, while investment stood at about $32 billion, but a fresh statistics from the Bureau of Public Enterprises (BPE) puts the investment at, about $40 billion. The then Minister of Communications Technology, Dr. Omobola Johnson disclosed the GDP figure, while giving account of her stewardship at the helms of affairs in the ministry for some years, in Abuja, tagged: "2011 to 2014: Ministerial Scorecard presentation at the 2014 Ministerial Platform." She noted that the country's telecoms sector was one of the fastest growing industries in the world and has continued to attract Foreign Direct Investments (FDIs). However, this development has justified the huge investment in the ICT sector via NITDA, by Nigeria government.

Johnson said between 2007 and 2013, the sector attracted over 24 per cent FDI projects. She said Nigeria attracted the most FDI capital and the second most FDI projects in Sub-Saharan Africa. "The increasingly diversified nature of our economy is also reflected in the increasingly diversified nature of investments coming into the country. Considering the period from 2007 till

2013, more than 50 per cent of the FDI capital invested into Nigeria has been into the capital-intensive resource sectors. However, nearly 50 percent of FDI projects are service-oriented, and telecommunications has experienced particularly strong growth - attracting about 24 percent of FDI projects," she stated. (The Guardian 2014).

Though, The Guardian had reported that an International Telecommunications Union (ITU) statistics showed that about 18 African nations, including Seychelles, South Africa, Cape Verde, Tunisia, Morocco, and Sudan are ahead of Nigeria in terms of ICT development, Johnson informed that the country moved up 21 places in the United Nation e-Government Development Index (EGDI). She said that as at 2010, Nigeria ranked 150; in 2012 it was 162 but the country is currently placed 141 in the EGDI. Johnson informed that while Nigeria's GDP is about $500 billion, "ICT contributes about 10 per cent, which is about $50 billion."

The minister said that the pivotal role of ICTs in national development agenda includes governance; infrastructural development; sustainable job creation, human and social capital development. Johnson, who said ICT creates a new economy characterized by information and knowledge, stressed that good ICT infrastructure engenders reliable connectivity and contributes to increasing the competitiveness of the nation in attracting investment. According to her, President Goodluck Jonathan's Transformation Agenda (2011-2015) provided the impetus for propelling Nigeria towards the attainment of her Vision 20:2020, stressing that of importance to the agenda is Nigeria's ability to leverage and harness ICTs for national growth and development. As such, she said ICT promotes transparency and accountability; increases the efficiency and effectiveness government's interface with citizens; streamlines the provision of government services and significantly reduces the associated costs (Adeyemi 2014).

Johnson said that the improved environment assured by President Jonathan's Transformation Agenda has helped create local companies that are innovating and adding value to the Nigerian economy including Wakanow, Jumia, Paga, Konga, i-Sec, iRoko TV, among others. To deliver on the promises of the transformation agenda by addressing the challenges in the ICT industry and leveraging the opportunities in ICT for socio-economic development, she said that the ministry was going to connect Nigeria; connect Nigerians; stimulate local content; boost ICT in government and enabled the environment. In the Connect Nigeria, Johnson said the ministry was implementing a National Broadband Strategy and roadmap that seeks to increase broadband penetration from six per cent to 30 per cent by 2018.

The strategy, according to her would ensure 3G/LTE wireless broadband coverage to 80 per cent of the population; increase fixed broadband to 16 per cent of population based on fiber by 2018, which will see Nigerians experience minimum download speeds of 1.5 Mbps on an Open Non-Discriminatory Access. Johnson informed that the total mobile subscriptions increased to 134.5 million as at September 2014 from 95 million in 2011, while teledensity increased to 96 per cent from 68 per cent within the same period. She added that the total mobile Internet subscriptions increased to 73.8million as at September 2014 from 45million in 2011, while penetration rose to about 52 per cent in September 2014 from about 26.5 per cent in September 2011. In the area of Local Content development, Johnson disclosed that government has lowered the barriers to entry and increase the participation of Nigerian companies in the ICT sector; and stimulate job creation in the industry.

According to her, the Local Content Guidelines by the ministry is to among other things provide temporary measures to encourage growth of the local ICT industry; improve standards, quality assurance on offer from the industry; encourage a more balanced share of the market between

domestic and international brands and increase the availability and reduce the cost of devices required to create a knowledge based interconnected economy that leverages the Internet, among others. In his remarks, the Permanent Secretary of the Ministry, Dr. Tunji Olaopa said ICT had become and will remain a catalyst sector for other economies, stressing that this is aiding rapid economic growth of the country. Olaopa, who recalled that the Ministry of Communications Technology was created by President Jonathan in July 2011, stressed that the lCT remains as viable option to oil and gas. He added that if well harnessed it would assist in reducing the increasing job search among Nigerians, especially the youths. (The Guardian 2014).The rebased economy that placed Nigeria at the leading position in Africa economically was silent about how unemployment has been addressed.

2.7 Technology, Growth and Employment

There is now a voluminous empirical and theoretical literature on this subject. In the twentieth century alone, there have been four distinct economic debates on the relationship between technology and employment. The first, probably the most "classical" in its origins, took place during the economic depression of the 1930s. Contributors included Hansen (1931), Weintraub (1937) and Neisser (1942). Many of the issues and concerns raised by these authors sound quite familiar today, particularly in the context of the notion of increasing returns in current "new" growth models (e.g. Aghion and Howitt, 1992). The second debate focused mainly on the post-war United States and the fear of "automation". In the 1960s, levels of unemployment were higher in the United States than in Europe, and many blamed technological change. As a result, a National Commission on Automation was appointed and produced a massive six-volume report (US National Commission, 1966). This debate had little influence in Japan and in the European countries that were rapidly catching up. The third debate, which began in the late 1970s, was

particularly active in Europe. It focused on the emergence of the cluster of computer-based communication, information and automation techniques associated with microelectronics, which appeared at first glance to have great labor-displacing implications (e.g. Freeman, Clark and Soete, 1982; OECD, 1982; Katsoulacos, 1984). The fear that these displacement effects might dominate the compensating job-creation effects for quite some time recalled the classical debate in many ways. As at then, it appeared to be a reflection of the times: there was a set of "revolutionary" new technologies and persisting high unemployment. The most recent upsurge focuses much more on the global aspects of the new ICTs and the possible erosion of employment and high living standards in the advanced countries. Originating to some extent in the United States, and linked to the political debate surrounding NAFTA, it quickly "globalized", and contributions have come from all over the world. The relationship between technology, growth and employment has been the subject of many contributions in economics. Though controversial and hotly debated over the past two centuries, the relationship now appears straightforward, at least from the macroeconomic perspective. Either the introduction of new technologies leads to more efficient production processes, reducing costs by saving on labor, capital, materials, energy or any other factor of production, or it leads more directly to the development of new products that generate new demand. In either case, more welfare is created in the first, through more efficient production combinations that liberate scarce input resources; in the second, by satisfying new wants.

The extent to which this higher welfare or increased productivity feeds back into employment growth depends on the extent to which firms translate productivity gains into lower prices and new investment and the extent to which consumers respond to lower prices in terms of greater demand. The job losses that often follow the introduction of a new labor saving process, for

example, are compensated by the job creation associated with the output growth following the decline in prices, by additional employment creation in other sectors particularly the new technology-supplying sector and by the possible substitution of labor for capital following the downward wage adjustment that clears the labor market.

However, the extent to which new or improved products generate new employment growth depends on whether old products are replaced by new ones and on the responsiveness of consumers to the new or improved goods or services (as reflected in the income elasticity of demand). As long as there are unsatisfied needs in the economy and as long as labor and product markets are sufficiently flexible, technological change, even in the form of new labor-saving production processes, does not reduce aggregate employment but generates more growth and jobs. (Soete, 2001)

Most of the controversies that have dominated the economics literature on this issue over the last decades have centered on the automatic nature of the various compensation effects described above. Many contributors have questioned the way in which cost reductions following the introduction of new technologies effectively translate into lower prices and may lead to more output growth: the functioning and flexibility of product markets depend in part on the firm's monopoly power, economies of scale and various other factors influencing "price stickiness". Similar issues can be raised with respect to employment growth and the functioning of labor markets; they range from downward wage flexibility to the many mismatches typical of relatively heterogeneous labor markets. In either case, it is less technology that is at the Centre of the debate than the responsiveness and clearing function of the product and labor markets. The

relevant policy issues fall primarily into the category of improvements in the functioning of labor and/or product markets.

Other contributions in the classical economics tradition have questioned the possibility of *ex post* substitutions between labor and other factors of production. At least in the short term, the implications of a more rigid, fixed set of production coefficients for analyzing technical change and employment are relatively straightforward. Labor-saving technological change embodied in new investment could, if wages adjust slowly, lead to unemployment because of insufficient investment to maintain the full-employment capital stock, this is the so-called "capital-shortage" unemployment. There was a lively debate during the 1980s on the extent to which the increase in unemployment in European countries in the 1970s could have been due to this phenomenon.

Yet other contributions question the automatic nature of the link between input-saving new technologies and productivity gains. Most of these studies which often attempt to explain the "productivity paradox" are empirical in focus and attempt to find reasonable explanations for the disappointing productivity growth of most OECD countries over the past two decades, despite rapid growth in knowledge investment particularly in private-sector R&D and the emergence of the new cluster of ICTs. However, the discussion is far from over. In particular, there have recently been a large number of empirical and theoretical contributions from growth economists (e.g. Young, 1995; Mankiw, 1995; Soete and Ter Weel, 1999; Jones, 1999).

Finally, some recent contributions have focused explicitly on the international "open economy" framework within which most compensation mechanisms are likely to operate. As a result, the relatively straightforward linkages between technology, productivity growth and job creation mentioned above appear much more complex. A relatively simple elaboration in terms of

employment compensation due to foreign demand e.g. through export and import elasticity complicates the matter greatly (Stoneman, 1984). More complete pictures including not only trade but also the effects of international spill-over of technology on productivity growth (OECD, 1999) or international capital mobility (Turnovsky, 2000) make it much more difficult to identify the key links between the introduction of a new technology and the ensuing domestic employment impact.

Many of the recent concerns about the implications of technological change for employment appear to relate to these international compensation mechanisms and to the way that gains from technological change are distributed internationally. In the gloomy vision of some popular authors, wages in the most advanced economies are being eroded owing to the emergence of a global market-place where low-paid workers compete for the few jobs created by footloose global corporations (Rifkin, 1995). In other words, the globalization of industry and, increasingly, of services casts a new light on the interaction between technology and employment in an open economic framework characterized by low transport and communication costs.

It is still generally agreed that, in a "world" economic framework, input-saving technological change leads through increases in productivity to higher welfare, wages and growth and thus generates new employment. But the impact on individual countries is now much more complex because it depends on a broad range of macroeconomic and microeconomic adjustment mechanisms. In particular, positive and negative effects do not coincide either in time or in space: adjustment takes time, and the industries and types of workers that will benefit from technological change are different from those adversely affected by it.

At the same time, the premium placed on the role of knowledge and on the acquisition of skills in this global environment implies that international differences in the pattern of employment and unemployment in industrialized economies may be coming to depend increasingly on the capacity of national economies to innovate, enter new, unregulated "service" areas and/or absorb new technology more rapidly.

2.8 Employment Dynamics

Other highly relevant and much debated issues are the employment effects of innovation and technical change in general, and the impacts of ICT on employment dynamics in particular. The central question is if technological change and an increasing use of ICT creates or destroys jobs. There is no unambiguous answer to it, and recent research has emphasized that employment effects vary with the level of analysis (firm, sector, national economy) and the type of innovation (product vs. process).

A common simplified argument is the following: Because innovation and an increasing use of ICT are related to growth, it is believed that innovation and intense usage of ICT will solve the unemployment problem in Europe. However, innovations and ICT investments might lead to productivity growth without leading to GDP growth. The employment effects can be very different for productivity and GDP growth (Edquist et. al. 2001). In addition, growth effects vary for miscellaneous types of innovation (Kuznets 1972). A common conceptual framework is to differentiate between product and process innovations. This conceptual framework can also be applied to study the impacts of ICT because ICT investments can result in product or process innovations at the firm level. Product innovations can occur in goods or in services, while process innovations can be either technological or organizational, with varying implications for employment effects.

A product innovation corresponds to the creation of a new production function. Given a sufficient demand for the new product, it will usually create additional demand for both capital and labor production factors by the innovating firm. This is often called the *compensation effect* (Pasinetti 1981). However, if the new product does not satisfy a completely new kind of demand or does not serve an entirely new function, i.e. if it only functionally replaces an old one, there will also be a *substitution effect.* The net employment effect of such an innovation could be either negative or positive, depending on (1) whether the new demand for satisfying the function changes when the new product replaces the old one and (2) the labour intensity of the production technology of the new product compared to the old one. However, in most cases product innovations are employment creating even if substitution effects are taken into account (Katsoulacos 1986, Kuznets 1972, Edquist et. al. 2001, p. 97).

Process innovations usually also have both a compensation and a substitution effect, however, their net effect is less clear than for product innovations. Process innovations usually reduce the costs of production for a given unit of output; hence, they increase productivity per unit of input. In micro-economic models, this corresponds to an outward shift of an existing supply function. Depending on the price elasticity of demand, this outward shift of the supply function will lead to growth and lower equilibrium prices.

This compensation effect is stronger for competitive industries and high price elasticity's of demand. However, an increase in productivity implies that a given level of output can be produced by less amount of input. Thus, if demand and output remain constant, a process innovation will lead to a reduction of labor, ceteris paribus. While the compensation effect can mitigate job losses, they can only promote net employment gains when growth in production and

demand outstrips .productivity growth. This only happens when the price elasticity of demand is greater than zero, which is only rarely the case (Edquist et. al. 2001, p. 119).

Also, the effects depend on the specific kind of process innovation. Technological process innovations that replace labor by capital will have a stronger employment reducing effect than process innovations that lead to 'organizational changes. In fact, organizational process innovations might be either labor saving or capital saving, while technological process innovations are primarily labor-saving (Edquist et. al. 2001, p. 35-37). Organizational innovations are also special in the sense that they can be viewed as investments into human capital by the provision of new knowledge through education, training and learning-by-doing (Becker 1975). This constitutes a special kind of investment because it is durable, generates continuing returns and is embodied in "knowledge carriers" (Machlup 1980). Thus, if an employment reducing effect of organizational process innovations exists at all, it is likely to be much smaller than the employment reducing effect of technological process innovations.

In addition to this static firm-level view on different kinds of innovation, a dynamic macro-level view emphasizes that there are likely to be secondary effects of innovation because whether something is a process or a product innovation is essentially a matter of perspective. Some product innovations in one sector can turn out to be process innovations in another sector leading to secondary employment effects. Edquist et al. (2001, p. 100) differentiate the net-employment effect of product innovations according to three product categories consumer products, investment products and intermediate products. Only investment products can play the double role of employment generation in one sector and labor displacement in another. The net-employment effect of an investment product innovation hence depends both on the effect in the technology producing sector and the effects in the using sectors. ICT are an example of such an

investment product, which makes the net employment effects of ICT more ambiguous. For consumer and intermediate goods innovation, there is usually only the primary (typically employment increasing) effect. A double role of product innovation can also occur in the service sector if the new product is an organizational innovation that is commoditized and sold as a consulting service. The net employment effect of such an organizational innovation depends also on the size of the compensation and the substitution effect in the sectors adopting the innovation and in the sector that supplies the consulting service. An example of such an innovation are ICT outsourcing services. Again, the net employment effect is hard to determine and it cannot be simply assumed that it will be necessarily positive.

Thus, it is clear that the employment effects of innovations depend on the specific type of innovation. They can also vary significantly between aggregation levels (firm, industry, national economy). An employment increase in one (successfully innovating) firm might lead to employment losses at the industry level or at the national level, depending on whether output growth offsets productivity growth. Thus, the net impact of an innovation on employment remains essentially an empirical issue that cannot be unambiguously predicted ex ante.

Empirical evidence suggests that overall employment effects of innovation at the firm level tend to be positive. Firms that innovate in products', but often also in processes, grow faster in their respective markets and are more likely to expand their employment than non-innovative firms, regardless of industry, size, or other characteristics (for an overview see Pianta 2004).From a more aggregate perspective, empirical studies on the industry level show that the employment impact is positive in industries characterized by high demand growth and orientation towards product (or service) innovations, while process innovation tends to lead to job losses. Recent

sectorial evidence for Europe suggests a prevalence of labor-saving process innovations. Slow growth on the demand side and increasing international competition has pushed many firms towards restructuring and process innovations. This leads to the well-known phenomenon of jobless productivity growth, which is currently being witnessed in many European countries. However, product innovation has confirmed its positive effects on output and jobs (Pianta 2000, 2001, Antonucci and Pianta 2002, Evangelista and Savona 2002, 2003).

The overall effect depends on the country and period being studied. The higher economic growth (total output and demand), the higher is the positive impact of innovation, while technical change in stagnating or closed economies tends to be associated with serious employment losses. According to Pianta (2004), the empirical evidence suggests that institutional factors and macroeconomic conditions play an important role for the nature and the effect of technical change on employment at the macro level. The employment impact is generally more positive, the higher is the ability to generate new products and to invest in new economic activities, and the stronger is the effect of price reduction, leading to increased demand. Aggregate studies generally point out the possibility of technological unemployment, which emerges when industries or countries see the prevalence of process innovations in contexts of weak demand. Firms innovating in both products and processes may be successful in expanding output and jobs regardless of economic context, but often at the expense of non-innovating firms. Yet, the long run trend has been toward simultaneous growth in per capita income, productivity and employment growth (van Ark et al. 2004).

2.9 ICT and the Labor Market

The World Bank study carried out on September 10, 2013 in Washington revealed that ICTs are transforming the world work, creating new opportunities and making labor market more

innovative, inclusive and global. According to the report, ICTs are influencing employment both as an industry that creates jobs and as tools that empowers workers to access new forms of work, in new and more flexible ways. Lending credence to the report, claims vein, World Bank diet innovation officer for Global ICT Development observed "that emerging ICT enabled employment opportunities matter because countries around the world are looking to create more good jobs, which have positive economic and social implication for workers and society.

The new policy note connecting to work: how information and communication technologies could help expand opportunities identify three global drivers responsible for the increase in ICT related jobs worldwide. Greater connectivity, more than 120 countries have over 80 percent market penetration of mobile telephone (World Bank Policy note 2015).Digitization of more aspects of work: Today telecommuting and outsourcing have become standard business practices globally. More globalized skills: India and the Philippines have become major out sourcing hubs due to their English language skills and other countries are targeting the sector for future growth. ICTs are providing new avenues for job creation that could help tackle global unemployment for instance the development of the mobile phone application industry has created opportunities for small and medium sized enterprises (SMES). A trim that provides a digital application to the apple app store, for examples, gains access to over 500 million app store account holders.

ICT connects people to jobs. Online employment market places are helping an estimated 12 million people Worldwide find work by connecting them with employers globally. Babajob in India, Duma and M-Kazi in Kenya and Souktel in the Middle East and North Africa are examples of job search services using internet based and mobile tools. Such services empower workers by making labour markets more transparent and inclusive, for example, Souktel targets low-income and marginalized communities. ICTs are supportive of innovation that creates new,

more flexible forms of employment and Work. (World Bank Policy note, 2015).Online contracting use ICT to increase access to work opportunities Worldwide, mainly for smaller employers, popular services include Odesk and Elance. In 2012, about 2.5 Million Jobs were posted on these services for tasks ranging from writing to customer service to software development. Microwork platforms break down large business process into smaller discrete tasks, such as data entry and verification, copy-writing or graphic design and distribute them to workers across geographical boundaries. The platform includes cloud factory, mobile works and Sama source. Analysts suggest the market sizes is about US $1 billion now and could grow to about US $ 5 billion by 2018.ICTs create opportunities, but also pose some challenges for workers and employers. By enabling new forms of work, ICT also changes the structure of jobs, the way people develop their career and the way they work. Many ICT enabled jobs are temporary or contract based for example, leading to a separation of work from social safety nets such as health insurance or pensions. According to World Bank ICT policy specialist and co-author of the policy note, Siddhartha Raja, the potential gains from ICT enabled work are not risks and challenges, but the implications of ICT for work are inevitable and will benefit those students, workers, firms and governments who depend on them. Our aim in this note is to help government consider how they can prepare for these and expand ICT related employment opportunities (World Bank policy note 2015)

In a similar vein the then Director general of National Information Technology Development Agency, professor Cleopas Angaye observed that possession of Information and Communications Technology skills is a critical need for Nigeria's transformation. This realization led to the establishment of the ICT implementing arm of the Federal ministry of communication (NITDA), with the mandate to make Nigerians entrepreneurs, job creators

instead of job seekers etc. He stressed that employment opportunities and job security could be guaranteed nationwide with the acquisition of necessary ICT skills if Nigerians' play their role in the nation's transformation agenda and quest for job creation.

2.10 Nigeria's ICT Sector: Growth, Gains and Challenges

The ICT has offered a world of opportunities to Nigeria but not without some challenges confronting the sector, hindering its anticipated advancement (Ituen and Opara 2015). The growth of ICT changing the way economic and social development occurs in most countries. New ICT related programs have been known to make institutions and markets more productive, enhance skills and learning, improve governance at all levels and make it easier for services to be accessed. It was in realization of the potentials that ICT holds that the World Bank recently expressed readiness to kick start a $ 2M (# 300 M) investment on facilities to promote growth and employment projects in Nigeria. The development would go a long way to show that even if Nigerians do not see that immense challenges facing ICT sector in view of the progress recently recorded, the world is really aware of the lapses. Hence the promise by the World Bank Director, Mr. Onnul Rolil Observed "we have areas we have researched that we can be helpful but we want the minister of information and communications to identify areas of priorities for Nigerians to benefit and create more employment opportunities (Ituen 2015), identifying ICT and the entertainment sector as "the next big wave needed to take the sector to greater heights remained a policy objective for a broader assistance, adding that many don't look at the opportunities that lie in here but it is the same industry that is creating a big job and have created careers for some. In her response, the then minister of information and communication, Prof. Dora Akunyili, identified capacity building as paramount focus of the government towards enhancing career

progression and development among Nigerians, particularly those in the ministry and industry, for a better and quality output that would have multiplier effects on the nation's economy.

The International Telecommunication Union reports on most advanced countries in ICT over five years period from 2002 to 2007, showed that out of the top 154 countries, no developing world was listed. The most advanced countries in ICT were mainly from Northern Europe with the exception of the republic of Korea, which is in the Asian continent, Sweden top the new ITU ICT Development index, followed by the Republic of Korea, Denmark, the Netherlands, Iceland and Norway. The development shows that Nigeria has a long way to go, considering such prevailing factors like the limited access to ICT infrastructure, including fixed and road service penetration.

ICT and Job creation

This shortfall is what NITDA intervention is meant to address in Nigeria. This accounts for the aggressive embarking on projects and programs that will transform the economy, create jobs and transform the country. However, in order to achieve this feat, the National Information Technology Development Agency (NITDA) has engaged the youths in capacity building projects and establishment of IT centers to make them self-reliant. It is essential to note that ICT growth far exceeds the mass importation and presence of telephones, computers and other ICT devices. Infrastructural content as well as the amount of usage of services by the populace, for instance the level of telephony density, are factors that are key in grading the country in terms of ICT growth. According to the president, Nigeria internet group, Mr. Lanre Ajayi, ICT had opened up access to the vast information resources available on the internet and Nigerians are therefore

better empowered and now have better opportunities than before to get updated in various areas of endeavor especially via the internet. (Opara 2015).

Expressing a positive view about the relationship between Nigeria and ICT, the President of Nigeria Computer society, Professor Charles Uwadia, opined that the rate of ICT advancement is not low, he maintained that it is growing. He further said "there are indeed several other indications that considerable progress had been made in the information technology and telecoms sector since the advent of democracy and the awareness of the potentials of using IT to transform the nation's economy is already widespread among policy makers and leaders of the organized private sector.

2.11 Technology and unemployment in the 21st century

There is a prevailing opinion that we are in an era of technological unemployment – that technology is increasingly making skilled workers obsolete (MacCarthy, 2014).

The general consensus that innovation does not cause long-term unemployment held strong for the first decade of the 21st century, though it continued to be challenged by a number of academic works, (Vivarelli, 2012) and by popular works such as Marshall Brain's *Robotic Nation* (Ford, 2009) and Martin Ford's *The Lights in the Tunnel: Automation, Accelerating Technology and the Economy of the Future*. (Thompson, 2014).

Concern about technological unemployment grew in 2013, due in part to a number of studies predicting substantially increased technological unemployment in forthcoming decades, and empirical evidence that in certain sectors, employment is falling worldwide despite rising output, thus discounting globalization and offshoring as the only causes of increasing unemployment. (Waters, 2014, Osborne, 2013, Report, 2015).

In 2013, professor Nick Bloom of Stanford University stated that there had recently been a major change of heart concerning technological unemployment among his fellow economists.(Garcia, Brynjolfsson and Mazzucato, 2014) In 2014 the Financial Times reported that the impact of innovation on jobs has been a dominant theme in recent economic discussion (Ignatieff, 2014). According to the academic and former politician Michael Ignatieff writing in 2014, questions concerning the effects of technological change have been "haunting democratic politics everywhere"(Skideslsky, 2013). Concerns have included evidence showing worldwide falls in employment across sectors such as manufacturing, falls in pay for low and medium skilled workers stretching back several decades even as productivity continues to rise, and the occurrence of "jobless recoveries" after recent recessions. The 21st century has seen a variety of skilled tasks partially taken over by machines, including translation, legal research and even low level journalism. Care work, entertainment, and other tasks requiring empathy, previously thought safe from automation, have also begun to be performed by robots. (Waters, 2014; Frey, Osborne, 2013; McAfee, Brynjolfsson, 2014).

Former U.S. Treasury Secretary and Harvard economics professor Lawrence Summers stated in 2014 that he no longer believed automation would always create new jobs and that "This isn’t some hypothetical future possibility. This is something that’s emerging before us right now." (Vivarelli, 2012, Summers, 2014, Skidelsky, 2013, Forum, 2014) While himself an optimist about technological unemployment, professor Mark McCarthy stated in the fall of 2014 that it is now the "prevailing opinion" that the era of technological unemployment has arrived (Brain, 2003).

At the 2014 Davos meeting, Thomas Friedman reported that the link between technology and unemployment seemed to have been the dominant theme of that year’s discussions. A survey at

Davos 2014 found that 80% of 147 respondents agreed that technology was driving jobless growth (Tett, 2015). At the 2015 Davos, Gillian Tett found that almost all delegates attending a discussion on inequality and technology expected an increase in inequality over the next five years, and gives the reason for this as the technological displacement of jobs (Smith, Anderson, Aron and Janna, 2014).

Other economists however remain optimistic about the prospects to avoid long term technological unemployment. In 2014, Pew Research canvassed 1,896 technology professionals and economist found a split of opinion: 48 percent of respondents believed that new technologies would displace more jobs than they would create by the year 2025, while 52 percent maintained that they would not (Greber, 2015) Not all recent empirical studies have found evidence to support the pessimistic view of technological unemployment. A study released in 2015, examining the impact of industrial robots in 17 countries between 1993 and 2007, found no overall reduction in employment was caused by the robots, and that there was a slight increase in overall wages (Michaels, 2015). Economics professor Bruce Chapman from Australian National University has advised that studies such as Frey and Osbourne's tend to overstate the probability of future job losses, as they don't account for new employment likely to be created, due to technology, in what are currently unknown areas.

2.12 Solutions to Technological unemployment: Banning /refusing innovation

Historically, innovations were sometimes banned due to concerns about their impact on employment. Since the development of modern economics however, this option has generally not even been considered as a solution, at least not for the advanced economies. Even commentators who are pessimistic about long term technological unemployment invariably

consider innovation to be an overall benefit to society, with J S Mill and being perhaps the only prominent western political economist to have suggested prohibiting the use of technology as a possible solution to unemployment (Blaug, 1997).

- **Delay in the uptake of labor saving machines**

Gandhian economics called for a delay in the uptake of labor saving machines until unemployment was alleviated, however this advice was largely rejected by Nehru who was to become prime minister once India achieved her independence. The policy of slowing the introduction of innovation so as to avoid technological unemployment was however implemented in the 20th Century within China under Mao's administration (Sanghvi 2006, Vepa 2003 and Glenin, 2014).

- **Welfare payments**

The use of various forms of subsidies and handouts has often been

accepted as a solution to technological unemployment even by conservatives and by those who are optimistic about the long term effect on jobs. Welfare programs have historically tended to be more durable once established compared with other solutions to unemployment such as directly creating jobs with public works. Despite being the first person to create a formal system describing compensation effects, Ramsey McCulloch and most other classical economists advocated government aid for those suffering from technological unemployment, as they understood that market adjustment to new technology was not instantaneous, and that those displaced by labor-saving technology would not always be able to immediately obtain alternative employment through their own efforts (Blaug, 1997).

- **Basic income**

Several commentators have argued that traditional forms of welfare payment may be inadequate as a response to the future challenges posed by technological unemployment, and have suggested a basic income as an alternative. People advocating some form of basic income as a solution to technological unemployment include Martin Ford, Erik Brynjolfsson (Ignatieff, 2014). Robert Reich and Guy Standing have gone as far as to say the introduction of a basic income, perhaps implemented as a Negative income tax is "almost inevitable",(Jones, Connor, Sept, 2014), while Standing has said he considers that a basic income is becoming "politically essential".(Ford, 2009). The fear expressed by Ghandi is confirmed by the high level of unemployment in the local governments (Ikwerre, Ahoada East and Eleme) understudy. Technological revolution has adversely affected job creation as both private and public institutions in the local government areas understudy have preference for technology, as such, online shopping, internet banking, e-payment, e-commerce, e-learning etc have not only displaced workers but have frustrated potential workers' at getting jobs.

While many on the political right remain skeptical, forms of basic income have been proposed even by Libertarians such as von Hayek and Friedman. Republican president Nixon's *Family Assistance Plan*, which had much in common with basic income, passed in the House but was defeated in the Senate. One objection to basic income is that it could be a disincentive to work, but evidence from pilots in India, Africa, and Canada is that this does not happen; that a Basic Income encourages low level entrepreneurship and more productive, collaborative work. While new revenue raising ideas have been proposed such as Martin Ford's "wage recapture" tax, funding a generous basic income would be challenging, and the idea has been dismissed as

utopian. Even from a progressive view point, there are concerns that a basic income set too low may not help the economically vulnerable, especially if financed largely from cuts to other forms of welfare (Ford, 2009, Rotman, 2015, Schneider, 2015, Bollier, 2013).One alternate model is that the cost would be distributed across the private sector instead of the public sector. Companies across the economy would be required to employ humans, but the job descriptions would be left to private innovation, and individuals would have to compete to be hired and retained.

- **Education**

Improved availability to quality education, including skills training for adults, is a solution that in principle at least is not opposed by any side of the political spectrum, and welcomed even by those who are optimistic about long term technological employment. Improved education paid for by government tends to be especially popular with industry. However, several academics have argued that improved education alone will not be sufficient to solve technological unemployment, pointing to recent declines in the demand for many intermediate skills, and suggesting that not everyone is capable of becoming proficient in the most advanced skills (Katz, Margo, Robert 2013, Autor, Dorn, 2013, Sand Green, Beaudry 2013). Kim Taipale has said that "The era of bell curve distributions that supported a bulging social middle class is over... Education per se is not going to make up the difference."(Krugman, 2011) while back in 2011 Paul Krugman argued that better education would be an insufficient solution to technological unemployment (Baumol, 2000)

- **Public works**

Programs of Public works have traditionally been used as way for governments to directly boost employment, though this has often been opposed by some, but not all, conservatives. Jean-Baptiste Say , although generally associated with free market economics, advised that public works could be a solution to technological unemployment.* Some commentators, such as professor Mathew Forstater, have advised that public works and guaranteed jobs in the public sector may be the ideal solution to technological unemployment, as unlike welfare or guaranteed income schemes they provide people with the social recognition and meaningful engagement that comes with work.(Mathew, 2015, Balls and Summers, 2015)

For less developed economies, public works may be as easier to administer solution compared to universal welfare programs.(Leontief, 1983) As of 2015, calls for public works in the advanced economies have been less frequent even from progressives, due to concerns about sovereign debt. A partial exception is for spending on infrastructure, which has been recommended as a solution to technological unemployment even by economists previously associated with a neoliberal agenda, such as Larry Summers. (Walker, Tom 2007).

- **Shorter working hours**

In 1870, the average American worker clocked up about 75 hours per week. Just prior to WWII working hours had fell to about 42 per week, and the fall was similar in other advanced economies. According to Wassily Leontief, this was a voluntary increase in technological unemployment. The reduction in working hours helped share out available work, and was

favoured by workers who were happy to reduce hours to gain extra leisure, as innovation was at the time generally helping to increase their rates of pay.(Leontief, 1983)

Further reductions in working hours have been proposed as a possible solution to unemployment by economists including John R. Commons, Lord Keynes and Luigi Pasinetti. Yet once working hours have reached about 40 hours per week, workers have been less enthusiastic about further reductions, both to prevent loss of income and as many value engaging in work for its own sake. Generally 20th century economists had argued against further reductions as a solution to unemployment, saying it reflects a Lump of labor fallacy.(Larry, 2014) In 2014, Google's co-founder, Larry Page, suggested a four-day workweek, so as technology continues to displace jobs, more people can find employment. (Summers 2014, Albus, 2013).

- **Broadening the ownership of technological assets**

Several solutions have been proposed which don't fall easily into the traditional left-right political spectrum. These include broadening the ownership of robots and other productive capital assets. Enlarging the ownership of technologies has been advocated by folk including James S. Albus (John, 2015) John Lanchester (Lanier, 2013) and Richard B. Freeman (Schneider, 2015).Jaron Lanier has proposed a somewhat similar solution: a mechanism where ordinary people receive "nano payments" for the big data they generate by their regular surfing and other aspects of their online presence.

The threat of technological unemployment has occasionally been used by free market economists as a justification for supply side reforms, to make it easier for employers to hire and fire workers. Conversely, it has also been used as a reason to justify an increase in employee protection.

(Cesarato, Stirati Serano 2001, Spence 2013). Economists including Larry Summers have advised a package of measures may be needed. He advised vigorous cooperative efforts to address the "myriad devices" - such as tax havens, bank secrecy, money laundering, and regulatory arbitrage - which enable the holders of great wealth to avoid paying taxes, and to make it more difficult to accumulate great fortunes without requiring "great social contributions" in return. Summers suggested more vigorous enforcement of anti-monopoly laws; reductions in "excessive" protection for intellectual property; greater encouragement of profit-sharing schemes that may benefit workers and give them a stake in wealth accumulation; strengthening of collective bargaining arrangements; improvements in corporate governance; strengthening of financial regulation to eliminate subsidies to financial activity; easing of land-use restrictions that may cause estates to keep rising in value; better training for young people and retraining for displaced workers; and increased public and private investment in infrastructure development, such as energy production and transportation.(Summers, 2014).

Michael Spence has advised that responding to the future impact of technology will require a detailed understanding of the global forces and flows technology has set in motion. Adapting to them "will require shifts in mindsets, policies, investments (especially in human capital), and quite possibly models of employment and distribution."(Waters, 2014, Lohr, 2011)

Since the publication of their 2011 book Race Against The Machine, MIT professors Andrew McAfee and Erik Brynjolfsson have been prominent among those raising concern about technological unemployment. The two professors remain relatively optimistic however, stating "the key to winning the race is not to compete *against* machines but to compete *with*

machines."(Keen, 2011; krasny, 2011; Timberg, 2011; Leonard; 2014; Rotman, 2015; summer, 2015)

2.12.1 User-ability of ICT and Employment

Nigeria is indeed, developing in the areas of ICT but there are still some loopholes, which are affecting its total advancement. According to the ITU report, the index used in selecting the top 154 countries advance in ICT combined different factors as bench marking tools globally, regionally and at the country level. These are related to ICT access, use and skills such as households with a computer as well as the number of internet users, and literacy level the body said. According to Ajayi “the major challenge is that the use of computer, access to internet and other tools of ICT are limited greatly to the urban areas and the challenges faced by the ICT sector in the country include particularly the fact that the people in the rural areas are yet to know how to use the computer. The people in the rural areas are key-board shy. He further noted, that they are yet to fully utilize the potentials of the internet. Another challenge is the limited access to the internet. Access is largely limited to the urban areas and there is an urgent need to extend affordable access to the rural areas (Opara, 2015).

Other problems affecting the rapid growth of the ICT according to Ajayi, include mass illiteracy rate in ICT tools, the high cost of accessing computers and the internet, as well as government policies. These challenges according to him could be resolved in various ways and basically, a good environment for the rapid growth of ICT in the rural area is very important while stressing that one essential major player is the government both at the grass root and Federal Level. Ajayi observed that this issue can be dealt with by government creating the right environment and incentives for the operators to extend services to the rural areas. Stressing the need for tax rebate,

subsidy on roll out cost to rural areas, among others of importance is the need for government to come up with a policy that guarantees that every Nigerian student, from primary school to the university level, have access to the use of computer as well as internet. He said “everyone has a role to play”. The operators need to balance the profit they make in the urban with the possible loss they may incur in the rural areas and consider deploying services to the rural areas even if it is not as profitable. “The citizens who are the consumers need to appreciate the need to invest their resources in acquiring access to the internet because of the immense return of such investment which comes in form of empowerment, enhanced productivity in business and easy communications with friends and families, Ajayi observed. The president, Nigerian Computer society emphasized the need for an increase in the literacy rate in using ICT tools as well as reduce the cost of gaining access to the computer and internet.

The cost of acquiring tools should be subsidized by the government, encourage acquisition of such tools, even as more private partnership structures are computed especially in the area of infrastructure development, the president maintained. He further argued that resources were readily available to promote national development, create an enabling business environment and facilitates private sector (national and multinational) investment with government and private sector joint venture collaborations encouraged. He advocated for special incentive program to induce investment in the sector and suggested the promotion of legislation for the protection of online business transactions, to ensure adequate privacy and security.

The availability of modern computers, peripherals, networking and resources within an increasingly diverse range of technologies is an essential part of learning and employment in the 21st century (Geoffrey, 2012). ICT constitutes an input in the employment process that should help produce better learning and adaptable output. The availability of ICT resources can enhance

employment by making education less dependent on differing employment quality and by making job available throughout all day (Mbwesa, 2002). Bonnet (1997) argues that the use of ICT can positively transmit knowledge to applicants. Furthermore, the availability and use of ICT can help applicants exploit enormous possibilities for acquiring information for job purposes and can increase employment through communication (Riel, 1998).

According to the Swedish National Agency for School Improvement (2008), ICT provide a positive impact on learning and employee performance when it becomes an integrated element in the labor market. Bonnet (1997) argues that the availability of visual digital technology (such as animation, simulation and moving images) involves applicants and reinforces conceptual understanding. ICT use also encourages development from a job focused to a more technical-focused model in which people work together, make their own decisions and take an active role in employment (Swedish National Association for Improvement, 2008).

Davis (2000) asserts that increased availability of ICT is especially useful for people who suffer from learning disabilities since ICT use allows managers to prepare suitable tasks for individual needs and each individual more effectively. However, authors like Cox (1999) believe that allowing certain people to use computers distracts them from focusing on the task at hand.

Central to the argument of availability are the issues of whether or not people have ample and convenient access to computers and their accessories let alone the software that is necessitated in the context of their day-to-day research, collaboration and employee evaluation (Fabry, 1997). Furthermore, people should have confidence in these facilities, which is in turn reliant on the facilities‟ reliability or degree to which the people are sure that they was have access to them at all expected times and utilize them predictably to the betterment of their work, an issue on which

consensus is enormous as is clear from ICT scholars like Russell (1997), Ross (1997), Guha (2000), Mumtaz (2000) and Pelgrum (2001).

The lesson here is that computers are but a subset of the information communication technology facilities necessitated in empowering areas and that even then, they have to be furnished with quality accessories, installed with appropriate software and linked to necessary networks to allow access to rich resources beyond rather than serve as a resource for minor typesetting and other word processing activities. Whilst the above studies attempted generally to explain how the availability of ICT affects job creation, it does not look at how particular ICT tools clearly affects applicants learning.

Posu (2012) analyzed that the introduction of the GSM in Nigeria was to expand the teledensity in the country and to make telephone services cheaper and accessible to the common person as it had been introduced in some African countries like South Africa, Ghana, and Benin Republic among others. To date, at least four competitive GSM service providers have been fully licensed in the country. These are Mobile Telephone Networks Limited (MTN), V-Mobile Nigeria (Vgo),

Globacom Nigeria Limited (glo), and Nigerian Mobile Telecommunications (Mtel). These Telecommunication Networks have created significant effects on the gross domestic product (GDP) of Nigeria in terms of job creation, communication linkages, connectivity, security of lives, and reduced transport costs among other.

2.12.2 ICT Access and Employment

Geoffrey (2012) emphasized that the effective integration of ICT in empowering areas would call for a whole area to be networked to ensure access to multimedia and learning- rich resources

via the Intranet and the Internet wherever people are in or out of the area is paramount. The computer labs need to be sufficient in number to allow ready access by people in most time across the area. A wide range of peripheral and remote working devices, including video-conferencing, is provided and integrated into the curriculum and mandate of the program. Large and small group presentation facilities are readily available. Despite the above desired situation, most area in South-South face barriers to effective integration of ICT in the learning and employment process; limited infrastructure in terms of satisfactory physical conditions of laboratories and the subsequent accessibility of the resources (ICT) to the learners or applicants (Singh, 1993).

Many commercial and academic developers of multimedia have focused primarily on information access and presentation (Singh, 1993). However, it is easy to see that multimedia has tremendous potential to enhance the vividness with which information can be presented and ease with which it can be accessed, the main barriers to these are not generally that appropriate information is difficult to access or badly presented. The problem has more to do with that information (Shank & Kass, 1996).

Accessibility and use of ICT allows people to investigate more thoroughly the real world and to have access to information on employment opportunities (Riel, 1998). They can more readily access information sources outside the area and can use tools to analyze and interpret such information. Information may be accessed through online systems or through data logging systems (Riel, 1998). The technologies allow them to receive feedback, refine their understanding, build new knowledge and transfer from interpersonal settings. In the past this has been difficult to provide in an area due to logistical constraints and the amount of material to be covered all of which can now be addressed with ICT. Barriers, associated with ICT integration

that fall within the physical realm are beyond the direct control of the instructor. Loveless (1996), then explained that these barriers centers around accessibility and infrastructure and include decisions about purchasing, locations of wiring drops, and decisions regarding the placement of computers in centralized labs verses placement of computer pods in the area. Placing computers in centralized labs may provide people with equitable and efficient exposure to technology but severely limit the technology's accessibility for the instruction.

The researcher agrees that overall, governments and training institutions seem to recognize the importance of introducing ICT in education and training. Much as people need training on a continuous basis with modern requisite skills to fully exploit the ICT environment in their different functions. Though, awareness skills only may not be sufficient enough but rather continuous accessibility to ICT resources would do much better. Continuous access to computers helps people feel more secure in their ICT use during training and gives them the courage to experiment more and thus helps them integrate ICT into learning effectively. Many studies also indicate that the impact on learning was increase over time as people become more experienced in continued practice on using computers and ICT resources (Swedish National Association for Improvement, 2008).

Dewey (1989) argues that information that is accessed but never put to use during that process, may be difficult to retrieve and use when need arises in the real world. Equal attention must be paid to ensuring that the technology is actually being used by the target learners and in ways that truly serve their needs (Salomon, 1994).

2.12.3 Public Acceptance of ICT and Employment

Unemployment is becoming one of the most challenging in our society because the knowledge is expanding rapidly and much of it is must be available to people so as to compete successfully in securing a job. Modern developments of innovative technologies have provided new possibilities to different professions, but at the same time have placed more demands on people to use these new technologies in learning and employment process (Jung, 2005).

Owing to the above, there is widespread change across the world to infuse ICT into different areas of man endeavor. The research by British Communication and Technology Agency (2004) has highlighted user-ability of ICT resources as one of the five key pillars of successful integration of ICT in any area. In developed countries, people are fully using ICT in all aspects of their professional life to improve their own learning and the learning of other people (Davis, 2000). They use ICT to assist people assess their own learning in completing specific personal achievements. It is natural for people to collaborate with other colleagues in sharing experiences to solve problems. ICT becomes a stimulus for exciting new learning and job opportunities (UNESCO, 2002).

It is the skill and attitude of the acceptance of people that determines the effectiveness of technology integration into an area (Bitner & Bitner, 2002). Once people developed skills, they could begin to find ways to integrate technology into learning and employment process and demonstrate its use to others. If learning was the impetus that drove the use of technology in an area, people could be partners in the learning process, altering traditional paradigms of the people providing wisdom and the others absorbing knowledge. Motivation to endure the frustration and turmoil of the process of change needed to be intrinsic.

Newhouse (2002) and Loveless (2002) notes that ICT if used positively enhances learning processes and outcomes. Findings assert that both the learning environment and individual pedagogy and content are central to the effective use of ICT. However, people need to be confident in their knowledge as well as in basic ICT literacy's so that they can effectively integrate ICT into job and learning programs. A large number of studies have found that people are often more engaged and motivated to learn when using relevant ICT to support specific intentional learning.

What people generally do on the way to becoming ICT literate is how to memorize the components of ICT and their functions. It is a mistake to believe that if one can memorize the hardware parts and software then they will understand and be able to use them. Learners do not acquire a repertoire of learning strategies for successfully accomplishing different kinds of learning tasks. Too often, they apply a memorization strategy and when that fails to work they lack alternative strategies to employ. This is especially problematic with ICT, for which memorization strategies simply do not work (Jonassen, 2000). The researcher believes that the most pandemic, yet most insidious, cause for underachievement in ICT is lower expectations on the part of people, which reduces expectations of learners and the entire system.

Sensitization Workshop/Seminar on ICT Organized by Rivers State Government and NEPAD in Ikwerre, Eleme and Ahoada East Local Government Area of Rivers State ICT 4 All" Initiative.

2.12.4 ICT Awareness and Job Creation

As part of ICT policy of Rivers state government, the government in conjunction with NEPAD office engaged in a series of projects aimed at ensuring that the level of computer literacy is increased among the people of the State, starting with pupils and students of primary and

secondary schools. These projects, tagged under the umbrella "ICT 4 All" Initiative, was organized in an effort to bridge the digital gap between indigenes of the Rivers state and the rest of the world, recognizing the importance of ICT in the development of human resources in the State. On May 22, 2015 NEPAD Rivers organized a sensitization workshop on information and communication technology for the junior students of government secondary school, Isiokpo, in Ikwerre local government area of Rivers State. The workshop was the fifteenth of a series of seminars tagged "ICT and U'', which was designed to improve ICT awareness among students of primary and secondary schools across the state. The Director of NEPAD Rivers state spoke about the relevance and impacts of ICT in today's world and importance of improving one's ICT skills. ICT-4-all, an initiative by NEPAD Rivers State, in collaboration with the Nigerian society of Engineers (NSE) and the internet society (Nigerian Chapter) was established in recognition of the significant developmental role and impact of information and communications technology (ICT) in the global economy. The ICT for-4-all, Initiative was conceived with the aim of creating awareness among children, students and youths on the benefits, importance and relevance of ICT in various field of study, as they begin to choose their careers.

On March 27 2013, NEPAD Rivers State organized a sensitization workshop on ICT at Government Girls secondary school, Rumuokwuta, in Obio-Akpor local government area of Rivers State. The workshop was the fourteenth of a series of seminars tagged "ICT and U" which was designed to improve ICT awareness among students of primary and secondary schools across the state. The Government secondary school, Ngo in Andoni Local Government Area of Rivers State served as the venue for the ICT workshop. The workshop was the sixteenth of a series tagged "ICT and U". It took place on February 12, 2014.
(http://www.riverstate.ng/index.php?.....rivers...ICT...trains).

The laudable objective of the government is commended, but the programme is not an inclusive one. The programme should have included the market men and women. The programme excluded the rural dwellers as it was organized in headquarters of the local governments and urban areas, thereby excluding the poor and illiterate ones. In line with this initiative, NEPAD organized ICT seminars and workshops, tagged "ICT and U", for primary and secondary schools across the State, especially in areas where there is little or no exposure to ICT. The "ICT and U" project was conceived with the aim of creating awareness among the children, students and youths on the benefits, importance and relevance of ICT in various fields of study, as they begin to choose their careers. The project officially kicked off on Wednesday the 5th of May 2010, at Holy Rosary College, Port Harcourt. Many other schools have been visited since then. Ikwerre, Ahoada East and Eleme local governments were covered.

The second phase of the ICT 4 All project involves the establishment of ICT laboratories in the schools visited. This is in order to provide the children with the opportunity to acquire the ICT skills and knowledge they need in order to be effective in the 21st Century.All the 23 local governments in Rivers state were covered including Ikwerre, Ahoada East and Eleme.

NEPAD AGROCONNECT: The office is partnering with the Internet Society (Nigerian Chapter) and the Nigerian Society of Engineers on a new project tagged "NEPAD AgroConnect", the first of its kind in Nigeria. The program was domesticated in Rivers State to help improve the State's agricultural sector by boosting food production through the effective utilization of ICT.

NEPAD AgroConnect links people and cultures in a revolutionary campaign that introduces low cost, water efficient and sustainable food growing innovations hand in hand with access to

technology and information via existing and emerging technologies. The concept of NEPAD AgroConnect involves using a new innovative food growing system to grow crops through which families can grow food, schools can conduct agricultural experiments, and all participants can share their lessons and experiences with one another all over the world using Internet connectivity.

The project will be established in order to achieve the following: socially and financially sustainable, self-directed, lifelong learning systems for farmers in Rivers State; vibrant Agricultural Research & Development; improved communication with rural farming communities; and increase in opportunities for rural communities defining their own needs using ICT. This program is yet to cover all the 23 local governments in the state, as its impacts are yet to be felt by indigenes of Eleme, Ahoada East and Ikwerre local government areas of Rivers state. (http://www.riverstate.ng/index.php?.....rivers...ICT...trains

2.12.5 Government Created Enabling environment and job creation

Kasimu (2015) explained that there is need to have a policy that governs ICTs and regulatory mechanism to monitor and manage operations in the ICTs sector. Some of the components to form a firm foundation for ICTs include: assessment of ICT status in all sectors of the society (e-readiness), the challenges encountered in the establishment of an e-society, and above all the will and commitment by leaders to adopt ICTs as enablers for national economic development.

Posu (2012) indicated that at the wake of 2000, the Federal Government of Nigeria embarked on an aggressive drive towards the provision of more efficient services in the nation through its privatization and deregulation policies. The policy drive led to the establishment of National Telecommunication Policy in December 2001. The policy, among other things, recognized the need for the establishment of an enabling environment for deregulation and rapid expansion of the telecommunication services in the country. The mission statement of the government was to use ICTs for Education, Creation of Wealth, Poverty Eradication, Job Creation, and Global

Competitiveness. The policy objective was to develop globally competitive quality manpower in ICTs and related disciplines. This entails developing a pool of ICT engineers, scientists, technicians and software developers. Consequently, attractive career opportunities will emerge in addition to development of *Made in Nigeria* software and computer components that can earn the nation some foreign exchange. The implementation of ICTs policy led to the adoption of Global System for Mobile-Communications (GSM) and its related components in Nigeria in 2001. This initiative has brought a lot of infrastructural development and provide great job opportunities for the populace.

Sofowora (2009) opined that there is the unprecedented need to create more than 10 million jobs to accommodate new entrants and to reduce unemployment rate. Sesan (2004) also states that in developing countries there is an astronomic increase in unemployment. He was of the opinion that by 2010 over 700 million youths will enter the labor market in Nigeria. According to him, the situation is more worrisome as two third of the total population are not sure of employment after the completion of their studies.

Public Acceptance of ICT

The saving grace is the one-year compulsory National Youth Service Program for all university graduates and Higher National Diploma graduates from recognized polytechnics. Other good news is that people are beginning to appreciate the potentials that ICT can offer. There is accelerated development through ICT. Philip (2002) quoting the South African Communication Minister says:

The knowledge revolution is upon us, we cannot wish it away. The question is how we respond to it. The Minister therefore called on the delegates to find imaginative ways by which the labor force can be educated to take up the advantages of job opportunities available through ICT. Today there is shift from low-skilled to high skilled labor force. She also called for a comprehensive campaign to encourage more youths to acquire necessary skill in ICT.

In Nigeria the youth have yielded to the call and are using ICT as a launching pad to create entrepreneurial activities such as mobile telephoning, internet cyber café and computer services. This has yielded in form of cyber cafés in addition to the mobile ICT for poverty alleviation and economic empowerment in Nigeria. Different community telephone centers in both the rural and urban centers. This effort is being gradually integrated to the rural communities though at a slow speed as a result of some challenges that include power supply, lack of necessary infrastructures and negative attitudes.

Several foundations like: Fantsaum, Copine in Obafemi Awolowo University, Amaechi foundation etc. have facilitated access to ICT in the rural communities. These foundations have provided rural communities with accesses to micro credits and ICT services for educational economic empowerment and health. In addition they provided ICT skills training and technical support.

In the argument of Kundishora, (2012) emphasized that it is now a fact as evidenced by developments from other countries that ICT as a sector can contribute immensely to the national GDP of a nation and that ICT, acting as an enabler, can result in improved market competitiveness of a nation's products and services. ICTs can impact positively on governance and other sectors of the economy. In turn ICT can effectively assist international economic

integration, improve living standards, narrow the digital divide, and improve biodiversity utilization and management.

The digital divide characterized by highly unequal access to and use of ICT and manifests itself both at the international and domestic levels needs to be addressed by national policy makers. The digital divide can be narrowed and poverty reduction addressed through effective and focused utilization of ICTs in key sectors such as education, industry and agriculture. The adoption of ICT requires a business environment encouraging open competition, trust and security, interoperability and standardization, and financial resources for ICT. This requires the implementation of sustainable measures to improve access to the Internet and telecommunications infrastructure and increase ICT literacy, as well as development of local Internet-based content.

Though, most developing countries still depend on content developed and managed in the developed world and as a result substantial costs are incurred while trying to access content. One of the causes that discourage access to digital information is culture and language differences. Efforts should be made to make ICTs available in local languages if they are to be demystified, adopted and utilized by locals.

In general, ICT goals in Africa are: to establish an environment that encourages networking of services and applications; promoting e-commerce and trade promotion programs for goods and services; promoting Internet access to exchange and access digital content; establishing e-government; promoting education and on-line services; strengthening network security; building and developing e-society and ICT human resources. Thus, required government intervention

through provision of enabling environment for full access to unlock the positive impact of ICT especially in the area of solving issue of unemployment in the country.

2.12.6 ICT and Job Creation

The existence of ICT brings about development through job creation. There are numerous ways through which this objective can be achieved. Some of the ways are: Forex trading, acquisition of requisite skills of ICT for the labor market. Among the platform for the provision of minimal jobs through ICT include call centers, selling of cards, repairing of phones, loading of music and internet accessories, web designing, network, typesetting, designing of cards, and calendars for wealth creation (Ikemelu 2010).

The World Bank (2010) opines that ICT is the set of activities which is facilitated by electronic means, through the processing, transmission and display of information. According to United Nations Economic and Social Commission for Asia and the Pacific (UNESCAP, 2001) ICTs refer to technologies people use to share, distribute, gather information and to communicate, through computers and computer networks. In this study ICT is viewed as set of tools that can be used to process, avail and access, information and communication services or products. The services and products may include hardware and software; Internet, telephones/mobile phones, telefax, type writer, calculators, radios, televisions, hydraulic machines used in industries among others.

The influence of ICTs in terms of employment is, perhaps, one of the most relevant ones as it has human face. A common and shared vision among experts underlines that ICT and the digital economy are spreading great economic opportunities all over the world, particularly in developing countries (economies) but at the same time, their impact on jobs is yet to be as

positive as it should be. Some voices tend to highlight the positive aspects of the digital economy, in this side of the balance some maintained that opportunities created by the digital ecosystem in terms of job creation easily overcome the destruction of "classic" jobs caused by the expensive use of new ICT applications and services. These voices underline that open internet is an enabler for job creation and entrepreneurship. Places as Silicon Valley are good examples of this. MOOCs, crow finding, online monitoring and cloud computing are without a doubt new opportunities born in the light of the economy and society digitalization. Computerization has created many new jobs or radically changed existing jobs. For example:

- Engineers are needed to build the new computerized machines.
- Programmers are needed to write the new programs that the computers run.
- Systems analysts are needed to design the new computerized systems.
- Skilled workers are needed to operate the new computerized machinery.
- Skilled workers are needed to use new software such as graphics packages, web-design software and CAD programs.
- More staff may be needed because of the increased business generated by improved efficiency.(Katherine 2014)

The internet offers to entrepreneurs' development opportunities that, just some years ago, were only available for those living in just a few well-known innovation bulbs around the globe. Nowadays, high speed networks offer a virtual and much easier connection between universities, venture capital, mentors, programs and freelancers and innovators, extending the opportunities once being confirmed in some very concrete geographical areas of the world to anyone

connected to the internet. From the developing world point of view, new employments are created in the fields of software development or on-line customer service leading to growth in GDP.

On the negative side, it is not possible to deny that entire industries have disappeared or, at least, have been set aside during the last years due to the internet, just as one think about the analogical photography, Cinemas, travel agencies etc. The ICT revolution first hit the blue collar jobs, then the pink ones and now affecting the white collar, especially in the developed world. Concentration of wealth in few hands is on the increase due to a small number of new digital economy owners which presents a negative scenario about the ICT revolution. Coming back to the analogical/digital photography example, one could perfectly understand the usefulness of ICT. It exists as a real threat of creation of global monopolies, thanks to the internet, with much more economic power than the aggregated GDP of a large number of countries. To finish up with this rather apocalyptic scenario, there is the need to add global dimension inherent to the internet, which in this case is provoking not only the delocalization of wealth and income, but perhaps more dangerous for the stability of the national economic stems, the delocalization's of taxes. ICTs are transforming the world of work, creating new job opportunities while destroying others but it is a fact that they are making labor markets more innovative and global. (World Bank 1998).

2.12.7 Compensation Aspect of ICT

The study looks at the ICT and job creation as expressed by some economic theorists, the conventional neoclassical school of thought supports the compensation idea. That school holds that ICT or technological revolution is labor-saving. The proponents of these views

predominantly come from Europe in contrast, the substitution or the end of work literature, originated by US authors, suggests that the labor-saving effect of new technology leads to a jobless society. The micro-economic foundations for these two approaches depart from two opposite assumptions. The optimist compensation approach assumes that labour markets are under all conditions: perfectly flexible, prices and quantities respond to technological changes by presenting full employment. The pessimistic end-of-work approach built on the opposite assumption, that wages or prices are locked in disequilibrium. These two schools have nurtured theoretical and empirical discussion and have influenced the policy debates for decades.

Though origin of the two competing ideas, compensation and substitution framework, described in this study predate the ICT breakthrough, they became increasingly popular in the recent technological context as they offer tractable theoretical frameworks that can be fit to data and provide policy conclusions having departed from different assumptions, they suggest alternative explanations to the relation between ICT and employment, and consequently point to contrasting measures to deal with technological unemployment.

Interestingly enough, Vivarelli's (1996) empirical study indicates that the two theories each fail to account for the impact of technology on employment in the proponents' own geographical regions, through each fits the data relatively well in their intellectual opponents region. Though the US has demonstrated a capacity for creating new jobs, the total amount of work has shrunk in European countries. This study will give a detailed account of the theoretical grounds for these two alternative interpretations of the economic effects of technology, focusing specifically on the relation between ICT and employment. The study will pursue the objective of bringing more clarity into this issue by examining the available empirical evidence regarding the relationship between technology and employment. There is a wealth of theoretical speculation and empirical

evidence regarding the effect of ICT and employment. Before drawing conclusion about the employment effect of ICT, it is important to carry out a careful check on the ICT indicators that are used to fit empirical results, to a theoretical framework. There is no consensus on possible or negative overall effect, not between the two major theoretical schools and not even within each school.

The compensation and substitution framework, the two dominant theories in economics explain the link between technological innovation and employment and after a rich diversity of theoretical perspectives and evidence based insights. The compensation framework suggest that negative effects of technological change on employment can be reversed provided the market based compensation channels are kept open, and are carefully taken into account, together with institutional settings in which they operate. There may be some role here for labour market institutions and wage bargaining. However, for some European countries there is evidence that this does not prevent jobless growth. The substitution framework has analyzed a variety of shifts, the skills composition of demand for labour and reduces the policy tool kit to educational and supply side policies, possibly complemented with income redistribution policies. While some sectorial and turn-economic research points to positive employment effects there is no evidence yet that this translates into an overall positive effect (Sabadash, 2013).

Traditionally, economics as a discipline has tended to dismiss major concerns about the possible harmful effects of technological progress on employment. Compensation theory has been particularly successful in this respect, this framework, which remains popular among contemporary economists, is based on the belief that technological change has a positive effect on employment in the long term while the direct effect of technological progress is labour saving, compensation theory argues that there are indirect market-based compensation

mechanisms that can counterbalance this initial labour saving effect, or even reverse it. In this section the study examine the theoretical framework and the available empirical evidence in support of this view. Most of this revolves around general technological innovation and was not designed with ICT in mind. However, the study address the compensation argument from the ICT angle and where available, review relevant empirical studies.

Compensation Mechanisms: Several authors provided a comprehensive review of these compensation mechanisms (Vivarelly 1995, Pianta, 2004), Vivarelli and Pianta, 2000, Petit, 1995. Below the study summarized those channels that are most relevant for the employment effect of ICT and most applicable to modern economic condition. By new machines (The labour needed to build the new equipment that applied innovation requires) the "by new machines" effect is now rarely discussed by economists; it is often accepted that Marx successfully refuted it. Even pessimists often concede that product innovation associated with the "by new products" effect can sometimes have a positive effect on employment. An important distinction can be drawn between 'process' and 'product' innovations. The extent to which the other effects are successful in compensating the workforce for job losses has been extensively debated throughout the history of modern economics; the issue is still not resolved.(Vivarelli, 2012)

a. Job creation through new products: commercialization of new products and demand for new equipment due to technology and innovation create new jobs, this mechanism is believed to be the most powerful means of counterbalancing technological unemployment. It has been extensively studied in the economic literature and empirical evidence has been put forward to support the idea that the most important employment effects of product innovations are likely to be positive compensation resulting from increases in demand for a turn's product. Katsoulacos (2003) suggests that product

innovation generates two types of effect, a welfare effect (development of either entirely new goods or differentiation of mature goods) and a displacement effect (substitution of established by new product innovation on employment). The magnitude of the welfare effect depends on the nature of competition and the delay with which rivals react to the introduction of new products. In practice, however, the distinction between product and process innovation is not always straight forward, and one often accompanies the other, especially in services (Harrison et al, 2008).

b. Job creation through lower unit cost of production, while leading to the displacement of

workers, process innovation decreases the unit of production, which in competitive markets translates into reduced re-prices followed by an increase in demand (through income and substitution effects) and finally to additional production and employment in the longer term. This time the reasoning terms are from two basic assumptions, first that in a competitive economy supply generates its own demands, and second, that innovation plays a core role in national and international markets. This argument has generated two main criticisms, the first attacks the assumptions of perfect competition by suggesting that in oligopolistic markets cost savings are not necessarily translated into decreasing prices. The second critique is based on the existence of demand constraints that lower demand elasticity through delays in expenditure decisions. These delays may occur due to the complexity of consumer decision making resulting from imperfect information, costly search, brand loyalty, pessimistic expectations and other factors. Another mechanism related to decreased production costs work through the time lags between the actual decrease in cost and the decrease in prices. This allows innovative firms to accumulate extra profit and translate them into new investments, higher production and hence new jobs. The assumption behind this mechanism

is that accumulated profits are entirely and immediately translated into additional investments, and that investments are labor-augmenting.

c. Job creation through higher consumption: A similar reasoning refers to the higher income and consumption derived from the cost saving due to the innovation. This leads to increased demand and, consequently, to increased production and employment, which may compensate for the technological unemployment. This mechanism putatively works; its workers share the productivity gains due to technological progress. It proved to be rather powerful throughout the 1950s and 1960s, when wages were to a large extent regulated in consultation with trade unions and productivity gains resulted in increased real incomes. However, it tends to be weaker in a modern institutional setting where labour markets tend to be more competitive and union powers have decreased. (Sabadash, 2013). By changes in wages. (In cases where unemployment does occur, this can cause a lowering of wages, thus allowing more workers to be re-employed at the now lower cost. On the other hand, sometimes workers will enjoy wage increases as their profitability rises. This leads to increased income and therefore increased spending, which in turn encourages job creation.)

   The magnitude of compensations effects explained above are likely to depend on the behavior of agents inside the firm and the nature of market competition. Thus, union may attempt to transform any gains from innovation into higher wages, while managers may seek to use market power to increase profit (Nickell, 1999) and (eventually to translate them into investment). Both behaviours can dampen or even override the compensation effect (Harrison, 2008).

Compensation theorists displayed their ignorance of the colossal damages done to the workers as a result of the advent of technology. The high unemployment rate in Eleme, Ikwerre and Ahoada East local government is attributable to automation, obsolesce and disintermediation, which are the main channels through which ICT relieve people of their jobs. Jobs lost as a result of obsolesce are difficult to regain, not even by compensation.

2.12.8 Market-based ideas (Views of the capitalist on intelligent machine)

Albus (2003), a United States government engineer and pioneering inventor in automation, robotics and other intelligent systems, was concerned for many years about the potential social impact of advanced intelligent systems. Dr. Albus was optimistic about the wealth producing capabilities of intelligent machines but concerned about the elimination of jobs and downward pressure advanced automation placed on human wages and incomes. In his 1976 book titled Peoples' Capitalism: The Economics of the Robot Revolution (Albus2003) and on his websites. Albus lays out a plan to broaden capital ownership to the point where every citizen becomes a capitalist with a substantial income from personal ownership of capital assets. This would achieve an economic system where income from ownership of capital assets would supplement- and eventually supplant- wages and salaries as the primary source of income for the average citizen. Albus believes this would lead to a world of prosperity and opportunity without poverty, war or pollution.

Marshall Brain (2003) and Martin Ford, (2009) author of the 2009 book The Lights in the Tunnel: Automation, Accelerating Technology and the Economy of the Future are IT engineers who worry that advancing IT will displace workers faster than current economic structures can absorb them back into the economy.

Ford presents an argument (2009) for why the fear of disruption to employment, although fallacious for two centuries, might nevertheless become valid as the speed of development of new machine technology differs substantially from the past. He compares this to the standard warning in financial prospectuses that "past performance is not a guarantee of future results". Brain and Ford both advocate pursuing some permutation of basic income or guaranteed minimum income, simply to keep the recirculation of value throughout the economy from stalling due to low employment. Although the earliest variants of these ideas involve direct support from the government, which could tax highly automated companies and use the revenue for both basic income and select reemployment, they have also evolved to include market-based mechanisms, comparable to minimum wage laws, requiring the private sector to employ humans but leaving the job descriptions to private innovation, in these lines of thinking, it is recognized that the "lump of labor" is a fallacy and that automation can continue to yield ever higher per capita standards of living (both facts being in contrast to what Luddites thought), but also that the kinds of labour involved in newly created job categories may be of types that most people may not be qualified to do. (For example, jobs for highly skilled information technologists, such as robotics engineers or systems integrators, may be in high demand, but most people will be unable to do them. To bypass this problem, the basic income or new markets decouple consumer purchasing power and confidence from the traditional labor market, which can suffer from fluctuations in the business cycle or (as Ford argues) even potential market failure. In its place would grow a new labour market insulated from these concerns.

In their books The Second Machine Age: Work, Progress, and Prosperity in a Time of Brilliant Technologies and Race Against The Machine: How the Digital Revolution is Accelerating Innovation, Driving Productivity, and Irreversibly Transforming Employment and the Economy,

MIT professors Andrew McAfee and Erik Brynjolfsson write that the pace of automation has picked up in recent years due to a combination of increasingly clever advanced digital technologies. They write these technologies are making people more innovative, productive and financially richer, both in the short- and long-term, but at the cost of increasing wealth inequality in society. In the authors' view, one of the main in-egalitarian consequences of digital technological developments is its potentially negative impact on well-paid employment. The authors recommend governments consider modifying public education systems to place greater emphasis on teaching creativity and entrepreneurship, increasing investments in infrastructure and basic research, and revising tax policies to reward employers for hiring people and to increase the tax rates on wealthy individuals. (Schechter, 2014) the authors advocate for a collaborative partnership between computers and humans as the road to future job creation. "In medicine, law finance, retailing, manufacturing and even scientific discovery," they write, "the key to winning the race is not to compete against machines but to compete with machines." (Lohr, 2011; Keen, 2011; Krasny, 2011 and Timberg, 2011)

Larry Summers wrote about the "devastating consequences" of robots, 3-D printing, artificial intelligence, and similar technologies for those who perform routine tasks. In his view, "already there are more American men on disability insurance than doing production work in manufacturing. And the trends are all in the wrong direction, particularly for the less skilled, as the capacity of capital embodying artificial intelligence to replace white-collar as well as blue-collar work will increase rapidly in the years ahead." Summers recommends more vigorous cooperative efforts to address the "myriad devices" (e.g. tax havens, bank secrecy, money laundering, and regulatory arbitrage) enabling the holders of great wealth to "avoid paying" income and estate taxes, and to make it more difficult to accumulate great fortunes without

requiring “great social contributions” in return, including: more vigorous enforcement of anti-monopoly laws, reductions in “excessive” protection for intellectual property, greater encouragement of profit-sharing schemes that may benefit workers and give them a stake in wealth accumulation, strengthening of collective bargaining arrangement, improvements in corporate governance, strengthening of financial regulation to eliminate subsidies to financial activity, easing of land-use restrictions that may cause the real estate of the rich to keep rising in value, better training for young people and retraining for displaced workers, and increased public and private investment in infrastructure development, e.g. in energy production and transportation.[Summers, 2014] summers also said he no longer believed automation would always create new jobs. “This isn’t some hypothetical future possibility. This is something that’s emerging before us right now.” He added the answer is not to try to stop technological change, “but the answer is not to just suppose that everything’s going to be O.K. because the magic of the market will assure that’s true.”

Michael Spence wrote that “Now come a … powerful, wave of digital technology that is replacing labor in increasingly complex tasks. This process of labour substitution and disintermediation has been underway for some time in service sectors- think of ATMs, online banking, enterprise resource planning, customer relationship management, mobile payment systems and much more. This revolution is spreading to the production of goods, where robots and 3D printing are displacing labor.” In his view, the vast majority of the cost of digital technologies comes at the start, in the design of hardware (e.g. sensors) and, more important, in creating the software that enables machines to carry out various tasks. “Once this is achieved, the marginal cost of the hardware is relatively low (and declines as scale rises), and the marginal cost of replicating the software is essentially zero. With a huge potential global market to

amortize the upfront fixed costs of design and testing, the incentives to invest [in digital technologies] are compelling." Spence believes that, unlike prior digital technologies, which drove firms to deploy underutilized pools of valuable labor around the world, the motivating force in the current wave of digital technologies "is cost reduction via the replacement of labor." For example, as the cost of 3D printing technology declines, it is "easy to imagine" that production may become "extremely" local and customized. Moreover, production may occur in response to actual demand, not anticipated or forecast demand. "Meanwhile, the impact of robotics….Is not confined to production. Though self-driving cars and drones are the most attention-getting examples, the impact on logistics is no less transformative. Computers and robotic cranes that schedule and move containers around and load ships now control the Port of Singapore, one of the most efficient in the world." Spence believes that labor, no matter how inexpensive, will become a less important asset for growth and employment expansion, with labor-intensive, process-oriented manufacturing becoming less effective and that re-localization will appear global. In his view, production will not disappear, but it will be less labor-intensive, and all countries will eventually need to rebuild their growth models around digital technologies and the human capital supporting their deployment and expansion. Spence writes that "the world we are entering is one in which the most powerful global flows will be ideas and digital capital, not goods, services and traditional capital. Adapting to this will require shifts in mindsets, policies, investments (especially in human capital), and quite possibly models of employment and distribution."

In a talk on four of the most dominant companies in the digital economy, Scott Galloway of the New York University Stern School of Business said that "the Smartphone economy is going to be outstanding for employment and it's going to be terrible for wages" (Horsemen, 2015)

Ryan Avent, an economics correspondent for The Economist, reports that one possible solution may be to restore some of the labor market regulations that protected workers in previous decades. However, in Avent's view, this could increase the cost of labour, which could increase firms' interest in substituting labor-saving technologies for worker, potentially canceling out the beneficial effects. Another option may be to improve workers' education. And a third option may be a form of redistribution, by giving workers a share of ownership in the corporation, or by increasing taxes on the owners of capital and distributing the funds to workers (share, 2013).

2.12.9 De-skilling Technologies and the Labor Process

The rapid development of ICTs has reshaped the structure of the workplace, transformed required skills and tasks for workers, and changed labor employer relations. The prevailing view is inclined to emphasize the positive consequences of new technologies on workers. First optimists argue that ICTs have increased the total number of employees because the growth of new jobs in the service sector exceeds the losses of traditional jobs in the manufacturing sector (Campbell, 2001, Soete, 2001) second, they are also convinced that "skill biased" technological change has fostered an increasing demand for more skilled workers and therefore workers have to keep learning new skills along with the development of new technologies in the workplace, (Block, 1990; Bresnahan, Bryolfsson and Hitt, 2002). Nevertheless, these Optimistic arguments overlook the dark side effects of new technologies on workers. Some empirical studies reveal that when other independent variables are controlled, new technologies diminish job opportunities for workers (Castells, 1996). In addition, the introduction of ICT has eliminated job opportunities for "wrongly skilled" workers, rather than "low skilled" ones. Among the jobs created in ICT sectors, many are actually low-skilled tasks in the lower end, rather than the highly skilled jobs that optimists claim (organization for economic co-operation and

development, 2002). Following the deficits in the optimist viewpoint, this paper reviews labor process theory which is based on Mark and Braverman, to examine the negative impacts of ICTs on employment.

According to Marx (1965), the major approach taken by capitalists to enlarge surplus value by introducing machines and intensifying the labor process, because many governments have set legal limitations on the prolongation of workdays preventing management from increasing the absolute surplus value. Therefore, diverse new technologies have been continually introduced into the workplace since the industrial revolution. Capitalists have increased the productivity of employees by asking individuals to operate more machines. Moreover, new technologies that demand fewer skills and less physical strength enable management to hire "supplementary labour power or the industrial reserve army including women, children and unskilled workers. Because the average salary of these workers is lower than that of male adults and skilled workers, capitalists have reduced their salary costs by using new technologies.

Following Marx's arguments, Braverman (1974) points out that the introduction of new technologies in the workplace has reinforced the separation of conception and execution of take over the conception element of the labor process and completely control the process of production. After the reconstruction of the process of production by new technologies, many jobs have been trivialized into merely, physical activities and thus, demand only unskilled or semi skilled workers. This consequence is called de skilling or the degradation of work and it has two facets. On the other hand, the average level of workers skill in the twentieth century is lower than that of their counterparts in the nineteenth century. On other hand, workers have lost mastery of the conceptual aspect of their work referring to create workers core knowledge and skills in pre-industrial production in craft production, a worker's skills are tied to both the conception and

execution elements, by contrast, in the capitalist mode of production, a worker's skills have become mindless physical activities.

Effects of Automation on Employment

- ICT can make someone more **efficient** at his job, a company can therefore employ less people to complete that job. For example:
- In a **factory**, skilled technicians and machinists can be replaced by computer-controlled robots which can work faster, for longer and more consistently.
- In a **factory**, many dirty and dangerous monitoring jobs have been replaced by data-logging equipment using sensors.
- In a **factory**, many quality control jobs involved routine sampling and were very boring, many have now been replaced by automatic machines.
- In a **warehouse**, many loading and sorting jobs have been replaced by a few staff running a computer-controlled warehouse.
- In an **office**, many typists can be replaced by one person using a word processor. This is a lot more efficient, for example documents can be saved and reloaded for editing rather than being re-typed and mail merging can be used to create apparently custom-typed documents.
- In an **office**, many payroll clerks using calculators and paper-based records can be replaced by one person using a spreadsheet to calculate a company's payroll.
- In an **office**, many clerks updating paper-based files in filing cabinets can be replaced by one person using a database.

Telephone exchange operators have been replaced by computer systems that make the phone connections automatically automatic

In a **car park,** the car park attendant can be replaced by ticket machines and barriers using control technology.

In a **shop**, online shopping means sales staff and cashiers etc. are replaced by staff selecting and sending out goods from a warehouse etc.

In a **shop**, stock control staff can be replaced by automated bar-code readers recording items entering the building and being sold.

In a **bank**, ATM machines mean less cashiers are needed inside the bank to deal with customers.

Working with ICT **requires new skills** and many workers found it difficult to **retrain** because they found the new skills too hard to learn.

Converting a business to make use of ICT can be very **expensive** and many small companies could not afford to make the change and could not compete against those that had.(Katherine 2015)

In the view of Braverman, De-skilling is not limited to blue color or low-skilled workers, but also affects white collar or so called high skilled employees. As a subset of the working class, white collar workers especially low level employees such as typists and bookkeepers, also have to face the challenge of the deskilling effects of new technologies. Scientific management and the introduction of new technologies have constantly removed white collar workers from the conception stage of production. Therefore, the status of most white collar workers has become as low as that of blue collar workers, in terms of working conditions and income levels. Computerized automation has increased pressure on white collar workers by trivializing fragmenting and standardizing office jobs. For instance while the introduction of ICTs in banking has increased high level managers' power of central control, these computer

technologies, including databases and automatic teller machines, have replaced many middle level managers and lower level tellers (Meiksins, 1998).

Braverman's argument, the degradation of work resulting from the introduction of new technologies has met some criticism, especially when it is applied to the situation of white collar workers or professional employees. A few critics argue that the major contribution of ICTs is to create new job Opportunities for advanced skilled workers, such as computer programmers and system operators, and view de-skilling a solely a side effect. For example, the use of computer numerical control has resulted in an improvement of the status of operators and programmers and an increase in their income. As a consequence, these researchers claim that the impact of ICTs on workers is one of re-skilling rather than de-skilling (Wilson, 1988).

Nevertheless, the required skills in the workplace have changed constantly based on the interest of capitalists, in this so called re-skilling process, the separation of conception and execution of work still plays an important role. For instance, new jobs created by the use of ICTs, such as computer programming, could be regarded as embodying an advanced stage of the separation of "brain" and "hand" in the labour process, because these jobs involve increased managerial control over the work process as well as further re-organization and fragmentation of workers' task (Armstrong, 1988).

The other thread of criticism states that Braveman's theory ignores the resistance of workers and workplace politics Biranoy (1979) argues that the essential characteristics of the labour process in the capitalist mode of production is "the simultaneously obscuring and securing of surplus value". Although the separation of conception and execution of work highlighted by Braverman is a fundamental method of obscuring the surplus value, Barawoy contends that securing the surplus value is most important for capitalist. For Burawoy, the most crucial effective means of

securing surplus value is through the workers free compliance rather than the capitalists' coercion. He applies a Neo-Marxist approach, which references related theories about hegemony and ideology by Gramsci, Poulantzas and Althusser, to explain how and why workers are wishing to cooperate with management. Following this argument, Burawoy underscores the importance of political and ideological aspects in analysis of labour process and job creation. "Any work context involves an economic dimension (production of things), a political dimension (production of social relations), and an ideological dimension (production of an experiences of those relations). These three dimensions are inseparable (Burawoy, 1985).

Indeed, Burawoy's analysis is a remedy for deficiencies in the de-skilling thesis in that Braverman's theory does not account for the influences of politics and ideology in the workplace. By accounting for these, Burawoy has improved labor process and job creation aspect of technology by shifting "from a focus on the point of production to a more satisfactory political economy of the labor process "(Littler, 1990). Following his approach, many researchers emphasize political aspects in the labor process. For instance in an analysis of the relationship between technological development and changes in the newspaper workplaces in the UK, the US, and Australia (Chanp-de liu, 2015). In the same vein Marjoribanks (2000) stresses that employers and managers still need to cooperate with labor union and government in the process of introducing new technology into the workplace.

2.13 Theoretical Framework

There are various theories of technological development, one of the theories is the one put forward by Solow, otherwise referred to as the Solow growth theory. This theory was then in vogue. The Solow growth theory is also known as exogenous theory because it professed technology as an exogenous factor which determines growth. One of the basic assumptions of

the Solow model is the diminishing returns to labor and capital and constant returns to scale as well as competitive market equilibrium and constant savings rate. However, what is crucial about the Solow's (1964) model is the fact that it explains the long run per capital growth by the rate of technological progress, which comes from outside the model (Olalekan 2012).

The endogenous growth theory or new growth theory was developed as a reaction to the flaws of the neoclassical (exogenous) growth theory. Romar endogenous growth theory was first presented in 1986 in which he takes knowledge as an input in the production function. The theory is aimed at explaining the long run growth by indigenizing productivity growth or technical progress.

2.13.1 The Romer Endogenous Growth Theory

Following the importance of this theory to economic development, especially in the area of job creation through technology, as seen in the assumptions above, this study was analyzed based on Romer's endogenous growth theory. The choice of this theory was informed by its emphasis on technology as the engine that propels or drives economic development (Orluchukwu 2015). The Romer endogenous growth theory was fully developed by Paul Romer in 1994 as a result of the growing dissatisfaction expressed by a group of growth theorists over exogenous factors determining long-run growth. The endogenous growth theory or new growth theory was developed as a reaction to the flaws of the neoclassical (exogenous) growth theory. The theorists are Kenneth Arrow (1962), Hirofumi Uzawa (1965), Robert Lucas (1988) Miguel Sidrauski (1967) and Aghion and Howitt (1992) and Grossman and Helpman (1991). Neoclassical growth theory is an economic theory that outlines how a steady economic growth rate will be accomplished with the proper amounts of the three driving forces: labor, capital and technology.

The theory states that by varying the amounts of labor and capital in the production function, an equilibrium state can be accomplished. When a new technology becomes available, the labor and capital need to be adjusted to maintain growth equilibrium.

This theory emphasizes that technological change has a major influence on economic growth, and that technological advances happen by chance. The theory argues that economic growth will not continue unless there continues to be advances in technology. Smith also asserts that division of labor is an essential aspect of economic development. The benefits of division of labor are:

- Increase in dexterity of every worker.
- Time-saving.
- Invention of labor-saving machines.

The endogenous model, gives a constant-savings rate of endogenous growth and assumes a constant, exogenous, saving rate. It models technological progress with a single parameter (usually A). It uses the assumption that the production function does not exhibit diminishing returns to scale to lead to endogenous growth. Various rationales for this assumption have been given, such as positive spillovers from capital investment to the economy as a whole or improvements in technology leading to further improvements (learning by doing). However, the endogenous growth theory is further supported with models in which agents optimally determines the consumption and saving, optimizing the resources allocation to research and development leading to technological progress. However, David Olalekan in 2012, used Romer endogenous growth theory to analyze has work on 'the Impact of Information and Communication Technology Proficiency on Labor Productivity in Nigeria: Case study of University of Ilorin'. The result shows that ICT impacts positively on labor productivity.

2.13.2 Assumptions of Romer Endogenous Growth Theory

(i) Endogenous Growth Theory holds that economic growth is primarily the result of endogenous and not external forces.

(ii) Endogenous growth theory holds that investment in human capital, innovation, and knowledge are significant contributors to economic growth. Human capital knowledge, skills and training of individuals, and the production of new technologies are essential for long term growth.

(iii) The theory also focuses on positive externalities and spillover effects of a knowledge-based economy which will lead to economic development. Knowledge or technical advances are essential goods.

(iv) The endogenous growth theory primarily holds that the long run growth rate of an economy depends on policy measures. For example, subsidies for research and development or education increase the growth rate in some endogenous growth models by increasing the incentive for innovation.

(v) The endogenous growth theory holds that acquisition of technological knowledge is a an effective source of economic empowerment, especially for the youths.

2.13.3 Application of Romer's Endogenous Growth Theory of Technology

The transition from analog to digital economy is a global trend that every nation wants to identify with, especially in the area of job creation. Technology, especially ICT has the potential to eradicate poverty, inequality and unemployment, this will enhance job creation in Ikwerre, Ahoada East and Eleme local government area of Rivers State. Paul Romer, contends that for long run economic growth to be attained, people should see it as coming from inside. According

to Rodney (1972) development is a many sided process. At the individual level, it implies increased skill and capacity, greater freedom, creativity, self-discipline, responsibility and material wellbeing. At the level of social groups, development implies an increasing capacity to regulate both internal and external relationships. The government has through NITDA embarked on the development of individuals ICT skills in order to be able to meet up with technological challenges. This is in a bid to create enabling environment for ICT to be used as an instrument for job creation. Through this process many entrepreneurs have emerged by dint of their knowledge of ICT. This will go a long way in encouraging user-ability of ICT for the purpose of job creation in Ikwerre, Eleme and Ahoada east local government.

Endogenous growth theory holds that investment in human capital contributes greatly to economic growth. This can be seen in the efforts made by the governments at all levels in Nigeria to train the youths in ICT related programs as contained in NITDA objectives, especially at primary, secondary and Tertiary levels. This is a tacit admission that ICT has been accepted as a source of empowerment to the youths. This has invariably enhanced Public user-ability of ICT. This effort of the government has improved ICT awareness in Ikwerre, Eleme and Ahoada East local government area of Rivers State and this has led to job creation. This is evident in the existence of ICT related jobs such as computer engineers, programmers, repairers, sale of computer accessories etc., in the local government understudy. However, the three local governments are currently experiencing some form of economic development as a result of the contributions made by the government and individuals who were products of governments ICT programs in schools. This has affirmed the creation of government created enabling environment for the use of ICT in Ikwerre, Ahoada East, and Eleme local government area of Rivers state.

Romer's endogenous growth theory maintains that innovation, and knowledge are significant contributors to economic growth. The level of progress recorded in the country since the advent of ICT in Nigeria is a living testimony of the usefulness of technology to economic development. This is an indication that there is ICT awareness in the local governments studied. Innovation in this regard refers to technological advancement and other ideas, especially government policies that will impact positively on economic growth of a country. Innovation and knowledge are seen in the area of new ideas such as e-banking, e-commerce, e-learning and economic empowerment made possible through acquisition of new skills in computer programming, sale of handset and accessories, computer accessories etc that have contributed to economic growth in Ikwerre, Eleme and Ahoada East local government areas of Rivers state. The presence of ICT related jobs in the local studied shows that ICT has been accepted by the people as an instrument for job creation Economic growth is a long-term rise in the capacity to supply increasingly diverse economic goods to a population, this growing capacity being based on advancing technology and the institutional and ideological adjustments that it demands (Kuznets 1971)

The relevance of Romer's endogenous growth theory can be seen in the effort made by the government in the area of human capital and infrastructural development which formed part of the objectives of NITDA. This is aimed at empowering the citizens to acquire the required (ICT) skills that will make them entrepreneurs or job creators instead of job seekers. The recent workshop organized by Rivers state government/NEPAD explained government commitment towards creating an enabling environment for ICT to be used for job creation in the local government studied. However, government has given free lap tops to the participants of the recently organized workshop in Rivers state, thereby solving to a reasonable extent the problem of public access to ICT.

Job creation has formed major part of economic policies of the government all over the globe. It was in recognition of this that John Maynard Keynes put forward his idea. He asserts that: (i)total income is a function of total employment in a country (ii)The greater the national income, the greater the volume of employment(iii) and (iv)the volume of employment depends on effective demand. Keynes is of the view that the age long classical economics was over and that the economy cannot be regulated by market forces (Ujo 2008). Government intervention is therefore necessary to promote full employment by forcing down the rate of interest and stimulating investment. Government intervention is likely to produce a multiplier effect on the economy (Keynes, 1936). Effective government policy is key to job creation in Ikwerre, Eleme and Ahoada East local government areas of Rivers State.

The supportive role of external bodies such as the United Nations and other agencies constitute positive externalities as contained in Romer's endogenous growth theory. The role of these organizations in enhancing development in ICT is a positive one and this has contributed to economic growth in Nigeria. The United Nation has not only indicated interest in promoting ICT related programs in Nigeria but has also demonstrated it by providing laptops and other ICT materials which have not been fully utilized by the local governments in Nigeria, including Ikwerre, Eleme and Ahoada East local government areas of Rivers State.

The spillover effects of a knowledge based economy here refers to the increase in productivity associated with ICT. This can also be expressed as compensation effects of technology. The advent of technology has some spillover effects on productivity, as there is mass production of goods and services. The introduction of ICT into Nigerian economy has increased the country's GDP, created more jobs and produced more entrepreneurs. A knowledge based economy is

characterized by mass production and reduction in price of goods which eventually leads to job creation.

The theory holds that subsidies for research and development or education increase the growth rate in some endogenous growth models by increasing the incentive for innovation. This informed the need for the award of scholarship by government through NITDA to ICT bias students and the gift of free laptops to Rivers state indigenes who participated in the recently conducted workshops in the state. This has to a reasonable extent addressed the problem of lack of access to ICT in the local governments studied.

2.13.4 Limitations of Romer's Endogenous Growth Theory

* **Endogenous Growth Theory** holds that economic growth is primarily the result of endogenous and not external forces. Romer has displayed his lack of knowledge of economic growth by tying it to endogenous factors, given the fact that developing countries are not technologically self-reliant. His theory can effectively work in developed countries, where these technologies are manufactured. For instance, in Nigeria, training the people on how to use the technologies is not enough. We need to seek external help in order to use these technologies.

* Endogenous growth theory holds that investment in human capital, innovation, and knowledge are significant contributors to economic growth. Human capital knowledge, skills and training of individuals, and the production of new technologies are essential for long term growth. Again, Romer has failed to understand the negative implication of new technologies. Here, we are referring to the labor displacing and saving effect of new technologies as strongly observed by scholars like Rifkin, John Menard keynes and others. According to these scholars,

introduction of new technology simply means a ploy by the capitalist to maximize profits through the use of technology, thereby throwing people out of their jobs, invariably causing mass unemployment. Going by the views of Dudley Seers, development can be said to have taken place when unemployment, inequality and poverty are addressed.

* The theory also focuses on positive externalities and spillover effects of a knowledge-based economy which will lead to economic development. Knowledge or technical advances are essential goods.

* The endogenous growth theory primarily holds that the long run growth rate of an economy depends on policy measures. For example, subsidies for research and development or education increase the growth rate in some endogenous growth models by increasing the incentive for innovation. Romer has again erred here, it is wrong to rely so much on government policy for economic development to take place. The preparedness of the citizens to welcome development and accept it is paramount. Government needs the citizens to make input to national or public policy before it will make meaning.

2.13.5 Policy Implications of Endogenous Growth Theory

An endogenous growth theory implication is that policies that embrace openness, competition, change and innovation will promote growth. Conversely, policies that have the effect of restricting or slowing change by protecting or favoring particular existing industries or firms are likely, over time, to slow growth to the disadvantage of the community. To that effect there is the need for Nigeria to embrace innovation that is a change from oil based-economy to a knowledge based economy where the main instrument for sustainable development is ICT. Here Romer's assumption plays a significant role. Nigeria had since 1970 relied on oil economy, which had been generating more than 85% of government' annual revenue until recently when bubble burst,

catching the country and other reliant economies unawares. Here , at a time Nigeria appears to be at a crossroads on where else to turn for revenue over falling oil prices, one sector that holds promise far more than any other in the drive for diversification, according to experts is the Information and Communications Technology(The Punch, 2017).

Sustained economic growth is everywhere and always a process of continual transformation. The sort of economic progress that has been enjoyed by the richest nations since the Industrial Revolution would not have been possible if people had not undergone wrenching changes. Economies that cease to transform themselves are destined to fall off the path of economic growth. The countries that most deserve the title of "developing" are not the poorest countries of the world, but the richest. [They] need to engage in the never-ending process of economic development if they are to enjoy continued prosperity. "Growth and development: a Schumpeterian perspective", 2006.

2.13.6 Justification for the Choice of Romar Theory as a Guide for the Study

The suitable theory for this study should be capable of providing a framework for analyzing the concept of development in line with the ideas of Duddly seers, mentioned earlier in chapter one. In defining development, according to Seers (1969), the question to ask is what has been happening to poverty, unemployment and inequality? The ability of any government to reduce these three indicators of economic backwardness, places such community, state or country on the list of economically developed countries. It is essential to point out that a suitable theory for this research should as well analyze sustainable development in terms of government effort geared towards empowerment in the form of poverty eradication, reduction of unemployment and inequality through NITDA by vigorously carrying out roles in tandem with its overall objective

of bringing socio-economic development, with emphasis on job creation, by taking ICT to the door steps of Nigerians. These attributes are embedded in Paul Romar's endogenous growth theory. Having seen the various theories explained in this work and their area of emphasis, this study has adopted Romar endogenous growth theory due to the relevance of its assumptions to the research. The choice of this theory was informed by its emphasis on technology as the engine that propels or drives long term socio-economic development (Orluchukwu 2015). Some of the major assumptions, as explained above, served as our guide in choosing this theory for the study.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This section focuses on the research methodology used in the study in order to achieve the research objectives. The chapter discussed the research design, data collection procedures, population and sampling technique, operational and measurement of the variables and the analytical procedures that were used in the study.

3.2 Research Design

Survey research method was adopted in this study. Survey research study allows room for objectivity in research. This is because it allows the researcher to generate data from the respondents through questionnaires. It is free from manipulation. Survey research studies both large and small populations by selecting and studying samples chosen from the populations to

discover the relative incidence, distribution, and interrelations of sociological and psychological variables. (Osuala E.C.).This is due to the fact that the design makes sure that the first class information is gathered from the selected respondents concerning the subject matter. Thus, making the accurate assessment of the responses of the sample population.

3.3 Population of Study

The population of study is a census of all items or subjects that possess the same characteristics that have knowledge of the phenomena, being studied. The nature of this population must be known because this will help in the choice of sampling techniques (Asika, 2009).

The population of this study comprises of the residents of Eleme, Ikwerre and Ahoada East local governments area which are; 267,200; 265,400 and 233700 respectively (National Population Census Projected, 2016) and due to the fact that they have the highest population in the three senatorial zones of the state. In addition to that 8 staff of National Information Technology Development Agency (NITDA) was added. Thus, the total population is 766,308.

3.4 Sample Size and Technique for the Study

The sampling technique that was used in this study is Taro Yamane (1967) and stratifying random sampling. This is to enable the researcher to pick respondents, whose opinions or response were to be deemed representative of the population from the strata of each local government area so that each local government area selected can have proportional representation.

In selecting the sample size for this study, Yamane's formula for arriving at sample size has been adopted. Yamane's Formula for determining sample size is stated thus;

$$n = \frac{N}{1 + N\,(e)^2}$$

Where

n = Sample Size

N = Population (766,308)

1 = Constant

e = Margin of error (Level of significance) (0.05)

$$n = \frac{766{,}308}{1 + 766{,}308\,(0.05)^2}$$

$$n = \frac{766{,}308}{1 + 766{,}308\,(0.0025)}$$

$$n = \frac{766{,}308}{1 + 1915.77}$$

$$n = \frac{766{,}308}{1916.77}$$

n = 399.79

n = 400

In order to take care of non-response and to ensure collecting enough response for analysis, the researcher makes provision pf 10% of the sample to cater for the shortage. Thus, sample size would amount to (400 + {400 X 0.10} = 400+ 40= 440) 440 residents in the three selected local government area of River State.

In the same vein, stratify sampling technique was adopted to select the sample from each strata (Eleme, Ikwerre and Ahoada East local governments) being considered.

Table 3.1: Stratification of Sample Size

Local Governments	Population	Computation	Sampe Size
Ikwerre	265,400	265400/766,308)X 440	149
Ahoada East	233,700	233700/766,308)X440	132
Eleme	267,200	267200/766,308)X 440	151
NITDA	8		8
Total	766,308		440

Note: The population and sample size (25) of the ICT hub of University of Port Harcourt has been included in the population and sample size of Ikwerre Local Government Area.
Source: Field Survey 2018

From table 3.1, it shows that 152 respondents were selected from Ikwerre local government, while 135 respondents were selected from Ahoada East local government and 153 respondents were selected from Eleme local government.

3.5 Sources and Methods of Data collection

The study got the required information directly from the sample respondents. Thus, primary data serves as the source of data needed for this study. The primary data was adopted in this study because it would enable the researcher to get information directly from the respondents in order to have first-hand information on the subject matter.

Meanwhile, structured questionnaire and structured interview were used as the main instrument for the collection of the primary data for this study. The questionnaire was adopted from the study of David O.L. (2012). Questionnaire and interview were used because it enables the study to get first class information and opinion of respondents on the phenomenon. The questionnaire was administered to individuals within the age bracket of 18 to 50 years of age.

Specifically, 440 copies of the questionnaire were administered through the help of research assistants that were from the specified areas being considered to the sample respondents in the three selected local government areas of the Rivers State, while the help of an administrative staff was employed for the administration of the ICT hub in Uniport and NITDA. The questionnaire is structured/ closed ended in design. Meanwhile, the questionnaire was divided into six sections: Section "A" for personal profile of the respondents; section "B" for the main questions on availability of ICT; section "C" for the main questions on accessibility of ICT; section "D" for the main questions on the user-ability; section "E" for the main questions on the Government created enabling environment and section 'F' on the questions on Job creation. The questionnaire designed is with a - 5 Likert scale response options: Strongly Agree (5), Agree (4), Undecided (3),Disagree (2), and Strongly Disagree (1). The responses for these parts form the basis of data presentation and analysis.

All the questions were adapted from the previous notable studies in this area of research with slight modifications.

3.6 Administration of Instrument

In analyzing the effect of information and communication technology on the job creation in some selected local government areas of Rivers State, multiple regression technique would be adopted. The multiple regression will enable the study to ascertain the degree of effect of ICT on the level job creation for the period. The data collected from the respondents would be process through Scientific Package for Social Science (SPSS) Version 20.0. Questionnaires were administered on the staff of the local governments, students and staff of the primary, post primary and tertiary institutions in the local governments studied, especially the workers in the university of Port

Harcourt ICT hub through some research assistants . NITDA officials were interviewed via phone calls and zoom by the researcher.

3.7 Model Specification

In order to examine effect of information and communication technology on the job creation, the fo llowing econometric model was adapted from the work of Cesarato and StiratiSerano (2001). The model stated as follows;

The regression equation; $JCR_t = \beta 0 + \beta_1 ICT + \beta_2 ITR + \beta_3 ACCP_+ \beta_4 ENV + \varepsilon$ ---------- (1)

The model was later modified as follows;

$JCR_t = \beta 0 + \beta_1 ICT_t + \beta_2 ITR_t + \beta_3 AWR_t + \beta_4 ACCPT_t \beta_5 ENV_t + \varepsilon$---------- (2)

Where:

JCR_t= Job Creation as dependent variable

ICT_t = User-ability of ICT as independent variable1

AI_t= Access to ICT as independent variable2

AWR_t= ICT Awareness as independent variable3

$ACCPT_t$= ICT Acceptance as independent variable4

ENV_t= Government created Enabling Environment as independent variable 5

$\beta 0$ is the regression constant

β_1 to β_5, are the coefficients of independent variables,

ε is the Error Term.

3.8. Validity and Reliability of the Instruments

3.8.1 Validity of the Instrument

Among the criteria for evaluating instruments are validity and reliability. Reliability and validity are two different but closely related conditions (Zikmund, 2003). Validity is defined as whether an instrument measures what it was designed to measure (collis & Hussey, 2009). There are three types of validity test that include content, criterion and related construct validity (Collis et al, 2009). This study used content validity because it measures the degree to which the sample of the items represents the content that the test is designed to measure. Thus, the questionnaire was validated by the supervisors and experts in the area of ICT.

3.8.2 Reliability of the Instrument

Also, reliability refer to the scale as to how free it is from random error (Pallant, 2005). There are two frequently used indicators of the scale's reliability; test-retest reliability and internal consistency (Sekaran & Bougie, 2013). Repeatability can be assessed using a test-retest method which involves administering the same scale or measures to the same respondents at two separate times in order to test for stability in the model (Saunders et al. 2009). Thus, Cronbach's Alpha was used to test the reliability of the questions in the questionnaire.

3.8.3 Normality Test

In order to fulfil BLUE assumption of linear regression, the study carried out normality test to check whether the study data are normally distributed or not. As par assumptions of linear

regression analysis that the residual are normally distributed, at the mean of zero and standard deviation of one. The study made use of Shapiro-Wick and plotted graph test to check whether the data are normally distributed or not.

3.8.4 Multicolinearity Test

The term collinearity implies that two or more variables are near perfect linear combinations of one another. This implies that when more than two variables are involved it is often called multicollinearity, even though the two terms are often used interchangeably.

The presence of Collinearity (or multicollinearity) in the regression is the undesirable situation where the correlations among the independent variables are strong. The study made used of Tolerance and variance inflation factor (VIF) statistics to determine how much the independent variable are linearly related to one another. Tolerance is the proportion of variables or variance not accounted for by other independent variables in the model. VIF is the reciprocal of the tolerance which the value should be less than one and ten respectively.

3.8.5 Serial Autocorrelation Test

When error terms from different (usually adjacent) time periods (or cross-section observations) are correlated, we say that the error term is serially correlated. The study made use of Durbin Watson Statistics to check for the presence of serial autocorrelation model.

3.9 Method of Data Presentation and Analysis

For the analysis of data, the statistical package for social sciences (SPSS) was used. The statistical tools used to analyze the data include the following: descriptive analysis using frequency tables and percentages. Also, multiple regression analysis in respect to the study

hypothesis was used to measure the degree of the effects of independent variables on the dependent or outcome variables. Another statistic called R-square was calculated based on the percentage of variations in the dependent variable that can be explained by the independent variable.

CHAPTER FOUR

OVERVIEW OF ICT IN IKWERRE, AHOADA EAST AND ELEME LOCAL GOVERNMENT AREAS OF RIVERS STATE

4.1. Introduction

This chapter contains the followings; National Information Technology Development Agency (NITDA) and its Intervention Program in Rivers State(digital job creation, ICT training for women, scholarship, e-learning facilities, virtual library, campus area network, NITDA information Hubs, digital states initiatives, NITDA 2020 special intervention training for graduates and unemployed youths) GSM and internet penetration in Eleme, Ahoada East and Ikwerre local government areas of Rivers state and Some obstacles affecting internet penetration in Eleme, Ahoada East and Ikwerre local government areas of Rivers State.

The formation of the National Information Technology Development Agency (NITDA) is the fruition of a journey that began early in the administration of President Olusegun Obasanjo. With the president's enthusiastic support, and under the guidance of the then Honourable Minister of Science and Technology, Professor Turner T. Isoun, an Information Technology (IT) Policy drafting committee was formed and mandated with developing a National IT Policy for Nigeria. Under the able direction of Professor G. Olalere Ajayi, the National IT Policy was prepared and subsequently approved by the Federal Executive Council in March 2001. On May 24, 2001, the National IT Policy was launched to the public. Since the launch of the policy, the then Honorable Minister has noted, “The response from the public has been enthusiastic and overwhelming.”

The impact of NITDA is felt more in schools especially in tertiary institutions where ICT instructional materials from the ministry of science and Technology reach schools in Rivers,

as the then Honorable Minister Turner Isoun said recently, “The formulation of an information technology policy only constitutes about 20% of the IT solution for a country. We appreciate that the implementation constitutes the 80%.” Because of this, as part of the ground breaking National IT Policy, a body was inaugurated to carry out the much larger task of implementation. Following the approval of the National IT Policy by the Federal Executive Council, the National IT Development Agency (NITDA) was established. NITDA's mandate is diverse and vast, but all their responsibilities fall under the aegis of fostering the development and growth of IT in Nigeria. In an effort towards ensuring that the policy's implementation proceeds with maximum effectiveness, NITDA will regulate, monitor, evaluate, and verify progress on an ongoing basis under the supervision and coordination of the Federal Ministry of Science and Technology. (http://www.nitda.gov.ng/).

National Information Technology Development Agency (NITDA) and Its Intervention Program in Ikwerre, Eleme And Ahoada East Local Government Areas Of Rivers State

Digital Job Creation

The project is to give rise to digital skills in educational institution and rural areas of the country. In addition, Information Technology (IT) knowledge is integrated into the undeserved areas and cities so as to develop human capital and provide universal access to knowledge with the aim of creating a knowledge-based economy. A total of nine hundred and eighty eight (988) centers have been established across the nation between 2007 and 2017. Rivers state is among the beneficiaries of this project. A young and creative Nigerian, Chinedu Echeruo developed an application which apple purchased for 1billion United States dollars.

Objective

The main objective of DJCC is to create digital job/wealth, develop digital skills and promote the connection of underserved areas, school, libraries and institutions to broadband internet acroo the country. The project is aimed at facilitating a digital lifestyle in the institutions, underserved areas (rural) as well as in the communities' schools. Beneficiaries are expected to share their facilities with their surrounding communities on a commercial basis to support maintenance and ensure sustainability of the project within their areas.

Other objectives of the project include:

* Enhancing the ability of communities to access information, manage local level information and disseminate this information to external communities.

* Creating an enabling environment that will nurture information and entrepreneurship.

* Development of training and professional programs to promote self-employment and entrepreneurship.

* Encouraging the use of ICT by providing and promoting professional IT skills to communities so that they are equipped with industry oriented quality education and training.

* Introduction of practical computer courses to improve computer literacy of students, teachers and parents

*To impact education and training with the aim of generating quality human resources in the IT industry

*Impacting a basic level IT literacy program, especially for rural and semi urban people.

* Offering and encourage the learning of job-oriented management, web design etc to enhance IT skills.

*To bridge the gap between those working in Nigerian cities, towns and other countries, especially as it relates to internet and e-mail.

* To enhance the performance of small scale industries, especially in the area of having access to information about market prices, thus saving on time and travel costs.(nitda.gov.ng/digital-job-creation-centers)

Examples of some digital jobs that are available in Rivers state following NITDA intervention

Analytics

The NITDA intervention project has provided digital jobs, such as analytics in Rivers state and other parts of Nigeria. In the view of Forbes, 22% of marketers claim that their data-driven marketing initiatives are achieving significant results. .(nitda.gov.ng/digital-job-creation-centers)

Data analytics essentially allow students of the Rivers state origin, to make educative and data-driven decisions in their roles. Numbers define whether a campaign was successful, and by what percentage. The key to analytics is knowing what data to collect and measure in order to improve the next campaign. It helps companies in decision making as they do not want to waste valuable marketing dollars based on trends or gut instincts. It's all about maximizing each campaign's effectiveness and optimize the return on investment.

The introduction and learning of ICT skills have made analytics an interesting skill. Analytics typically go hand-in-hand with search engine marketing (SEM). These two complementary skills work together to ensure a business understands what consumers want, and how best to attract and

retain their attention. The jobs created by the existence of data analytics has positively changed the labor market in Rivers state in general and in the local governments studied in particular. (http://www.nitda.gov.ng/).

Content Marketing

Rivers state indigenes are beneficiaries of content marketing, made possible by the advent of ICT. The role of NITDA has enhanced content marketing in Ikwerre, Eleme and Ahoada East local governments. Engaging in content marketing is an essential aspect of job creation. Access to content marketing comes in many forms – blog posts, videos, podcasts, info graphics, even social media status updates. Content create desired awareness about so many things, including brands. It has in addition to job creation boosted Rivers state economy.

Some marketers in Rivers state as well as those in other areas , spend their time optimizing keywords and advertising campaigns, but content is still king. After all, a website or social media page is driven by its content and without it, customers have no way of understanding the benefits of a product or service.

Content is crucial in driving brand awareness and can establish brands or influencers as thought leaders. Therefore new hires need to understand the importance of creating not just content, but content that is relevant to keyword research and optimizing them in a strategy. (http://www.nitda.gov.ng/).

Email

It is an established fact that the intervention of NITDA has aided direct marketing business in Rivers state through the introduction of skills that encourage the use of email for communication in the commercial sector. One of the best ways to obtain and retain leads is via a tried and tested channel: email. Email is indisputably, one of the oldest forms of direct marketing and still packs a punch in customer acquisition and retention. From small scale stage to multi-national corporations, email helps launch many successful campaigns.

Email marketing is result-oriented and an art form in itself. An experienced digital marketer knows that each funnel stage has to be carefully planned. From the signup page—including its placement on a website—to the first welcome email, every step needs to be optimized in order to attract and retain users and build engagement. People may change social media accounts or home addresses, but people aren't prone to changing their email addresses. That is why professionals that understand the power of email to connect directly with consumers are in high demand. To that effect, educators in Rivers state, especially in the local governments studied, should not disqualify email as an old-fashioned tool, but instead encourage students to rethink of ways to use email in their roles - now and future.

Mobile

National Information Technology Development Agency's Intervention (NITDA) in Rivers state has improved internet penetration in Ikwerre, Eleme and Ahoada East local government area of the state. According to We Are Social and Hootsuite's recent report, mobile connectivity continues to grow with nearly two-thirds of the world's population including the local

governments studied, using mobile phones, and 55% of all active connections come from smartphones. Since smartphone traffic now exceeds desktop traffic, it's clear that mobile is the future and must be embraced by all.

To understand the impact of this change, it is necessary to look at Google. The world's largest search engine provider has created a mobile-friendly web app designed to test the usability and speed of mobile websites. Having a mobile-friendly webpage can enhance your search presence amongst consumers who do not have access to desktops. Most jobseekers in Rivers state who keyed into this knowledge to their advantage are optimizing campaigns to make use of the latest developments in mobile search and user experience have become entrepreneurs following their participation and involvement in crypto currency and other ICT related businesses.

Strategy & Planning

Businesses that embed strategic planning in their marketing agenda are most likely to see measurable results in the long-term. Instead of planning on an ad-hoc basis, digital marketers resort to creating and implementing campaigns that are based on analytics and quantifiable SEO data.

For instance, setting specific KPIs and identifying methods for measuring each indicator is capable of helping a marketer remain accountable. It is also imperative that they analyze past campaigns so as to decide which metric is worth measuring. The application of this knowledge is a boost to economic activities in Rivers state as some indigenes of the state have been gainfully employed.

To put things in perspective, strategy and planning is a leading skill gap in organizations – according to 58% of professionals in the USA, 55% in the UK and 42% in Ireland. By providing

skills in how to plan and execute a digital strategy, graduates seeking new roles will have a clear advantage over their peers with little or no knowledge. (http://www.nitda.gov.ng/).

Social Selling

ICT awareness in Rivers state has produced a lot of industry owners in the state as many businesses make profit through social selling tools. To connect with and influence customers, sales professionals need to be where their prospects are: online. As social selling is proving its worth for sellers that use it - 90% of top salespeople use social selling tools successfully - it is becoming more and more important for new hires to have experience using sales technologies.

Businesses across industries, especially in Rivers state, are also beginning to understand the importance of social selling investing in new 'sales stack' technology over and above a CRM such as email tracking tools, productivity apps, and sales intelligence software. Above all, social selling tools are seen as very effective in engaging with and influencing consumers, particularly amongst top performers in Rivers state and the world over.

In fact, according to LinkedIn, more than 70% of sales professionals use social selling tools such as LinkedIn, Twitter and Facebook and see them as having the highest impact on revenue. It is a truism that more than sixty percent (60%) of businesses in Rivers state are on social media, a development that has created employment to prospective employers. As a relatively new arena for organizations, offering training that is industry aligned will help any student interested in pursuing a sales career with invaluable and highly sought after tools. (http://www.nitda.gov.ng/).

Creation of Applications (APPs)

Jobseekers who are social media friendly, apply their knowledge of APPS to access job opportunities or become entrepreneurs. Manufacturing of apps has turned some jobseekers in Rivers state to captains of industries. The presence of IT HUB in university of Port Harcourt has enhanced the digital knowledge of the residents of the state. Job creation via the area of APPS manufacturing is money spinner, as this has changed the economic story of many youths in Rivers state.

Video

In the digital context, video has evolved from being just a form of entertainment on YouTube to a major social media content driver as well as money spinner in River state and elsewhere. Snapchat is now a powerful and influential platform while Facebook now uses video in its Instagram's Stories.

Why has video become so popular in recent years? With smartphone users becoming younger by the day, social media apps like Snapchat, Weibo, WeChat and Line are becoming the de-facto tools of instant message communication. In fact, more than 60% of 13 to 34-year-old smartphone users in the US, as well as Rivers state are Snapchatters. Same is applicable to Rivers state, where owners of industries and entrepreneurs reach out to their customers. NITDA intervention in Rivers state has improved access to internet and created jobs for the large army of unemployed Rivers state indigenes, especially the youths, who use this platform to engage in economic activities.

Video as content is easier to consume than a typical blog post. It is also more entertaining and appeals to millennials. By combining the emotional power of social video with the reach and scope of digital advertising, markets can tap into a growing market of engaged consumers.

8 in 10 middle-skill jobs are now digitally intensive with roles growing 2.5 times compared to non-digital jobs. The key thing about digital skills is that they can be used in any job role; it is not solely in the domain of marketers or sellers. As such graduates, job seekers and professionals must learn these key skills to improve their odds of getting hired. (http://www.nitda.gov.ng/).

Social Media

.Undoubtedly, acquisition of social media skill is a step towards being employed. The ability to understand and utilize social media effectively is a core skill every professional should have. Social media marketing goes beyond posting a tweet or Facebook update; it is about understanding the dynamic relationship between brands, influencers and consumers as well as devising a means of reaching them. To put it simply, businesses need to reach out to customers in ways that will drive traffic to their website—or product—for potential conversion. It is on record that millions of jobs have been created via social media in Rivers state and elsewhere.

Social media has permeated the fabric of our society, and become the primary source of communication and information flow between content creators and consumers as seen in the world today. Educators who recognize social media's influence understand the intricacies of each platform and its potential influence to maximize community engagement in order to provide graduates with valuable and applicable skills anywhere in the world.

Search Engine Marketing

Job seekers with SEM experience will be able to increase the visibility of a company's website on a search engine (e.g., Google) primarily via paid advertising, this has enhanced job creation for the youths in Rivers state. NITDA intervention in Rivers state has increased the desire to search for employment opportunity via this medium.

By using SEM, jobseekers are able to capture part of the 6.5 billion search traffic results. Rivers state indigenes, who are aware of the potentials the search engines hold for them are beneficiaries of the numerous job opportunities that exist globally. Identifying with this skill directs job seekers to employment opportunities. That is why marketers, Content Managers and webmasters spend a great deal of time optimizing their websites and ad campaigns to ensure the highest conversion rates possible.

Most companies are in the business of selling products or services via the internet It is therefore imperative that their brand is easily found online amongst their competition. Job seekers need to have a working knowledge of search marketing if they can understand the bigger context of their job function.

ICT Training for people living with Disabilities (PWDS)

NITDA extended its capacity development program to people living with disabilities in order to increase the economic growth of Rivers state in particular and Nigeria in general. The initiative is ongoing based on the successes recorded by the previous edition and the recommendation from the participants, which have made NITDA, adopt it as an annual program for physically challenged Youths. The first edition of the training was conducted in 2014 in the Federal Capital Territory, Abuja, afterwards the 2015 and 2016 editions were also held in Abuja, whereas the 2017 edition was held in Gombe State. The agency has trained a total of (200) participants so far. The objectives of the training and empowerment program include the following:

- To encourage entrepreneurial spirit among the people living with disabilities.
- To eradicate poverty and hardship among people living with disabilities.

- To enable participants to be competent and employ the tools of technology to improve their living standard.

Examples of digital jobs in Ikwerre, Eleme, and Ahoada east local governments of Rivers state are through the following channels:

Social media; NITDA Interventions in Rivers state have increased the number of mobile users, which has consequently enhanced social media marketing in Ikwerre, Eleme and Ahoada east local government areas of Rivers State. Social media has permeated the fabric of the society and consequently become the source of communication and information flow between content creators and consumers. Educators in the institutions have also understood the intricacies of the platform and its potential influence to maximize community engagement in order to provide graduates from the state with valuable and applicable skills.

Search Engines Marketing; students of the university of Uniport and other tertiary institutions in Rivers state with search engine experience are able to increase the visibility of some companies' website on search engine(e.g Google) primarily through paid advertising. Through the use of SEM, students of the University of Port Harcourt and other tertiary institutions in Rivers state, as well as the local governments studied are able to capture part of the 6.5 billion search traffic results. Most companies in Rivers state are in the business of selling their products or services via search engine marketing. Job seekers in Rivers state have been provided jobs through the ICT hub, knowledge of search engine marketing in order to understand the bigger context of their job function. (http://www.nitda.gov.ng/).

ICT Training for Women

The National Information Technology Development Agency (NITDA) in carrying out its mandate for ICT capacity building organizes training for women in ICT, covering key skill areas in entrepreneurship, business, ICT, communication and others. This program is organized to key into the Federal Government economic recovery and growth plan (ERGP) and also to support digital literacy and reduce the gender gap in ICT. The information and communication sector is growing and creating thousands of new jobs every year and providing opportunities for development as seen in Rivers state presently. The objective of the training are include:

- To increase participants' employment opportunities and skills.
- To increase ICT awareness and use of business promotion tools to enhance their entrepreneurial skill.
- To increase access to e-business tools and skills.
- To introduce women to support networks-financial, technology, advocacy etc both online and offline, which they can harness to promote their entrepreneurial skill and career pursuit.
- To enhance potentials to use ICT for socio-economic improvement and growth.
- To increase the ability for trained women to work from home..
- To increase the ability of some women access different learning and distance work programs and opportunities in the country.
- To improve ability for trained women to share experiences using ICT as medium of communication.
- To improve access to banking micro and macro enterprise systems in Nigeria.

SCHOLARSHIP

The scholarship scheme aims at promoting proficiency in information Technology at Doctorate and master's levels. The scholarships are targeted at 2 persons per state including the FCT at masters' level. This will enhance human capacity building in core areas of Information Technology in Rivers state and across Nigeria. A total of four hundred and sixty seven (467) scholarships had been awarded to students in Nigeria, with Rivers state indigenes (students) being among the major beneficiaries.

Objectives of the scholarship scheme are:

- To produce globally competitive human capital in the area of ICT in Nigeria.
- To provide opportunities for Nigerian Youths to achieve their dreams especially in the area of ICT and wealth creation.
- To create jobs/wealth in IT related field among the youths in Nigeria.
- To provide alternative source of revenue for Nigeria from natural resource-based to knowledge-based which is ICT.
- **Outcome**

The agency has successfully sponsored 247 Nigerian graduates in Information Technology fields at post Graduate level and 24 Doctorate level.

E-LEARNING FACILITIES

The e-learning platform (also known as a Course Management System CMS), or Learning Management Systems (LMS) or Virtual Learning Environment (VLE) come in a number of editions, designed to assists with the creation of learning communities by offering various

opportunities for collaboration and interaction through an icon-based user interface. The platform offer tools for contact creation, test building, assignments management, reporting interval massaging, forum, chat, surveys, calendar and others. Following this development, NITDA established one thousand and thirty six (1036) IT centers in Nigeria, including Rivers state.

Objective

- Increase access to learning opportunities/increase flexibility.
- Enhance the several quality of teaching /learning.
- Develop the skills and competencies needed and also ensure that learners have the digital literacy skills required in their discipline, profession, and career or put simply, to get work in future.
- Meet the learning styles/needs of millennial students.
- Stay at the learning edge of educational technology developments/digitalize all learning or put simply, respond to technological imperative.
- De-institutionalize learning/to enable self-managed learning.

"Note this project is aimed at facilitating a digital lifestyle in the institutions as well as in the communities. Beneficiaries are expected to share these facilities with surrounding communities on a commercial basis to support, maintain and ensure the sustainability of the project.

VIRTUAL LIBRARY

The need for easy seamless and always available access to useful, relevant and up-to-date sources of information in these our time cannot be over-stretched. It is in recognition of this need

and in line with its goal of ensuring the penetration of IT and the empowerment of citizens with the latest developments in technology that NITDA in 2013, rolled out the initiative of establishing virtual libraries as information resources tools in schools, Universities and communities in the country to enable quick, remote and easy access to useful, relevant information. The initiative started with the full upgrade and the enabling of remote access to the already existing virtual libraries at NITDA`s Headquarter. This has subsequently been expanded to various communities and educational institutions in the country with more being planned. (http://www.nitda.gov.ng/).

Objective

- Provide students, lecturers and researchers with easy access to a wide variety of information resource.
- Offer opportunities for learning that are not possible with physical libraries by providing remote, anytime, where, always available access to useful and relevant information.
- Improve real time collaborative learning and information exchange especially for students and research teams.
- Encourage more personalized informal learning by enabling citizens to learn at their pace and convenience.
- Ultimately create a more informed, better empowered citizen fully prepared for the challenges of the 21st century and beyond.

Outcome

- The increasing number of regular users with access to a variety of online resources plus, remote access to these resource.

- Establishment of fully functional virtual libraries at Federal University Oye Ekiti, Nasarawa State University Keffi, Kogi Polytechnic, Abonima Community Town Akwa Local Government of River State with more to come.
- An upgraded NITDA Virtual library accessible via the NITDA website with electronic NITDA Publication and reports.
- A more empowered, more confident, better informed citizenry.
- More qualitative and collaborative work done.

CAMPUS WIDE AREA NETWORK (WAN)

The main objective of this project is to provide Information Technology (IT) attractive to Nigeria tertiary institutions to access broadband internet and other IT services such as IP telephone and IP surveillance systems. The project is aimed at facilitating a digital lifestyle in tertiary institutions. The agency has deployed fourteen (14) of this projects at various institutions across the nation between 2015 and 2017. (http://www.nitda.gov.ng/).

Objective

* To enhance the abilities of higher institutions to access information, manage, local level information and disseminate this information globally.

* To create an enabling environment that will nurture innovation and academic excellence.

* To enhance the capacity to development programs, self-employment and entrepreneurship.

* To provide and promote proportionate skills to undergraduates so that they are equipped with industry oriented quality education and training.

* To bridge the gap with graduate in neighboring towns, states, countries or abroad through the internet and e-mail.

* To develop local capacity in the areas of computing, software development and encourage innovation amongst proponents for the development of the Nigeria ICT industry.

NITDA INFORMATION TECHNOLOGY HUB IN RIVERS STATE

The Federal government through the National Information Development Agency (NITDA) established a multi-million naira innovation and incubation Centre otherwise referred to as IT HUB in University of Port Harcourt in 2019. The government has identified ICT as a measure enabler. The Director General, National Information Technology Development Agency (NITDA), Kashifu Inuwa Abdullahi, "said that the Innovation and Incubation Centre situated at the prestigious University, is meant for academia, industries, entrepreneurs, risk capitals and startups to meet in order to harvest and incubate ideas to drive innovation enterprise to support our driven economy. This is in line with economic diversification agenda." As a result of this, ICT sector has taken over oil and gas in terms of contribution to our GDP. In the second quarter of 2019, ICT contributed 13.85% while oil and gas contributed only 8.08% to our GDP. To consolidate on this achievement, the government re-designated the Ministry, from Communications to Ministry of Communications and Digital Economy (http://www.nitda.gov.ng/).

Information Technology (IT) is increasingly recognized as the key enabler in promoting knowledge-based growth, creating jobs and providing access to information and knowledge for

both developed and developing countries. Access to information and knowledge can stimulate economic growth by creating new products, increasing productivity and promoting new commercial and administrative methods. IT Hub is one of such ventures that help nation to achieve economic growth through innovation and entrepreneurship. IT Hub is a platform where Technology, Business, Innovation and Entrepreneurship are nurtured by building pools of both native and developing talents and footloose IT professionals. IT Hubs are used in many countries world-wide as tools to promote the development of both upstream and downstream IT components for economic development across all sectors. NITDA had identified that there is a clear lack of adequate skilled manpower that will drive local content development and industrialization in the country. (http://www.nitda.gov.ng/).

To address and reduce these inhibiting factors, the use of IT Hubs to foster the further development of all sectors has become necessary. To achieve this and also support the primary responsibility of the agency which is regulating and promoting the development of the IT Hubs in strategic locations across the country, NITDA has taken a number of steps. This is also seen as another strategic effort to attract and support stakeholders who are including players toward promotion of IT for industrialization. Through capacity development programs at the centers, the country will overcome the shortage of skilled manpower and address the poor business and investment climate which increasingly temper the growth of the IT sector.

Through the Hubs, NITDA tends to provide the right enabling environment by putting in place, a combination of high quality infrastructure, support services. It is expected that the host communities and environs will leverage on the facilities available at the centers and create a full value chain across the IT sector ecosystem. The Hubs are fully equipped with both networking and computing device to support the complete state of the printed circuit Boards (PBC)

production machines. The centres are expected to develop competency for local production of PCB devices and other downstream components of the IT goals.

Through the use of the IT Hubs, Nigeria is poised to achieve some of the following among others:

* Diversification of the nation's economy through local production of IT tools and services.

* Development of strategic thrusts where Technology, finance and Human Resources are going to be harnessed to create enabling environment for the potential development of microelectronics, software applications and Entrepreneurship.

* Create a means of creating a stronger bond between Government, academic and the private sector by focusing on the development of local talent through research and business ideation and promotion.

* To establish a well-structured IT Hub that will operate along the full IT value chain, from ideation to commercialization and will be well positioned to help fulfill the expanding economic missions of the country.

* Each Hub will save as a regional Hub for next generation of IT research and incubation projects and will be captured by commercial IT products and devices.

* As a long term objective, the Hub will create self-sustaining ecosystems that will expedite the developments of an indigenous IT industry and help Nigeria transform herself into a knowledge-based society.

* Create a local supply for the IT sector to meet the increasing demand for IT pools and services from both the public and private sector.

*Generate a stream of suitable skilled graduate for companies in the IT Hub to meet the expected high demand for skilled manpower.

Digital States Initiative

The National Information Technology Development Agency (NITDA), in line with Digital Literacy and Skills pillar of the National Digital Economy Policy and Strategy for a Digital Nigeria (NDEPS), has launched a nationwide Digital Literacy and Skills Programme training for the benefit of Nigerians, tagged the Digital States Initiative. The Digital States initiative, designed as one of the implementation strategies of NDEPS, is aimed at equipping Nigerian youths with the necessary digital literacy skills that can facilitate Nigeria's transition to the Digital Economy now and in future. The programme trained about 540 youths from each state of the Federation and the Federal Capital Territory, Abuja. It is expected that about 20,000 Nigerians will benefit from the programme. Registration for the first phase of the programme commences on Monday 8th March, 2021. The beneficiary states for the first phase are Gombe, Kano, Lagos and Rivers States. (http://www.nitda.gov.ng/).

Training Areas include

Digital Marketing

To improve the skills of digital entrepreneurs in their new or already existing businesses in Nigeria.

Productivity Tools

To enhance productivity of students and employees at school and work.

Content Creation

To encourage creation of contents to promote online businesses especially on social media platforms.

Training Objectives

To empower youths with intermediate digital skills that will be needed to drive the digital economy transformation in Ikwerre, Eleme and Ahoada East local governments of Rivers state and Nigeria.

To empower youths with globally required and marketable skills to increase their employment opportunities in the country(Nigeria).

To increase the number of industry-ready IT professionals in the country, Nigeria.

NITDA 2020 Special Intervention Training for Graduates and Unemployed Nigerian Youths

In line with the Agency's efforts to develop capacity, promote local content, and create digital jobs in Nigeria, the National Information Technology Development Agency (NITDA) conducted training for unemployed graduates of tertiary institutions on IT knowledge, entrepreneurial skills and commercially viable Mobile and Web Applications in the country. The programme was virtually delivered for a period of Six (6) Weeks. NITDA seeks to apply effective and sustainable solutions to build capacity and develop skills of Nigerians in emerging IT sectors and drastically reduce the unemployment rate in the IT Sector by bridging the widening skills gap in the sector. The Agency through its academy has developed a vocational training program with newly formed curriculums for the benefit of the youths in the country. The IT Vocational training will play a central role in preparing young people for work, develop their skills, and respond to the labor-market's needs.

Aims and Benefits of NITDA Special Intervention Training for Graduates Unemployed Rivers state(Ikwerre, Eleme and Ahoada East Local governments) Youths are;

- To train and facilitate skill acquisition to youths by using best in class knowledge and training materials that allow them to be competitive globally **(Skill Acquisition)**

- To enable the participants to further their careers within the web and mobile app development industries **(Job Creation);**
- To provide skills and tools for successful trainees to carry on self-development post-training, and generate income by taking their skills to market **(Entrepreneurship)**; and
- To establish a knowledge economy, where digital jobs and opportunities flourish and more widely supported in the industry.

NITDA INTERVENTION AND THE ENHANCEMENT OF THE CREATION OF ICT RELATED JOBS IN RIVERS STATE

Following the intervention programme of NITDA as enumerated above in Rivers state, creation of ICT related jobs have been enhanced in the area of ;

Computer engineering

Computer programming

Sale of computers and accessories

Sale of handsets, accessories and repairs

Sale and repairs of Point of Sales(POS)

Simcard registeration

Repairs of ATM machines

Download of music

Software designers etc.

The role of NITDA in enhancing internet penetration in Ikwerre, Eleme and Ahoada east local government areas of Rivers state

Establishment of Rural Information Technology Centre (RITC); NITDA Empowers Rural Nigeria through Rural Information Technology Centers ; the National Information Technology Development Agency has established over 228 Rural Information Technology Centers across the nation in a bid to spur Internet usage and make Nigerians digital citizens. According to Angaye, NITDA is also pursuing two ICT incubation centers to facilitate software development in the country. The centers are in Lagos and Cross River states. “It is hoped that the incubation centers will create 25 successful ICT businesses by 2015,” Many of the RITCs are located in the rural areas of the country in a bid to reach both the un-served and under-served areas of the country in line with the country’s Millennium Development Goals and the International Telecommunication Union’s directive. (www.nitda.gov.ng/rural-information-technology-resource-centres-ritc/)

The RITCs were established between 2007 and 2012 in all the geopolitical zones and the agency plans to take the RITCs to all the 774 local government headquarters of the country in the years ahead. According to information from NITDA over 116 of the RITCs are located in the Northern part of the country, while about 112 have been established in the southern part. The deployment of RITCs across the nation is part of Millennium Development Goals and NITDA’s target of providing Internet access to the underserved communities. The then Director General, NITDA, Prof. Cleopas Angaye, said the idea behind the RITCs was government’s response toward providing access to the rural populace across Nigeria and making them an integral part of the new global economy driven by ICT. “Nigerians who reside in the rural communities cannot be neglected in any meaningful citizen-centered program”.

The deployment of the RITCs has contributed in boosting Internet usage from 2,418,679 users in 2005 to an estimated number of about 10 million users in 2008 and over 44 million Internet users in 2012, this has enhanced internet penetration in Ikwerre, Eleme and Ahoada East local

governments, thereby, positioning Nigeria as one of the fastest growing Internet users in sub-Saharan Africa. “It is expected that Internet users will reach 70 million by 2015 and NITDA hopes that the various RITCs being deployed across the nation will help push the level of usage in the years ahead”.

The Rural Information Technology Centre is a project carefully conceived, designed and fully deployed by NITDA to address the challenge of the digital divide that has hitherto become a great obstacle to socio economic growth of the rural communities. The project started with a pilot scheme deployed in Ten (10) Local Government Area (LGA) across the country. In 2013, RITC was remodeled and renamed Public Access Venue (PAV). The Agency has established 347 centers by the end of the fourth quarter of 2015. The aim was to establish rural information technology centers in all the 774 local governments in Nigeria. The following are the objectives of NITDA as contained in the National Information and Communication Technology(ICT) Final DRAFT Policy(2012): (www.nitda.gov.ng/rural-information-technology-resource-centres-ritc/)

Objectives

To facilitate universal access to information

To increase digital penetration in the country.

To provide youth access to digital and online content through e-learning applications for effective learning and self- empowerment.

To provide a community based platform for e-government, e-commerce, telemedicine and other e-services.

The following are the roles of NITDA

The role of NITDA is divided into two; these are Infrastructural development and Human capital development. (www.nitda.gov.ng/rural-information-technology-resource-centres-rits/)

Infrastructural Development

Establishment of Virtual Library in Tertiary Institutions

Establishment of Rural Information Technology Centre (RITC)

Establishment of Network Operating Centre (NOC) for RITC projects

Software Testing and Quality Assurance infrastructure and Capacity Building Laboratory

Establishment of Campus Wide Area Network (WAN) in Nigerian Tertiary institutions

IT Infrastructure in Institutions

Human Capital Development

Training and Capacity Building for NITDA Employees

Scholarship scheme for Nigerian IT Graduates

Training for Persons with Disabilities (PWD) on ICT in Nigeria.

Capacity Building for Nigeria Youths in Business Process Outsourcing (BPO)

Capacity Building Workshop for the Media

The followings are some of the outcome of the Establishment of NITDA

The recent deployment of 347 RITC's has contributed to an improved IT skill and knowledge acquisition for Nigerian youths in both urban and rural areas.

Under the establishment of virtual library in tertiary institutions, IT infrastructure in Institutions, Campus Wide Area Network(WAN) and scholarship scheme for IT Graduates, indigenes of Ikwerre, Eleme and Ahoada East local government have benefited through their enrolment into various academic programs in educational institutions in the state and beyond. The state institutions include; University of Port Harcourt (UNIPORT), Rivers State University of science and Technology (RUST), Rivers state Polytechnic, Ignatius Ajuru University of Education etc.

4.2 GSM and Internet Penetration in Nigeria (Eleme, Ahoada East and Ikwerre Local Government Area of Rivers State)

The internet has revolutionized the computer and communication world like never before. The fusion of the telephone, telegraph, radio and computers undoubtedly set the stage for an unprecedented integration of capabilities known as the internet. Tagged the information super-highway, the internet warehouses extensive information on any known topic or subject, aggregating the phrase, 'the world is a global village.' News and information are now available at the click of a button.

The internet itself has been transformed. In its early days, it was a static network designed to shuttle a small freight of bytes or a short message between two terminals. Today, immense quantities of information are uploaded and downloaded over this electronic leviathan. In Nigeria, people have wondered how we coped when the telecommunications industry was almost non-existent, save for a few NITEL lines owned by Nigeria's elite and multinational corporations. Sending an urgent email also meant a visit to a commercial cybercafé with all its inherent

security issues. There was also the waste of valuable time. Internet was at best crawling at 50kbps, with constant loss of signals. Service providers operated via satellite, which were often at the mercy of weather conditions.

Today, accessing the internet and other communication services has become enjoyable and seamless. The exponential growth of the telecommunications sector, which began in 2001, did not only change the way people communicate, it also changed the way people live, work and play. The sector opened up more business opportunities for individuals and organizations and facilitated the growth of an ecosystem of entrepreneurs, creating employment opportunities for thousands of Nigerians.

4.3 User-ability and job creation through ICT

According to the Nigerian Communications Commission (NCC), active internet subscription (GSM) between 2014 and February 2015 is over 80 million, from an active subscriber statistics of over 145 million. Simply put, internet penetration deepened with the advent of GSM; and the implication of this is enormous, positively impacting on the socio-economic fabric of the country. The proliferation of cheap smartphones has put technology in the hands of many more people. One critical service that small and medium scale enterprises (SMEs) have been using in the management of their businesses is the cloud service, which is hosted on the internet cloud. With this service, SMEs are able to acquire the necessary clout to manage their businesses efficiently and profitably. Indigenes of Ahoada East local government have witnessed increase in the number of smartphones, a development that has tremendously improved the quality of life, and serve as a boast to economic activities in the area.

Table 4.1 explains the level of internet penetration in Nigeria, Rivers state and the local governments understudy. The appreciable level of internet penetration has given room for the emergence of various ICT industries and the growth in GDP.

Table 4.1: The Nigerian ICT Industry: Key Statistics (2010)

Contributions of ICT Industry to GDP	3.5%	Broadband penetration	6.1%
Mobile penetration (per 100 people)	58.50%	PC penetration (number of PCs per 100 people	4.7
Fixed penetration (per 100 people)	0.070	Computer Assembled in Nigeria	< 500,000
Internet penetration (per 100 People)	22.1	Number of registered ICT companies	350
Internet users '000	33,576	ICT Professions	NA

Source: Federal ministry of communication and technology- Stakeholders Round

In the music and entertainment industry, artists are getting their money's worth on songs because music lovers can easily download latest songs onto their mobile phones and pay a token for them. Although the activities of pirates have had damaging effects on the careers of budding musicians and the bottom line of established artists, the ease of payment per download has been structured in such a way that one can pay via the mobile money platform or even with airtime. Today, artists make millions from downloads of their songs and get paid for endorsements and sponsorships so much so that many of them currently prefer to release their works online and recoup their money before they are released into the open market. This development has increased business activities in Ikwerre local government and has resulted in job creation to the youths.

Although voice is still king, data has become the crown prince. More people now have access to mobile devices with which they browse the internet and get active on various social media sites, especially Facebook, Flickr, YouTube, Twitter, Instagram, WeChat, Badoo and so much more. This has caused telecommunications companies (telcos) to become increasingly focused on data services as a business strategy in line with the current trend in the market. Demand on bandwidth has prompted rapid adoption of non-traditional overlay services for communication which has forced telecoms to be innovative in order to remain competitive.

With regard to the market business community, it is on record that ICT companies in Computer Village, Ikeja, and Lagos on the average, generate over US$2 billion annually. As the telecommunications industry thrived, it injected vibrancy into the Computer Village and other similar locations across the country. Reality and talent-hunt shows have been given a boost, and have become platforms upon which young people showcase their talents and change their fortunes forever.

Applications (apps), on the other hand, have become the new rave in the way mobile devices are used and telecoms are engendering its penetration and acceptance. According to Apple, 46 million apps are downloaded from its App Store everyday by its customers. The apps industry is currently worth over US$2 billion. In a symbiotic relationship, telecoms provide the platform for developers to showcase their talents and get values for their work in return, thereby opening up new revenue streams for themselves. Apps have enhanced the way people derive value from their mobile devices and enabled service providers like e-commerce companies, bloggers, entertainment and eNewspapers, epayment platforms, among others, get their services to end users. Developers are also given the opportunity to update their apps and get free exposure via

advertising. Without a doubt, GSM is the harbinger of the giant leap the Nigerian economy has witnessed in the past 14 years, and we will continue to see the rise of SMEs and other cottage industries.

Table 4.2 below, explains or shows increase in the number of ICT registered companies, internet penetration, mobile penetration and computers assembled in Nigeria, Rivers State and the local governments understudy. These have led to the increase in the creation of ICT related jobs in the local governments understudy.

Table 4.2: The Nigerian Digital Economy: Key Statistics (2015)

Contribution of ICT industry to GDP	5%	Broadband penetration	12%
Mobile penetration (per 100 people)	80.0	PC penetration (number of PCs per 100 people)	12
Fixed penetration (per 100 people)	2.0	Computers Assembled in Nigeria	1m
Internet penetration (per 100 people)	34.0	Number of ICT registered companies	350
Internet users (‘000)	70,000	ICT Professionals	260,000

Source: Federal Ministry of Communication Technology stakeholder’s Roundtable

The above table shows that Nigeria has recorded improvement in internet penetration, mobile penetration, internet users, fixed penetration, PC penetration, number of ICT registered companies and ICT professionals in 2015. This has reflected in the increase in the number of ICT related businesses in Ikwerre, Eleme and Ahoada East local government area of Rivers state.

Today there are series of ICT related businesses in Ikwerre, Eleme and Ahoada East local government area, such as phone repairing, cyber café, computer engineers, recharge card sales, music down loading etc.

Though quality of service and infrastructure expansion remain a challenge, the gains of telecoms and the value it has added to the lives of Nigerians and Nigeria far outweighs the pains.(The Guardian 19th April 2016)

4.4 Some obstacles affecting internet penetration in Eleme, Ahoada east and Ikwerre local government areas of Rivers State

Bazar and Boalch (1997) identified several factors pertinent to the diffusion of the Internet in developing countries, including the infrastructure, government policies and regulations, economic development, culture, language and IT penetration. Norris (2003) found that the faster an economy developed, the stronger Internet growth was achieved in such a given country. There is also a revealing trend that higher income groups tend to have greater access to the Internet and the number of Web hosts in that country tends to be congruent with individual income. In another study, Rogers (2000) noted that the Internet has mainly diffused in urban areas among the comparatively wealthy and educated. He noted that much of the infrastructure needed for the rapid diffusion of the Internet is not found in the rural areas. Many villages in the rural areas do not have central electricity or telephone service and most people in these rural areas cannot afford to own a computer. Moffett (1997) found that an inadequate telecommunication infrastructure is a major obstacle in the way of Internet development in developing countries. The obstacles affecting internet penetration in Ahoad East, Ikwerre and Eleme local government areas of Rivers state are:

* **Lack of power supply –** There is limited and unsteady power supply in the country when compared to the rate of supply in other parts of the world. This has served as one of the major problems hindering Internet growth in the country. The Nigerian government keeps announcing the need for foreign investors to invest in the country without understanding of the fact that no investor would like to push resources, where he would be running at extra cost in energy generation. This has taken its toll on internet penetration in Eleme, Ahoada East and Ikwerre local government areas of Rivers state. Nigeria government has done virtually nothing to ensure steady power supply, her privatization of the PHCN and the change of name to EEDC has not solved the problem. To access the internet fully and steadily, a steady power supply is a criterion, which unfortunately has not been tackled, and this has led to a limited use of the internet by many who desire to use it. With very unreliable power in the country, operators are left with no choice but to acquire and rely constantly on generators; expending huge gallons of fuel daily, in order to distribute internet to offices, homes, or cafes for subscribers. The epileptic power situation in the country has further compounded the woes of the few ISPs and Cyber cafes operating in the country.

* **Poverty –** Nigeria is a developing country consisting mainly of poverty-ravaged people who cannot afford three square meals a day. There is high cost of feeding, education, and health in the land. The poor ones will rather not waste their little income to access the internet when they have their priority as food, clothing and shelter. Many cannot afford to own a PC at home, even the fairly used ones being shipped from developed countries; talk less of engagement in internet connectivity for research and exploration. This problem affected ICT penetration in Eleme, Ikwerre and Ahoada local government areas of Rivers State.

* **High level of ICT illiteracy** – "Illiteracy is a defect," says the white man's adage. The high rate of illiteracy in the country is another ugly trend that is hindering the growth of internet use in Nigeria and this has contributed to the decline in the use of this super facility. People are ignorant of what the internet is all about, its uses, applications and benefits in solving their problems, some indigenes of the three local governments under study (Ikwerre, Eleme and Ahoada East) suffered as a result of this. Most people have not seen a computer before, not to talk of understanding internet concepts. There are other obstacles; just pause, think, and definitely you must remember a few factors you can discuss vividly as an obstacle to growth in Nigeria. Although it must be said that ICT knowledge in Nigeria is growing and being embraced, yet there remain a large majority of rural population that has not seen firsthand, the immense benefits of the internet.

* **High cost of getting internet** – Internet doesn't come cheap in Nigeria. As it stands, it is arguably the preserve of the rich who often times, have access from their homes. One of the reasons for the high cost of connecting to the internet is the costs involved in using satellites due to a lack of cable infrastructure. Most Internet traffic in Nigeria often times needs to be routed by satellite via North America and Europe Website. The case of the three local governments understudy is not an exception, as the main internet access they have is the cell phone or GSM.

* **Low speed and time-consuming internet** – Out of 10 million estimated Internet users in Nigeria, broadband users are few. High-speed broadband requires fiber optic cables. The situation should, however, improve as there are a number of projects underway to connect African countries with the rest of the world through undersea cables which is hoped will eventually lead to affordability and fast internet speed. While expecting an improvement in

future in respect of internet penetration, the current ICT situation in the local governments (Ikwerre, Eleme and Ahoada East) calls for attention.

* **Increasing competition** – Traditional internet service providers are beginning to face increasing competition from internet services offered by mobile operators. The introduction of 3G services in the country has enabled many Nigerians to access the internet through mobile devices. Meanwhile, access to telecom services isn't necessarily reliant on new cabling. While only 4 percent of people in the country have fixed telephone lines, 30 percent have cell phones. This development has adversely affected internet penetration in Ikwerre, Eleme and Ahoada East local government of Rivers state.

* **Internet ready pcs** – Nigerians are not provided with Internet-ready PCs as done in the advanced countries. Though Zinox Computers, a computer manufacturer and a leading CDMA telecom operator are joining forces to make this available, and other efforts are currently being made, much of this still remain in the doldrums.This has adverse effect on ICT penetration in Ikwerre, Eleme and Ahoada East local governments of Rivers state.

* **Yahoo-yahoo** – Another of Nigeria's Internet problems is the growing internet culture among Nigerian youths representing more than 80 per cent of Nigeria's population – Young minds due to lack of awareness, low number of Nigerian website on the internet, lack of Nigerian specific e-payment system and poor e-learning culture throng cyber cafes only to check their email accounts, visit pornographic sites, shop online with stolen credit cards and so many other negative vices that has come to be known as YAHOO YAHOO. Indigenes of the three local governments understudy (Ahoada East, Ikwerre and Eleme) are not free from this negative development which has hampered internet development in their areas.

CHAPTER FIVE

DATA PRESENTATION AND ANALYSIS

5.1 Introduction

This study is titled the effects of Information and Communication Technology (ICT) on Job creation in some selected local government areas of Rivers state. A total of 414 respondents were used from Ikwere, Ahoada East and Eleme Local government Areas of the state. Descriptive statistics of frequency and percentages were used to present the data in tables. The research hypotheses were empirically tested using multiple regression analysis. The IBM Statistical Package for Social Sciences (Version 23) was used to analyze the data. All the hypotheses were tested at 0.05 alpha level of significance, implying a 95% confidence level.

5.2 Data Presentation and Analysis

Data collected from the respondents from the three local government areas were presented.

5.2.1 Questionnaire Administration

Questionnaire Administration, Analysis and Personal Data of Respondents in the Three Local Governments (Ikwerre, Ahoada East and Eleme Local Governments)

Table 5.1: Questionnaire Administration in selected Local Governments

Category of Respondents	Drawn Sample/no of Questionnaires Administered	No of Questionnaires Retrieved/Returned	No of Questionnaires Duly Accepted/Completed	% of Return	% of Completion of questionnaires
Ikwerre	152	144	144	94.74%	94.74%
Ahoada East	135	129	129	95.56%	95.56%
Eleme	153	141	141	92.16%	92.16%
Total	440	414	414	94.09%	94.09%

Source: Field Survey 2016

Rate of Return = Total No of Questionnaires Retrieved
_____ x 100
Total Sample Drawn or No of Questionnaires

5.2.2 Analysis of Data from Ikwerre

Data collected from the respondents from Ikwerre local government area was presented as follows:

Table 5.2. Gender of Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	88	61.1	61.1	61.1
	Female	56	38.9	38.9	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.2 shows that 88 respondents representing 61.1% are male while 56 respondents representing 38.9% are female. In this sense, majority of the respondents are male which signify that they are more than their female counterpart in the Ikwerre community.

Table 5.3: Educational Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	OND	36	25.0	25.0	25.0
	NCE	35	24.3	24.3	49.3
	HND	27	18.8	18.8	68.1
	BSC	24	16.7	16.7	84.7
	BA	17	11.8	11.8	96.5
	MSC and above	5	3.5	3.5	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.3 reveals that 36 respondents representing 25.0 possessed OND, 35 of the respondents were NCE holders, 27 of the respondents representing 18.8% were HND holders, while 24 and 17 respondents representing 16.7% and 11.8% have BSc. and BA respectively. Also 5 respondents representing 3.5% possessed MSc and above. Thus, all the respondents are of different level of education qualifications which enabled them to make used of ICT resources centres and other facilities to enhance their innovative mentality that would instigate employment opportunities for the people in the area.

Table 5.4: Years of Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	6-10 years	65	45.1	45.1	45.1
	11-15 years	22	15.3	15.3	60.4
	16 years and above	57	39.6	39.6	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.4 indicates that 65 of the respondent representing 45.1% have 6-10 years experience in ICT while 22 of the respondents representing 15.3% have 11-15 years experience in ICT and 57 (39.6%) of the respondents have 16 years and above experience in ICT. Owing to this, the respondents have experience in ICT more than 6 years which put them in best position to give more information on the subject matter.

Table 5.5: Age of the Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	61 years and above	10	6.9	6.9	6.9
	41-60 years	35	24.3	24.3	31.3
	31-40 years	99	68.8	68.8	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.5 shows that 10 of the respondents representing 6.9% is of age bracket of 61 years and above, 35 of the respondents representing 24.3% are of age bracket of 41-60 years while 99 respondents representing 68.3% are within the age bracket of 31-40 years. Thus, all the respondents are matured which put them in best position to give more information on the subject matter.

Table 5.6: Government's set objective of bringing socio-economic development to Rivers State through ICT (NITDA) is achievable.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	11	7.6	7.6	7.6
	Disagreed	7	4.9	4.9	12.5
	Undecided	8	5.6	5.6	18.1
	Agreed	84	58.3	58.3	76.4
	Strongly Agreed	34	23.6	23.6	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.6 reveals that 34 respondents representing 23.6% strongly agreed that government's set objective of bringing socio-economic development to Rivers State through ICT (NITDA) is achievable, 84 and 8 of the respondents representing 58.3% and 5.6 agreed and undecided respectively while 7 and 11 respondents representing 4.9% and 7.6% disagreed and strongly disagreed respectively. Meanwhile, majority of the respondents agreed that government's mandate of bringing socio-economic development to Rivers State through ICT resources centers is achievable.

Table 5.7: Government has done Enough to encourage Job creation Through ICT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	9	6.3	6.3	6.3
	Disagreed	7	4.9	4.9	11.1
	Undecided	6	4.2	4.2	15.3
	Agreed	83	57.6	57.6	72.9
	Strongly Agreed	39	27.1	27.1	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.7 reveals that 39 respondents representing 27.1% strongly agreed that government's has done enough to encourage job creation through ICT, 83 and 6 of the respondents representing 4.7 and 4.2% agreed and undecided respectively while 7 and 9 respondents representing 4.9% and 7.6% disagreed and strongly disagreed respectively. Meanwhile majority of the respondents agreed that government's has done enough to encourage job creation through ICT of bringing socio-economic development to Rivers State through ICT.

Table 5.8: Government has created awareness on the use of ICT.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	9	6.3	6.3	6.3
	Disagreed	7	4.9	4.9	11.1
	Undecided	10	6.9	6.9	18.1
	Agreed	77	53.5	53.5	71.5
	Strongly Agreed	41	28.5	28.5	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.8 reveals that 41 respondents representing 28.5% strongly agreed that government has done enough to encourage job creation through ICT, 77 and 10 of the respondents representing 53.5 and 6.9% agreed and undecided respectively while 7 and 9 respondents representing 4.9% and 7.6% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that government's has done enough through establishment of different ICT resources canters and infrastructure to encourage job creation through ICT and this has facilitated socio-economic development across the Ikwerre local government area of Rivers State.

Table 5.9: There are measures taken by the government to create jobs through ICT.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	9	6.3	6.3	6.3
	Disagreed	10	6.9	6.9	13.2
	Undecided	3	2.1	2.1	15.3
	Agreed	76	52.8	52.8	68.1
	Strongly Agreed	46	31.9	31.9	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.9 reveals that 46 respondents representing 31.9% strongly agreed that government has taken some measures to create jobs through ICT, 76 and 3 of the respondents representing 52.8 and 2.1% agreed and undecided respectively while 10 and 9 respondents representing 6.9% and 6.3% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed

that government has taken some measures through the establishment of different ICT resources centres and NITDA as an institution to oversee the positive enablement environment for the use of technology to enhance innovation which meant to create productive opportunities for the people in the area.

Table 5.10: The measures influenced ICT awareness in your area

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	11	7.6	7.6	7.6
	Disagreed	8	5.6	5.6	13.2
	Undecided	3	2.1	2.1	15.3
	Agreed	73	50.7	50.7	66.0
	Strongly Agreed	49	34.0	34.0	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.10 reveals that 49 respondents representing 34% strongly agreed that the government measures influenced ICT awareness in Ikwerre local government area, 73 and 3 of the respondents representing 50.7 and 2.1% agreed and undecided respectively while 8 and 11 respondents representing 5.6% and 7.6% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that government's measures put in place through establishment of different ICT resources centres and NITDA has influenced people awareness about ICT and role it plays in creating economic opportunities for the populace in the area.

Table 5.11: The rural information technology centers (RITC) established by government is effective

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	12	8.3	8.3	8.3
	Disagreed	15	10.4	10.4	18.8
	Undecided	4	2.8	2.8	21.5
	Agreed	75	52.1	52.1	73.6
	Strongly Agreed	38	26.4	26.4	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.11 reveals that 38 respondents representing 26.4% strongly agreed that the rural information technology centers (RITC) established by government is effective in Ikwerre local government area, 75 and 4 of the respondents representing 52.1 and 2.8% agreed and undecided respectively while 15 and 12 respondents representing 10.4% and 8.3% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that the rural information technology centers (RITC) which is one of the ICT resources centres established by government is effective in enabling the rural dwellers to access ICT facilities in improving their creative abilities so that they can be able to be productive through ICT and reduced the level of unemployment in the area.

Table 5.12: Government provides rural information technology centers (RITC) in Ikewerre local government areas of Rivers State

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	9	6.3	6.3	6.3
	Disagreed	6	4.2	4.2	10.4
	Undecided	3	2.1	2.1	12.5
	Agreed	60	41.7	41.7	54.2
	Strongly Agreed	66	45.8	45.8	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.12 reveals that 66 respondents representing 45.8% strongly agreed that government provides rural information technology centers (RITC) in Ikwerre local government area, 60 and 3 of the respondents representing 41.7 and 2.1% agreed and undecided respectively while 6 and 19 respondents representing 4.2% and 6.3% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that the government provides rural information technology centers (RITC) as an ICT resources centres which is being managed by NITDA to see that the resources centre is effective and performed its roles which is to create productive opportunities to the rural dwellers of the area.

Table 5.13: Government provides virtual libraries in tertiary institutions in Rivers State

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	10	6.9	6.9	6.9
	Disagreed	10	6.9	6.9	13.9
	Undecided	5	3.5	3.5	17.4
	Agreed	70	48.6	48.6	66.0
	Strongly Agreed	49	34.0	34.0	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.13 reveals that 49 respondents representing 34% strongly agreed that government provides virtual libraries in tertiary institutions in Ikwerre local government area, 70 and 5 of the respondents representing 48.6 and 3.5% agreed and undecided respectively while 10 respondents each representing 6.9% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that government provides virtual libraries which aids the students learning and creative development aim at introducing them to the use of ICT in tertiary institutions which meant to make them accustomed to ICT in their tender age so that they can make used of their creative mentality to create jobs for themselves and others when they graduate.

Table 5.14: The impact of NITDA capacity building for Nigerian youths in business process is felt by the indigenes of Ikwerre, Ahoada east and Eleme local government areas of Rivers State

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	20	13.9	13.9	13.9
	Disagreed	7	4.9	4.9	18.8
	Undecided	11	7.6	7.6	26.4
	Agreed	63	43.8	43.8	70.1
	Strongly Agreed	43	29.9	29.9	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.14 reveals that 43 respondents representing 29.9% strongly agreed that the impact of NITDA capacity building for Nigerian youths in business process is felt by the indigenes of Ikewerre local government area, 63 and 11 of the respondents representing 43.8 and 7.6% agreed and undecided respectively while 7 and 20 respondents each representing 4.9% and 13.9% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that the impact of NITDA capacity building for Nigerian youths in business process is felt by the indigenes of Ikewerre local government area. This is because NITDA does not only monitored and maintain all the ICT resources centers provided by government but also provides the avenues by which people make use of those resources for their cognitive development in ICT which is

aimed at showcasing their innovation and creativity in them that are meant to enhance job creation and improve the welfare of the people in the area.

Table 5.15: NITDA encourages ICT graduates through award of scholarship in Ikwerre local government area

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	16	11.1	11.1	11.1
	Disagreed	8	5.6	5.6	16.7
	Undecided	4	2.8	2.8	19.4
	Agreed	66	45.8	45.8	65.3
	Strongly Agreed	50	34.7	34.7	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.15 reveals that 50 respondents representing 34.7% strongly agreed that NITDA encouraged ICT graduates through award of scholarship in Ikwerre local government area, 66 and 4 of the respondents representing 45.8 and 2.8% agreed and undecided respectively while 8 and 16 respondents each representing 5.6% and 11.1% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that NITDA encouraged ICT graduates through award of scholarship in order to ensure capacity building of Nigerian youths in business process with the aid of ICT in Ikwerre local government area. This has encouraged the youth to

gear themselves in the accessibility and usage of ICT so that they can excel in their endeavor and be productive in their community.

Table 5.16: Establishment of Virtual Libraries in Tertiary Institutions capable of enhancing ICT penetration required for job creation.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	10	6.9	6.9	6.9
	Disagreed	6	4.2	4.2	11.1
	Undecided	8	5.6	5.6	16.7
	Agreed	66	45.8	45.8	62.5
	Strongly Agreed	54	37.5	37.5	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.16 reveals that 54 respondents representing 37.5% strongly agreed that establishments of Virtual Libraries in Tertiary Institutions capable of enhancing ICT penetration required for job creation in Ikewerre local government area, 66 and 8 of the respondents representing 45.8 and 5.6% agreed and undecided respectively while 6 and 10 respondents each representing 4.2% and 6.9% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that the establishments of Virtual Libraries in Tertiary Institutions is capable of enhancing ICT penetration among youth is meant for job creation in Ikewerre local government. This is because the Virtual Libraries in these Tertiary Institutions are to improve the ICT intuition of the students

which they build on when the graduated and use it to create job for the people in the community they resides.

Table 5.17: Establishment of virtual libraries in tertiary institutions in rural communities enhances ICT penetration in the communities.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	11	7.6	7.6	7.6
	Disagreed	14	9.7	9.7	17.4
	Undecided	17	11.8	11.8	29.2
	Agreed	72	50.0	50.0	79.2
	Strongly Agreed	30	20.8	20.8	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.17 reveals that 30 respondents representing 20.8% strongly agreed that establishment of virtual libraries in tertiary institutions in rural communities enhances ICT penetration in Ikewerre local government area, 72 and 17 of the respondents representing 70% and 11.8% agreed and undecided respectively while 14 and 11 respondents representing 9.7% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that establishment of virtual libraries in tertiary institutions in rural communities enhances ICT penetration in the communities. This helped the students in their learning and creative development aim at introducing them to the use of ICT which meant to equip them for greater future in ICT and creativity to create jobs for themselves and others when they graduated.

Table 5.18: NITDA can achieve its objectives of bringing socio-economic development in rural areas by establishing network operating centers (NOC) from RITC project

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	11	7.6	7.6	7.6
	Disagreed	22	15.3	15.3	22.9
	Undecided	13	9.0	9.0	31.9
	Agreed	70	48.6	48.6	80.6
	Strongly Agreed	28	19.4	19.4	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.18 reveals that 28 respondents representing 19.4% strongly agreed that NITDA can achieve its objectives of bringing socio-economic development in rural areas by establishing network operating centers (NOC) in Ikewerre local government area, 70 and 13 of the respondents representing 48.6 and 9% agreed and undecided respectively while 22 and 11 respondents representing 15.3% and 7.6% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that NITDA can achieve its objectives of bringing socio-economic development in rural areas by establishing network operating centers (NOC) as an ICT resources centers which is being managed by NITDA to see that the resources center is effective and performed its roles which is to create productive opportunities to the rural dwellers of the area.

Table 5.19: The network operation centers (NOC) established in Ikwerre local government areas of Rivers State is meant to enhance people usage of ICT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	12	8.3	8.3	8.3
	Disagreed	16	11.1	11.1	19.4
	Undecided	20	13.9	13.9	33.3
	Agreed	68	47.2	47.2	80.6
	Strongly Agreed	28	19.4	19.4	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.19 reveals that 28 respondents representing 19.4% strongly agreed that the network operation centers (NOC) established in Ikwerre local government areas of Rivers State is meant to enhance people usage of ICT, 68 and 20 of the respondents representing 47.2% and 13.9.% agreed and undecided respectively while 16 and 12 respondents representing 11.1% and 8.3% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that the network operation centers (NOC) established in Ikwerre local government areas of Rivers State is meant to enhance people usage of ICT which is to create productive opportunities to the rural dwellers of the area.

Table 5.20: Getting ICT related job is dependent on the citizens' ability to use it

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	11	7.6	7.6	7.6
	Disagreed	14	9.7	9.7	17.4
	Undecided	29	20.1	20.1	37.5
	Agreed	66	45.8	45.8	83.3
	Strongly Agreed	24	16.7	16.7	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.20 reveals that 24 respondents representing 16.7% strongly agreed that getting ICT related job is dependent on the citizen's ability to use it, 66 and 29 of the respondents representing 45.8% and 20.1% agreed and undecided respectively while 14 and 11 respondents representing 11.1% and 8.3% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that getting ICT related jobs is dependent on the citizen's ability to use it. This is one of the pillars on which the campaign for ICT literacy by NITDA is hinged.

Table 5.21: Problems of illiteracy, government policy, inadequate electricity, poverty affect ICT penetration

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	25	17.4	17.4	17.4
	Disagreed	11	7.6	7.6	25.0
	Undecided	11	7.6	7.6	32.6
	Agreed	76	52.8	52.8	85.4
	Strongly Agreed	21	14.6	14.6	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.21 reveals that 21 respondents representing 14.6% strongly agreed that problems of illiteracy, government policy, inadequate electricity, poverty affect ICT penetration in Ikwerre local government areas, 76 and 11 of the respondents representing 52.8% and 7.6% agreed and undecided respectively while 11 and 25 respondents representing 7.6% and 17.4% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that problems of illiteracy, government policy, inadequate electricity, poverty affect ICT penetration. Owing to this, ICT resources centres are needed to reduce the level of illiteracy and poverty which is meant to improve the welfare of rural dwellers of the area.

Table 5.22: ICT has been accepted by rural people

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	10	6.9	6.9	6.9
	Disagreed	9	6.3	6.3	13.2
	Undecided	2	1.4	1.4	14.6
	Agreed	84	58.3	58.3	72.9
	Strongly Agreed	39	27.1	27.1	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.22 reveals that 39 respondents representing 27.1% strongly agreed that ICT has been accepted by rural people in Ikwerre local government areas, 84 and 2 of the respondents representing 58.3% and 1.4% agreed and undecided respectively while 9 and 10 respondents representing 6.3% and 6.9% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that establishment of campus wide area Network (WAN), RITC and other resources centers have influenced rural dwellers acceptance and use of ICT which created productive opportunities to the dwellers of the area will improve.

Table 5.23: Indigenes of selected local governments benefited from NITDA scholarship scheme.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	11	7.6	7.6	7.6
	Disagreed	11	7.6	7.6	15.3
	Undecided	13	9.0	9.0	24.3
	Agreed	77	53.5	53.5	77.8
	Strongly Agreed	32	22.2	22.2	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.23 reveals that 32 respondents representing 22.2% strongly agreed that indigenes of selected local governments benefited from NITDA scholarship scheme, 77 and 13 of the respondents representing 53.5% and 9% agreed and undecided respectively while 9 and 10 respondents representing 6.3% and 6.9% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that indigenes of selected local governments benefited from NITDA scholarship schemed being given to enable the dedicated individuals in ICT usage to further their education and this go a long way to implored people to put in their best in ICT so that the welfare of the rural dwellers of the area.

Table 5.24: ICT acceptance enhanced socio-economic growth, especially in job creation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	12	8.3	8.3	8.3
	Disagreed	15	10.4	10.4	18.8
	Undecided	15	10.4	10.4	29.2
	Agreed	68	47.2	47.2	76.4
	Strongly Agreed	34	23.6	23.6	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.24 reveals that 34 respondents representing 23.6% strongly agreed that ICT acceptance enhanced socio-economic growth especially in the area of job creation, 68 and 15 of the respondents representing 47.2% and 10.4% agreed and undecided respectively while 15 and 12respondents representing 10.4% and 8.3% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that ICT acceptance through the usage of all ICT resources centres established in the local government areas enhance socio-economic growth, especially in job creation in the area.

Table 5.25: Establishment of campus wide area Network (WAN) by NITDA in tertiary institutions is an effective instrument in taking awareness to the door steps of Nigerians especially the rural dwellers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	19	13.2	13.2	13.2
	Disagreed	20	13.9	13.9	27.1
	Undecided	11	7.6	7.6	34.7
	Agreed	60	41.7	41.7	76.4
	Strongly Agreed	34	23.6	23.6	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.25 reveals that 34 respondents representing 20.8% strongly agreed that establishment of campus wide area Network (WAN) by NITDA in tertiary institutions is an effective instrument in taking awareness to the door steps of Nigerians especially the rural dwellers, 60 and 11 of the respondents representing 70% and 11.8% agreed and undecided respectively while 20 and 19 respondents representing 9.7% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that establishment of campus wide area Network (WAN) in tertiary institutions is an effective instrument in taking awareness to the door steps of Nigerians especially the rural dweller. This helps the students in their learning and creative development

aimed at introducing them to the use of ICT which meant to equip them for greater future in ICT and creativity to create jobs for themselves and others when they graduated.

Table 5.26: WAN help in extending ICT awareness to the rural dweller

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	10	6.9	6.9	6.9
	Disagreed	32	22.2	22.2	29.2
	Undecided	45	31.3	31.3	60.4
	Agreed	42	29.2	29.2	89.6
	Strongly Agreed	15	10.4	10.4	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.26 reveals that 15 respondents representing 10.4% strongly agreed that establishment of campus wide area Network (WAN) help in extending ICT awareness to the rural dwellers, 42 and 45 of the respondents representing 29.2% and 31.3% agreed and undecided respectively while 32 and 10 respondents representing 22.2% and 9.7% disagreed and strongly disagreed respectively. Thus, majority of the respondents are undecided whether establishment of wide area Network (WAN) help in extending ICT awareness to the rural dwellers. This is due to the fact that there are many procedures needed before one can make use of the WAN facilities and this may discourage the people in using the facilities.

Table 5.27: Government has established software testing quality assurance and capacity building laboratory in Ikwerre, Eleme and Ahoada east local government areas of Rivers State so as to improve the level of awareness of the populace on ICT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	10	6.9	6.9	6.9
	Disagreed	36	25.0	25.0	31.9
	Undecided	35	24.3	24.3	56.3
	Agreed	44	30.6	30.6	86.8
	Strongly Agreed	19	13.2	13.2	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.27 reveals that 19 respondents representing 13.2% strongly agreed that establishment of software testing quality assurance and capacity building laboratory in Ikwerre, Eleme and Ahoada east local government areas of Rivers State has improved the level of awareness of the populace on ICT, 44 and 35 of the respondents representing 30.6% and 24.3% agreed and undecided respectively while 36 and 10 respondents representing 25% and 9.7% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that establishment of software testing quality assurance and capacity building laboratory in Ikwerre, Eleme and Ahoada east local government areas of Rivers State has improved the level of awareness of the populace on ICT. This helped the rural dwellers in their learning and creative development aim at introducing them to the use of ICT which is meant to equip them with the knowledge for greater future in ICT and creativity to create jobs for themselves and others.

Table 5.28: Established of software testing quality assurance and capacity building laboratory in Ikwerre, Eleme and Ahoada east local government areas of Rivers State has enhanced efficiency in internet services, especially in the rural areas

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	12	8.3	8.3	8.3
	Disagreed	21	14.6	14.6	22.9
	Undecided	33	22.9	22.9	45.8
	Agreed	55	38.2	38.2	84.0
	Strongly Agreed	23	16.0	16.0	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.28 reveals that 23 respondents representing 16% strongly agreed that establishment of software testing quality assurance and capacity building laboratory in Ikwerre, Eleme and Ahoada east local government areas of Rivers State has enhanced efficiency in internet services in the areas, 55 and 33 of the respondents representing 30.6% and 24.3% agreed and undecided respectively while 21 and 12 respondents representing 25% and 9.7% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that establishment of software testing quality assurance and capacity building laboratory in Ikwerre, Eleme and Ahoada east local government areas of Rivers State has enhanced the efficiency in internet services. This has helped the rural dwellers in their learning and creative development through the uses of internet to source for information that would aid their knowledge and made them productive in the areas.

Table 5.29: Government measures influenced ICT awareness in your area

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	9	6.3	6.3	6.3
	Disagreed	9	6.3	6.3	12.5
	Undecided	1	.7	.7	13.2
	Agreed	60	41.7	41.7	54.9
	Strongly Agreed	65	45.1	45.1	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.29 reveals that 65 respondents representing 45.1% strongly agreed that government measures influenced ICT awareness in the areas, 60 and 2 of the respondents representing 41.7% and 0.3% agreed and undecided respectively while 21 and 12 respondents representing 25% and 9.7% disagreed and strongly disagreed respectively. Thus, majority of the respondents strongly agreed that government measures through NITDA policy implementations and investment on ICT facilities and infrastructure influenced ICT awareness in Ikwerre, Eleme and Ahoada east local government areas of Rivers State.

Table 5.30: The awareness created is enough to enhance effective ICT penetration

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	10	6.9	6.9	6.9
	Disagreed	8	5.6	5.6	12.5
	Undecided	3	2.1	2.1	14.6
	Agreed	49	34.0	34.0	48.6
	Strongly Agreed	74	51.4	51.4	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.30 reveals that 74 respondents representing 51.4% strongly agreed that the awareness created by NITDA is enough to enhance effective ICT penetration, 49 and 3 of the respondents representing 34% and 2.1% agreed and undecided respectively while 8 and 10 respondents representing 5.6% and 9.6% disagreed and strongly disagreed respectively. Thus, majority of the respondents strongly agreed that the awareness created by NITDA is enough to enhance effective ICT penetration in Ikwerre, Eleme and Ahoada east local government areas of Rivers State.

Table 5.31: ICT has the potential for job creation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	11	7.6	7.6	7.6
	Disagreed	13	9.0	9.0	16.7
	Undecided	5	3.5	3.5	20.1
	Agreed	67	46.5	46.5	66.7
	Strongly Agreed	48	33.3	33.3	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.31 reveals that 48 respondents representing 33.3% strongly agreed that ICT has the potential for job creation, 67 and 5 of the respondents representing 46.5% and 3.5% agreed and undecided respectively while 13 and 11 respondents representing 9% and 7.6% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that ICT has the potential for job creation through the different NITDA programmes, ICT resources centres and RITC which are meant to help people in the communities to be aware and built themselves on

the usage of the ICT knowledge to improve their areas and provide productive opportunities for the populace.

Table 5.32: ICT create jobs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	11	7.6	7.6	7.6
	Disagreed	10	6.9	6.9	14.6
	Undecided	15	10.4	10.4	25.0
	Agreed	75	52.1	52.1	77.1
	Strongly Agreed	33	22.9	22.9	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.32 reveals that 33 respondents representing 22.9% strongly agreed that ICT create jobs, 75 and 15 of the respondents representing 52.1% and 10.4% agreed and undecided respectively while 10 and 11 respondents representing 7.6% and 9.6% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that ICT create jobs through various NITDA programmes, ICT resources centres and RITC which are meant to help people in the communities to be aware and built themselves on the usage of the ICT knowledge to improve their areas and provide productive opportunities for the populace.

Table 5.33: ICT has created jobs in your local government

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	9	6.3	6.3	6.3
	Disagreed	9	6.3	6.3	12.5
	Undecided	11	7.6	7.6	20.1
	Agreed	90	62.5	62.5	82.6

	Strongly Agreed	25	17.4	17.4	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.31 reveals that 25 respondents representing 17.4% strongly agreed that ICT has created jobs in your local government, 90 and 11 of the respondents representing 62.5% and 7.6% agreed and undecided respectively while 9 respondents each representing 6.3% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that ICT has created jobs for those that worked with NITDA programs, resources centers and those ones that worked in private business/companies on ICT which are meant to help people in the communities to improve their areas and provide productive opportunities for the populace.

Table 5.34: The situation before the advent of ICT, would you say that the present situation showed reduction in unemployment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	10	6.9	6.9	6.9
	Disagreed	12	8.3	8.3	15.3
	Undecided	7	4.9	4.9	20.1
	Agreed	74	51.4	51.4	71.5
	Strongly Agreed	41	28.5	28.5	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.34 reveals that 41 respondents representing 28.5% strongly agreed that the situation before the advent of ICT and the present situation showed reduction in unemployment, 74 and 7

of the respondents representing 51.4% and 4.9% agreed and undecided respectively while 12 and 10 respondents representing 8.3% and 6.9% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that the present situation of ICT showed that there is reduction in unemployment in the local government areas and this can be attributed to the fact that the various NITDA programs, ICT resources centers and RITC which are meant to help people in the communities to be aware and built themselves on the usage of the ICT knowledge has realy enhanced job creation and reduced unemployment to certain extent in the areas.

Table 5.35: The local governments recorded reduction in unemployment since the advent of ICT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	12	8.3	8.3	8.3
	Disagreed	12	8.3	8.3	16.7
	Undecided	7	4.9	4.9	21.5
	Agreed	77	53.5	53.5	75.0
	Strongly Agreed	36	25.0	25.0	100.0
	Total	144	100.0	100.0	

Source: Field Survey, 2018.

Table 5.35 reveals that 36 respondents representing 25% strongly agreed that the local governments recorded reduction in unemployment since the advent of ICT, 77 and 7 of the respondents representing 53.5% and 4.9% agreed and undecided respectively while 12 of the respondents each representing 8.3% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that the local governments recorded reduction in unemployment since the advent of ICT. Owing to this, ICT create jobs through various NITDA

programs, ICT resources centers and RITC which are meant to help people in the communities to be aware and built themselves on the usage of the ICT knowledge to improve their areas and provide productive opportunities for the populace.

5.2.3 Analysis of Data from Ahoada East

Data gathered from Ahoada East local government was analysed as follows:

Table 5.36: Gender of Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	79	61.2	61.2	61.2
	Female	50	38.8	38.8	100.0
	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.36 shows that 79 respondents representing 61.2% are male while 50 respondents representing 38.8% are female. In this sense, majority of the respondents are male which signify that they are more than their female counterpart in the Ahoada East local government area.

Table 5.37: Educational Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	OND	27	20.9	20.9	20.9
	NCE	42	32.6	32.6	53.5
	HND	11	8.5	8.5	62.0
	BSC	36	27.9	27.9	89.9
	BA	4	3.1	3.1	93.0
	MSC and above	9	7.0	7.0	100.0

Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.37 reveals that 27 respondents representing 20.9 possessed OND, 42 of the respondents were NCE holders, 11 of the respondents representing 8.5% were HND holders, while 36 and 4 respondents representing 27.9% and 3.1% have BSc. and BA respectively. Also 9 respondents representing 7% possessed MSc and above. Thus, all the respondents are of different level of education qualifications which enabled them to make used of ICT resources centres and other facilities to enhance their innovative mentality that would instigate employment opportunities for the people in the area.

Table 5.38: Years of Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	6-10 years	43	33.3	33.3	33.3
	11-15 years	41	31.8	31.8	65.1
	16 years and above	45	34.9	34.9	100.0
	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.38 indicates that 43 of the respondent representing 33.3% have 6-10 years' experience in ICT while 41 of the respondents representing 31.8% have 11-15 years' experience in ICT and 45 (34.9%) of the respondents have 16 years and above experience in ICT. Owing to this, the respondents have experience in ICT more than 6 years which put them in best position to give more information on the subject matter.

Table 5.3.39: Age of the Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	61 years and above	7	5.4	5.4	5.4
	41-60 years	43	33.3	33.3	38.8
	31-40 years	79	61.2	61.2	100.0
	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.39 shows that 7 of the respondents representing 65.4% is of age bracket of 61 years and above, 43 of the respondents representing 33.3% are of age bracket of 41-60 years while 79 respondents representing 61.2% are within the age bracket of 31-40 years. Thus, all the respondents are matured which put them in best position to give more information on the subject matter.

Table 5.40: Government's set objective of bringing socio-economic development to Rivers state through ICT (NITDA) is achievable.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	12	9.3	9.3	9.3
	Disagreed	7	5.4	5.4	14.7
	Undecided	1	.8	.8	15.5
	Agreed	57	44.2	44.2	59.7
	Strongly Agreed	52	40.3	40.3	100.0

	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.40 reveals that 52 respondents representing 40.3% strongly agreed that government's set objective of bringing socio-economic development to Rivers state through ICT (NITDA) is achievable, 57 and 1 of the respondents representing 44.2% and 0.8 agreed and undecided respectively while 7 and 21 respondents representing 4.9% and 7.6% disagreed and strongly disagreed respectively. Meanwhile majority of the respondents agreed that government's mandate of bringing socio-economic development to Rivers state through ICT resources centers is achievable.

Table 5. 41: Government has done enough to encourage job creation through ICT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	11	8.5	8.5	8.5
	Disagreed	13	10.1	10.1	18.6
	Undecided	6	4.7	4.7	23.3
	Agreed	64	49.6	49.6	72.9
	Strongly Agreed	35	27.1	27.1	100.0
	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.41 reveals that 35 respondents representing 27.1% strongly agreed that government's has done enough to encourage job creation through ICT, 64 and 6 of the respondents representing 49.6 and 4.2% agreed and undecided respectively while 13 and 11 respondents representing 10.1% and 8.5% disagreed and strongly disagreed respectively. Meanwhile majority of the respondents agreed that government's has done enough to encourage job creation through ICT

mandate of bringing socio-economic development to Cross Rivers through ICT resources centers is achievable.

Table 5.42: Government creates awareness building among the populace on the use of ICT.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	13	10.1	10.1	10.1
	Disagreed	23	17.8	17.8	27.9
	Undecided	10	7.8	7.8	35.7
	Agreed	69	53.5	30.2	89.1
	Strongly Agreed	14	10.9	10.9	100.0
	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.42 reveals that 14 respondents representing 10.9% strongly agreed that government's has done enough to encourage job creation through ICT, 69 and 10 of the respondents representing 53.5% and 6.9% agreed and undecided respectively while 7 and 9 respondents representing 4.9% and 7.6% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that government's has done enough through establishment of different ICT resources centres and infrastructure to encourage job creation through ICT and this has instigated socio-economic development across the Ahoada East local government area in Rivers State.

Table 5.43: There are measures taken by the government to create jobs through ICT.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	9	7.0	7.0	7.0
	Disagreed	28	21.7	21.7	28.7
	Undecided	10	7.8	7.8	36.5
	Agreed	70	54.3	54.3	90.7
	Strongly Agreed	12	9.3	9.3	100.0
	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.43 reveals that 12 respondents representing 9.3% strongly agreed that government has taken some measures to create jobs through ICT, 70 and 10 of the respondents representing 54.3 and 7.8% agreed and undecided respectively while 28 and 9 respondents representing 21.7% and 6.3% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that government's has taken some measures through establishment of different ICT resources centres and NITDA as an institution to oversee the positive enablement environment for the usage of technology to enhance innovation which meant to create productive opportunities for the people in the area.

Table 5.44: The measures influenced ICT awareness in your area

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	9	7.0	7.0	7.0
	Disagreed	16	12.4	12.4	19.4
	Undecided	29	22.5	22.5	41.9
	Agreed	54	41.9	41.9	83.7
	Strongly Agreed	21	16.3	16.3	100.0
	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.44 reveals that 21 respondents representing 16.3% strongly agreed that the government measures influenced ICT awareness in Ahoada East local government area, 54 and 29 of the respondents representing 41.9 and 22.5% agreed and undecided respectively while 16 and 9

respondents representing 12.4% and 7.6% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that government's measures put in place through establishment of different ICT resources centers and NITDA has influenced people awareness about ICT and role it plays in creating economic opportunities for the populace in the area.

Table 5.45: The rural information technology centers (RITC) established by NITDA is effective

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	9t	7.0	7.0	7.0
	Disagreed	6	4.7	4.7	11.6
	Agreed	57	44.2	44.2	55.8
	Strongly Agreed	57	44.2	44.2	100.0
	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.45 reveals that 57 of the respondents each representing 44.2% strongly agreed and agreed that that the rural information technology centers (RITC) established by NITDA is effective in Ikwerre local government area while 6 and 9 respondents representing 4.7% and 7% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that the rural information technology centers (RITC) which is one of the ICT resources centers established by government is effective in enabling the rural dwellers to access ICT facilities in improving their creative abilities so that they can be able to be productive through ICT and reduced the level of unemployment in the area.

Table 5. 46: Government provides rural information technology centers (RITC) in Ikwerre local government areas of Rivers State

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	9	7.0	7.0	7.0
	Disagreed	9	7.0	7.0	14.0
	Undecided	3	2.3	2.3	16.3
	Agreed	44	34.1	34.1	50.4
	Strongly Agreed	64	49.6	49.6	100.0
	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.46 reveals that 64 respondents representing 45.8% strongly agreed that government provides rural information technology centers (RITC) in Ahoada East local government area, 44 and 3 of the respondents representing 41.7 and 2.1% agreed and undecided respectively while 6 and 19 respondents representing 4.2% and 6.3% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that the government provides rural information technology centers (RITC) as an ICT resources centers which is being managed by NITDA to see that the resources center is effective and performed it roles which is to create productive opportunities to the rural dwellers of the area.

Table 5.47: Government provides virtual libraries in tertiary institutions in Rivers State

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	9	7.0	7.0	7.0
	Disagreed	18	14.0	14.0	20.9
	Undecided	8	6.2	6.2	27.1
	Agreed	50	38.8	38.8	65.9
	Strongly Agreed	44	34.1	34.1	100.0
	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.47 reveals that 44 respondents representing 34% strongly agreed that government provides virtual libraries in tertiary institutions in Ikewerre local government area, 50 and 8 of the respondents representing 48.6 and 3.5% agreed and undecided respectively while 18 and 9 respondents representing 14% and 6.9% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that government provides virtual libraries which aids the students learning and creative development aim at introducing them to the use of ICT in tertiary institutions which meant to make them accustomed to ICT in their tender age so that they can make used of their creativity to create jobs for themselves and others when they graduated.

Table 5.48: The impact of NITDA capacity building for Nigerian youths in business process is felt by the indigenes of Ahoada east local government areas of Rivers State

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	17	13.2	13.2	13.2
	Disagreed	9	7.0	7.0	20.2
	Undecided	6	4.7	4.7	24.8
	Agreed	56	43.4	43.4	68.2
	Strongly Agreed	41	31.8	31.8	100.0
	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.48 reveals that 41 respondents representing 29.9% strongly agreed that the impact of NITDA capacity building for Nigerian youths in business process is felt by the indigenes of Ahaoda East local government area, 56 and 6 of the respondents representing 43.8 and 7.6% agreed and undecided respectively while 9 and 17 respondents each representing 4.9% and 13.9% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that the impact of NITDA capacity building for Nigerian youths in business process is felt by the indigenes of Ahoada local government area. This is because NITDA not only monitored and maintained all the ICT resources centers provided by government but also provides the avenues by which people make used of those resources for their cognitive development in ICT which aimed of showcasing their innovation and creativity in them that are meant to enhance job creation and improve the welfare of the people in the area.

Table 5.49: NITDA encourages ICT graduates through award of scholarship in Ikwerre local government area

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	9	7.0	7.0	7.0
	Disagreed	8	6.2	6.2	13.2
	Undecided	11	8.5	8.5	21.7
	Agreed	67	51.9	51.9	73.6
	Strongly Agreed	34	26.4	26.4	100.0
	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.49 reveals that 34 respondents representing 26.4% strongly agreed that NITDA encouraged ICT graduates through award of scholarship in Ahaoda local government area, 67 and 11 of the respondents representing 45.8 and 2.8% agreed and undecided respectively while 8 and 9 respondents each representing 5.6% and 11.1% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that NITDA encouraged ICT graduates through award of scholarship in order to ensure capacity building of Nigerian youths in business process with the aid of ICT in Ahoada local government area. This has encouraged the youth to geared themselves in the accessibility and usage of ICT so that they can excel in their endeavor and be productive in their community.

Table 5.50: Establishment of Virtual Libraries in Tertiary Institutions capable of enhancing ICT penetration required for job creation.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	9	7.0	7.0	7.0
	Disagreed	7	5.4	5.4	12.4
	Undecided	9	7.0	7.0	19.4
	Agreed	82	63.6	63.6	82.9
	Strongly Agreed	22	17.1	17.1	100.0
	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.16 reveals that 22 respondents representing 17.1% strongly agreed that establishments of Virtual Libraries in Tertiary Institutions capable of enhancing ICT penetration required for job creation in Ikwerre local government area, 82 and 9 of the respondents representing 63.6 and 5.6% agreed and undecided respectively while 6 and 10 respondents each representing 4.2% and 7% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that the establishments of Virtual Libraries in Tertiary Institutions is capable of enhancing ICT penetration among youth is meant for job creation in Ikwerre local government. This is because the Virtual Libraries in these Tertiary Institutions are to improve the ICT intuition of the students which they build on when the graduated and use it to create job for the people in the community they resides.

Table 5.51: Establishment of virtual libraries in tertiary institutions in rural communities enhances ICT penetration in the communities.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	9	7.0	7.0	7.0
	Disagreed	12	9.3	9.3	16.3
	Undecided	7	5.4	5.4	21.7
	Agreed	61	47.3	47.3	69.0
	Strongly Agreed	40	31.0	31.0	100.0
	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.51 reveals that 40 respondents representing 31% strongly agreed that establishment of virtual libraries in tertiary institutions in rural communities enhances ICT penetration in Ihaoda East local government area, 61 and 7 of the respondents representing 70% and 11.8% agreed and undecided respectively while 12 and 9 respondents representing 9.7% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that establishment of virtual libraries in tertiary institutions in rural communities enhances ICT penetration in the communities. This helped the students in their learning and creative development aim at introducing them to the use of ICT which meant to equip them for greater future in ICT and creativity to create jobs for themselves and others when they graduated.

Table 5.52: NITDA can achieve its objectives of bringing socio-economic development in rural areas by establishing network operating centers (NOC) from RITC project

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	9	7.0	7.0	7.0
	Disagreed	13	10.1	10.1	17.1
	Undecided	6	4.7	4.7	21.7
	Agreed	63	48.8	48.8	70.5
	Strongly Agreed	38	29.5	29.5	100.0
	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.52 reveals that 38 respondents representing 29.4% strongly agreed that NITDA can achieve its objectives of bringing socio-economic development in rural areas by establishing network operating centers (NOC) in Ahoada East local government area, 63 and 6 of the respondents representing 48.8 and 4.7% agreed and undecided respectively while 22 and 11 respondents representing 15.3% and 7.6% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that NITDA can achieve its objectives of bringing socio-economic development in rural areas by establishing network operating centers (NOC) as an ICT resources centers which is being managed by NITDA to see that the resources center is effective and performed it roles which is to create productive opportunities to the rural dwellers of the area.

Table 5. 53: The network operation centers (NOC) established in Ahoada East local government areas of Rivers State is meant to enhance people use of ICT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	9	7.0	7.0	7.0
	Disagreed	10	7.8	7.8	14.7
	Undecided	16	12.4	12.4	27.1
	Agreed	65	50.4	50.4	77.5
	Strongly Agreed	29	22.5	22.5	100.0
	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.53 reveals that 29 respondents representing 19.4% strongly agreed that the network operation centers (NOC) established in Ikwerre local government areas of Rivers State is meant to enhance people usage of ICT, 65 and 16 of the respondents representing 47.2% and 13.9.% agreed and undecided respectively while 16 and 12 respondents representing 11.1% and 8.3% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that he network operation centers (NOC) established in Ikwerre local government areas of Rivers State is meant to enhance people usage of ICT which is to create productive opportunities to the rural dwellers of the area.

Table 5.54: Establishment of campus wide area Network (WAN) in tertiary institutions is an effective instrument allowing rural dwellers to be used to ICT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	9	7.0	7.0	7.0
	Disagreed	7	5.4	5.4	12.4
	Undecided	3	2.3	2.3	14.7
	Agreed	59	45.7	45.7	60.5
	Strongly Agreed	51	39.5	39.5	100.0
	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.54 reveals that 51 respondents representing 39.5% strongly agreed that establishment of campus wide area Network (WAN) in tertiary institutions is an effective instrument allowing rural dwellers to be use to ICT in Ahoada East local government areas, 59 and 3 of the respondents representing 45.8% and 20.1% agreed and undecided respectively while 7 and 9 respondents representing 5.4% and 7% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that establishment of campus wide area Network (WAN) in tertiary institutions is an effective instrument allowing rural dwellers to be use to ICT which is to create productive opportunities to the students and rural dwellers of the area.

Table 5.55: Problems of illiteracy, government policy, inadequate electricity, poverty affect ICT penetration

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	9	7.0	7.0	7.0
	Disagreed	10	7.8	7.8	14.7
	Undecided	12	9.3	9.3	24.0
	Agreed	63	48.8	48.8	72.9
	Strongly Agreed	35	27.1	27.1	100.0
	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.55 reveals that 35 respondents representing 27.1% strongly agreed that problems of illiteracy, government policy, inadequate electricity, poverty affect ICT penetration in Ahaoda East local government areas, 63 and 12 of the respondents representing 48.8% and 9.3% agreed and undecided respectively while 10 and 9 respondents representing 7.6% and 17.4% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that problems of illiteracy, government policy, inadequate electricity, poverty affect ICT penetration. Owing to this, ICT resources centers are needed to reduce the level of illiteracy and poverty which is meant to improve the welfare of rural dwellers of the area.

Table 5.56: ICT has been accepted by rural people

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	16	12.4	12.4	12.4
	Disagreed	11	8.5	8.5	20.9
	Undecided	17	13.2	13.2	34.1
	Agreed	48	37.2	37.2	71.3
	Strongly Agreed	37	28.7	28.7	100.0
	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.56 reveals that 37 respondents representing 27.1% strongly agreed that ICT has been accepted by rural people in Ahoada East local government areas, 48 and 17 of the respondents representing 37.3% and 1.4% agreed and undecided respectively while 11 and 16 respondents representing 6.3% and 6.9% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that establishment of campus wide area Network (WAN), RITC and other resources centres has influenced rural dwellers accepted and used ICT which created productive opportunities to the dwellers of the area.

Table 5.57: Indigenes of selected local governments benefited from NITDA scholarship scheme.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	9	7.0	7.0	7.0
	Disagreed	7	5.4	5.4	12.4
	Undecided	21	16.3	16.3	28.7
	Agreed	64	49.6	49.6	78.3
	Strongly Agreed	28	21.7	21.7	100.0
	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.57 reveals that 28 respondents representing 21.7% strongly agreed that indigenes of selected local governments benefited from NITDA scholarship scheme, 64 and 21 of the respondents representing 49.6% and 16.3% agreed and undecided respectively while 9 and 10 respondents representing 6.3% and 6.9% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that indigenes of selected local governments benefited from NITDA scholarship schemed being given to enable the dedicated individuals in ICT usage to further their education and this will go a long way to encourage the people to put in their best in ICT so that the welfare of the rural dwellers of the area will improve.

Table 5.58: ICT acceptance enhanced socio-economic growth, especially in job creation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	13	10.1	10.1	10.1
	Disagreed	10	7.8	7.8	17.8
	Undecided	6	4.7	4.7	22.5
	Agreed	63	48.8	48.8	71.3
	Strongly Agreed	37	28.7	28.7	100.0
	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.58 reveals that 37 respondents representing 23.6% strongly agreed that ICT acceptance enhanced socio-economic growth especially in the area of job creation, 63 and 6 of the respondents representing 47.2% and 10.4% agreed and undecided respectively while 10 and 13 respondents representing 10.4% and 8.3% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that ICT acceptance through the usage of all ICT resources centers established in the local government has enhanced socio-economic growth, especially in job creation in the area.

Table 5.59: Establishment of campus wide area Network (WAN) in tertiary institutions is an effective instrument in taking awareness to the door steps of Nigerians especially the rural dwellers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	11	8.5	8.5	8.5
	Disagreed	6	4.7	4.7	13.2
	Agreed	76	58.9	58.9	72.1
	Strongly Agreed	36	27.9	27.9	100.0
	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.59 reveals that 36 respondents representing 20.8% strongly agreed that establishment of campus wide area Network (WAN) in tertiary institutions is an effective instrument in taking awareness to the door steps of Nigerians especially the rural dwellers, 76 and 6 of the respondents representing 70% and 11.8% agreed and undecided respectively while 11 and 19 respondents representing 9.7% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that establishment of campus wide area Network (WAN) in tertiary institutions is an effective instrument in taking awareness to the door steps of Nigerians especially the rural dweller. This helped the students in their learning and creative development aim at introducing them to the use of ICT which meant to equip them for greater future in ICT and creativity to create jobs for themselves and others when they graduated.

Table 5.60: WAN help in extending ICT awareness to the rural dwellers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	11	8.5	8.5	8.5
	Disagreed	26	20.2	20.2	28.7
	Undecided	17	13.2	13.2	41.9
	Agreed	60	46.5	46.5	88.4
	Strongly Agreed	15	11.6	11.6	100.0
	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.60 reveals that 15 respondents representing 10.4% strongly agreed that establishment of campus wide area Network (WAN) help in extending ICT awareness to the rural dwellers, 60 and 17 of the respondents representing 29.2% and 31.3% agreed and undecided respectively

while 26 and 11 respondents representing 22.2% and 9.7% disagreed and strongly disagreed respectively. Thus, majority of the respondents are undecided whether establishment of wide area Network (WAN) help in extending ICT awareness to the rural dwellers. This is due to the fact that there are many procedures needed before one can make use of the WAN facilities and this may discourage the people in using the facilities.

Table 5.61: Government has established software testing quality assurance and capacity building laboratory in Ahoada east local government areas of Rivers State so as to improve the level of awareness of the populace on ICT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	10	7.8	7.8	7.8
	Disagreed	6	4.7	4.7	12.4
	Undecided	6	4.7	4.7	17.1
	Agreed	76	58.9	58.9	76.0
	Strongly Agreed	31	24.0	24.0	100.0
	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.61 reveals that 31 respondents representing 24% strongly agreed that establishment of software testing quality assurance and capacity building laboratory in Ahoada east local government areas of Rivers State has improved the level of awareness of the populace on ICT, 76 and 6 of the respondents representing 58.9% and 4.7% agreed and undecided respectively while 6 and 10 respondents representing 4.7% and 9.7% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that establishment of software testing

quality assurance and capacity building laboratory in Ahoada east local government areas of Rivers State has improved the level of awareness of the populace on ICT. This helped the rural dwellers in their learning and creative development aim at introducing them to the use of ICT which meant to equip them for greater future in ICT and creativity to create jobs for themselves and others.

Table 5.62: Established of software testing quality assurance and capacity building laboratory in Ahoada east local government areas of Rivers State has enhanced efficiency in internet services, especially in the rural areas

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	14	10.9	10.9	10.9
	Disagreed	21	16.3	16.3	27.1
	Undecided	22	17.1	17.1	44.2
	Agreed	44	34.1	34.1	78.3
	Strongly Agreed	28	21.7	21.7	100.0
	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.62 reveals that 28 respondents representing 16% strongly agreed that establishment of software testing quality assurance and capacity building laboratory in Ahoada east local government areas of Rivers State has enhanced efficiency in internet services in the areas, 44 and 22 of the respondents representing 34.1% and 17.1% agreed and undecided respectively while 21 and 14 respondents representing 25% and 9.7% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that establishment of software testing quality assurance and capacity building laboratory in Ahoada east local government areas of Rivers State enhanced

the efficiency in internet services. This helped the rural dwellers in their learning and creative development through the uses of internet to source for information that would aid their knowledge and made them productive in the areas.

Table 5.63: Government measures influenced ICT awareness in your area

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	13	10.1	10.1	10.1
	Disagreed	6	4.7	4.7	14.7
	Undecided	9	7.0	7.0	21.7
	Agreed	62	48.1	48.1	69.8
	Strongly Agreed	39	30.2	30.2	100.0
	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.63 reveals that 39 respondents representing 30.2% strongly agreed that government measures influenced ICT awareness in the areas, 62 and 9 of the respondents representing 41.7% and 0.3% agreed and undecided respectively while 6 and 13 respondents representing 4.7% and 10.1% disagreed and strongly disagreed respectively. Thus, majority of the respondents strongly agreed that government measures through NITDA policy implementations and investment on ICT facilities and infrastructure influenced ICT awareness in Ahoada east local government areas of Rivers State.

Table 5.64: The awareness created is enough to enhance effective ICT penetration

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	17	13.2	13.2	13.2
	Disagreed	20	15.5	15.5	28.7
	Undecided	38	29.5	29.5	58.1
	Agreed	47	36.4	36.4	94.6
	Strongly Agreed	7	5.4	5.4	100.0
	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.64 reveals that 7 respondents representing 5.4% strongly agreed that the awareness created by NITDA is enough to enhance effective ICT penetration, 47 and 38 of the respondents representing 34% and 29.1% agreed and undecided respectively while 20 and 17 respondents representing 15.6% and 13.2% disagreed and strongly disagreed respectively. Thus, majority of the respondents strongly agreed that the awareness created by NITDA is enough to enhance effective ICT penetration in Ahoada east local government areas of Rivers State.

Table 5.65: ICT has the potential for job creation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	16	12.4	12.4	12.4
	Disagreed	21	16.3	16.3	28.7
	Undecided	11	8.5	8.5	37.2
	Agreed	54	41.9	41.9	79.1
	Strongly Agreed	27	20.9	20.9	100.0
	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.65 reveals that 27 respondents representing 20.9% strongly agreed that ICT has the potential for job creation, 54 and 11 of the respondents representing 41.9% and 8.5% agreed and undecided respectively while 21 and 16 respondents representing 9% and 7.6% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that ICT has the potential for job creation through the different NITDA programs, ICT resources centers and RITC which are meant to help people in the communities to be aware and built themselves on the usage of the ICT knowledge to improve their areas and provide productive opportunities for the populace.

Table 5.66: ICT creates jobs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	9	7.0	7.0	7.0
	Disagreed	6	4.7	4.7	11.6
	Agreed	77	59.7	59.7	71.3
	Strongly Agreed	37	28.7	28.7	100.0
	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.66 reveals that 37 respondents representing 22.9% strongly agreed that ICT create jobs, 77 of the respondents representing 52.1% agreed while 6 and 9 respondents representing 7.6% and 9.6% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that ICT create jobs through various NITDA programs, ICT resources centers and RITC which are meant to help people in the communities to be aware and built themselves on the

usage of the ICT knowledge to improve their areas and provide productive opportunities for the populace.

Table 5.67: ICT has created jobs in your local government

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	10	7.8	7.8	7.8
	Disagreed	6	4.7	4.7	12.4
	Agreed	75	58.1	58.1	70.5
	Strongly Agreed	38	29.5	29.5	100.0
	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.67 reveals that 38 respondents representing 29.5% strongly agreed that ICT has created jobs in your local government, 75 of the respondents representing 62.5% agreed while 6 and 10 respondents representing 6.3% and 7.8% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that ICT has created jobs for those that worked with NITDA programs, resources centers and those ones that worked in private business/companies on ICT which are meant to help people in the communities to improve their areas and provide productive opportunities for the populace.

Table 5.68: Going by the situation before the advent of ICT, the present situation showed reduction in unemployment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	9	7.0	7.0	7.0
	Disagreed	6	4.7	4.7	11.6
	Undecided	3	2.3	2.3	14.0

	Agreed	61	47.3	47.3	61.2
	Strongly Agreed	50	38.8	38.8	100.0
	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.68 reveals that 50 respondents representing 38.5% strongly agreed that the situation before the advent of ICT and the present situation showed reduction in unemployment, 61 and 3 of the respondents representing 51.4% and 4.9% agreed and undecided respectively while 16 and 9 respondents representing 8.3% and 6.9% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that the present situation of ICT showed that there is reduction in unemployment in the local government areas and this can be attributed to the fact that the various NITDA programs, ICT resources centers and RITC which are meant to help people in the communities to be aware and built themselves on the usage of the ICT knowledge has realy enhanced job creation and reduced unemployment to certain extent in the areas.

Table 5.69: The local governments recorded reduction in unemployment since the advent of ICT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	9	7.0	7.0	7.0
	Disagreed	6	4.7	4.7	11.6
	Undecided	6	4.7	4.7	16.3
	Agreed	56	43.4	43.4	59.7
	Strongly Agreed	52	40.3	40.3	100.0
	Total	129	100.0	100.0	

Source: Field Survey, 2018.

Table 5.69 reveals that 52 respondents representing 40.3% strongly agreed that the local governments recorded reduction in unemployment since the advent of ICT, 56 and 6 of the respondents representing 53.5% and 4.9% agreed and undecided respectively while 9 of the respondents each representing 8.3% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that the local governments recorded reduction in unemployment since the advent of ICT. Owing to this, ICT create jobs through various NITDA programs, ICT resources centers and RITC which are meant to help people in the communities to be aware and built themselves on the usage of the ICT knowledge to improve their areas and provide productive opportunities for the populace.

5.2.3 Analysis of Data from Eleme

Table 5.70. Gender of Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	81	57.4	57.4	57.4
	Female	60	42.6	42.6	100.0
	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.2 shows that 81 respondents representing 67.4% are male while 60 respondents representing 42.6% are female. In this sense, majority of the respondents are male which signify that they are more than their female counterpart in the Eleme community.

Table 5.71: Educational Status

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	OND	32	22.7	22.7	22.7
	NCE	50	35.5	35.5	58.2
	HND	25	17.7	17.7	75.9
	BSC	25	17.7	17.7	93.6
	BA	4	2.8	2.8	96.5
	MSC and above	5	3.5	3.5	100.0

	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.71 reveals that 32 respondents representing 22.5% possessed OND, 50(35.5%) of the respondents were NCE holders, 25 of the respondents each representing 17.7% were HND and Bsc holders, while 4 and 5 respondents representing 2.8% and 3.5% have BA and MSc. respectively. Thus, all the respondents are of different level of education qualifications which enabled them to make used of ICT resources centers and other facilities to enhance their innovative mentality that would instigate employment opportunities for the people in the area.

Table 5.72: Years of Experience

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	6-10 years	51	36.2	36.2	36.2
	11-15 years	50	35.5	35.5	71.6
	16 years and above	40	28.4	28.4	100.0
	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.72 indicates that 51 of the respondent representing 36.2% have 6-10 years' experience in ICT while 50 of the respondents representing 35.5% have 11-15 years' experience in ICT and 40 (28.4%) of the respondents have 16 years and above experience in ICT. Owing to this, the respondents have experience in ICT more than 6 years which put them in best position to give more information on the subject matter.

Table 5.73: Age of the Respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	61 years and above	7	5.0	5.0	5.0
	41-60 years	43	30.5	30.5	35.5

	31-40 years	91	64.5	64.5	100.0
	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.73 shows that 7 of the respondents representing 5% is of age bracket of 61 years and above, 43 of the respondents representing 30.5% are of age bracket of 41-60 years while 91 respondents representing 64.5% are within the age bracket of 31-40 years. Thus, all the respondents are matured which put them in best position to give more information on the subject matter.

Table 5.74: Government's set objective of bringing socio-economic development to Rivers state through ICT (NITDA) is achievable.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	21	14.9	14.9	14.9
	Disagreed	9	6.4	6.4	21.3
	Undecided	2	1.4	1.4	22.7
	Agreed	57	40.4	40.4	63.1
	Strongly Agreed	52	36.9	36.9	100.0
	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.74 reveals that 34 respondents representing 23.6% strongly agreed that government's set objective of bringing socio-economic development to Rivers state through ICT (NITDA) is achievable, 84 and 8 of the respondents representing 58.3% and 5.6 agreed and undecided respectively while 7 and 11 respondents representing 4.9% and 7.6% disagreed and strongly disagreed respectively. Meanwhile majority of the respondents agreed that government's mandate of bringing socio-economic development to Rivers state through ICT is achievable.

Table 5.75: Government has done enough to encourage job creation through ICT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	20	14.2	14.2	14.2
	Disagreed	14	9.9	9.9	24.1
	Undecided	7	5.0	5.0	29.1
	Agreed	64	45.4	45.4	74.5
	Strongly Agreed	36	25.5	25.5	100.0
	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.75 reveals that 39 respondents representing 27.1% strongly agreed that government's has done enough to encourage job creation through ICT, 83 and 6 of the respondents representing 4.7 and 4.2% agreed and undecided respectively while 7 and 9 respondents representing 4.9% and 7.6% disagreed and strongly disagreed respectively. Meanwhile majority of the respondents agreed that government's has done enough to encourage job creation through ICT mandate of bringing socio-economic development to Rivers through ICT resources centers is achievable.

Table 5.76: NITDA training on ICT enhances job creation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	23	16.3	16.3	16.3
	Disagreed	25	17.7	17.7	34.0
	Undecided	36	25.5	25.5	59.6
	Agreed	43	30.5	30.5	90.1

	Strongly Agreed	14	9.9	9.9	100.0
	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.76 reveals that 41 respondents representing 28.5% strongly agreed that NITDA training on ICT has done enough to encourage job creation through ICT, 77 and 10 of the respondents representing 53.5 and 6.9% agreed and undecided respectively while 7 and 9 respondents representing 4.9% and 7.6% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that government's has done enough through establishment of different ICT resources centers and infrastructure to encourage job creation through ICT and this has instigated socio-economic development across the Ikwerre local government area in Rivers State.

Table 5.77: There are measures taken by the government to create jobs through ICT.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	19	13.5	13.5	13.5
	Disagreed	33	23.4	23.4	36.9
	Undecided	34	24.1	24.1	66.0
	Agreed	41	29.1	29.1	90.1
	Strongly Agreed	14	9.9	9.9	100.0
	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.77 reveals that 46 respondents representing 31.9% strongly agreed that government has taken some measures to create jobs through ICT, 76 and 3 of the respondents representing 52.8 and 2.1% agreed and undecided respectively while 10 and 9 respondents representing 6.9% and 6.3% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that government's has taken some measures through establishment of different ICT resources centers and NITDA as an institution to oversee the positive enablement environment for the

usage of technology to enhance innovation which meant to create productive opportunities for the people in the area.

Table 5.78: The measures influenced ICT awareness in your area

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	20	14.2	14.2	14.2
	Disagreed	38	27.0	27.0	41.1
	Undecided	19	13.5	13.5	54.6
	Agreed	47	33.3	33.3	87.9
	Strongly Agreed	17	12.1	12.1	100.0
	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.78 reveals that 49 respondents representing 34% strongly agreed that the government measures influenced ICT awareness in Ikwerre local government area, 73 and 3 of the respondents representing 50.7 and 2.1% agreed and undecided respectively while 8 and 11 respondents representing 5.6% and 7.6% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that government's measures put in place through establishment of different ICT resources centers and NITDA has influenced people awareness about ICT and role it plays in creating economic opportunities for the populace in the area.

Table 5.79: . NITDA intervention programme has wider coverage in Rivers state

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	21	14.9	14.9	14.9
	Disagreed	13	9.2	9.2	24.1
	Undecided	5	3.5	3.5	27.7
	Agreed	49	34.8	34.8	62.4
	Strongly Agreed	53	37.6	37.6	100.0
	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.79 reveals that 38 respondents representing 26.4% strongly disagreed that NITDA intervention programme has wider coverage in Rivers State, 75 and 4 of the respondents representing 52.1 and 2.8% agreed and undecided respectively while 15 and 12 respondents representing 10.4% and 8.3% disagreed and strongly disagreed respectively. Thus, majority of the respondents disagreed that NITDA intervention programme has wider coverage in Rivers state.

Table 5.80: Government provides rural information technology centers (RITC) in Ikewerre local government areas on Rivers State

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	9	6.3	6.3	6.3
	Disagreed	6	4.2	4.2	10.4
	Undecided	3	2.1	2.1	12.5
	Agreed	60	41.7	41.7	54.2
	Strongly Agreed	66	45.8	45.8	100.0
	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.80 reveals that 66 respondents representing 45.8% strongly agreed that government provides rural information technology centers (RITC) in Ikwerre local government area, 60 and 3 of the respondents representing 41.7 and 2.1% agreed and undecided respectively while 6 and 19 respondents representing 4.2% and 6.3% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that the government provides rural information technology centers (RITC) as an ICT resources centers which is being managed by NITDA to see that the resources center is effective and performed it roles which is to create productive opportunities to the rural dwellers of the area.

Table 5.81: Government provides virtual libraries in tertiary institutions in Rivers State

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	10	6.9	6.9	6.9
	Disagreed	10	6.9	6.9	13.9
	Undecided	5	3.5	3.5	17.4
	Agreed	70	48.6	48.6	66.0
	Strongly Agreed	49	34.0	34.0	100.0
	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.81 reveals that 49 respondents representing 34% strongly agreed that government provides virtual libraries in tertiary institutions in Ikwerre local government area, 70 and 5 of the respondents representing 48.6 and 3.5% agreed and undecided respectively while 10 respondents each representing 6.9% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that government provides virtual libraries which aids the students learning and creative development aim at introducing them to the use of ICT in tertiary institutions which meant to make them accustomed to ICT in their tender age so that they can make used of their creativity to create jobs for themselves and others when they graduated.

Table 5.82: The impact of NITDA capacity building for Nigerian youths in business process is felt by the indigenes of Ikwerre, Ahoada east and Eleme local government areas of Rivers State

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	20	13.9	13.9	13.9
	Disagreed	7	4.9	4.9	18.8
	Undecided	11	7.6	7.6	26.4
	Agreed	63	43.8	43.8	70.1
	Strongly Agreed	43	29.9	29.9	100.0
	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.82 reveals that 43 respondents representing 29.9% strongly agreed that the impact of NITDA capacity building for Nigerian youths in business process is felt by the indigenes of Ikwerre local government area, 63 and 11 of the respondents representing 43.8 and 7.6% agreed and undecided respectively while 7 and 20 respondents each representing 4.9% and 13.9% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that the impact of NITDA capacity building for Nigerian youths in business process is felt by the indigenes of Ikwerre local government area. This is because NITDA not only monitored and maintained all the ICT resources centers provided by government but also provides the avenues by which people make used of those resources for their cognitive development in ICT which is aimed at showcasing their innovation and creativity in them that are meant to enhance job creation and improve the welfare of the people in the area.

Table 5.83: NITDA encouraged ICT youths through award of scholarship in Ikwerre local government area

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	16	11.1	11.1	11.1
	Disagreed	8	5.6	5.6	16.7
	Undecided	4	2.8	2.8	19.4
	Agreed	66	45.8	45.8	65.3
	Strongly Agreed	50	34.7	34.7	100.0
	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.83 reveals that 50 respondents representing 34.7% strongly agreed that NITDA encouraged ICT youths through award of scholarship in Ikwerre local government area, 66 and 4 of the respondents representing 45.8 and 2.8% agreed and undecided respectively while 8 and 16 respondents each representing 5.6% and 11.1% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that NITDA encouraged ICT youths through award of scholarship in order to ensure capacity building of Nigerian youths in business process with the aid of ICT in Ikwerre local government area. This has encouraged the youths to embrace ICT so that they can excel in their endeavors and be productive in their community.

Table 5.84: Establishment of Virtual Libraries in Tertiary Institutions by NITDA is capable of enhancing ICT penetration required for job creation.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	10	6.9	6.9	6.9
	Disagreed	6	4.2	4.2	11.1
	Undecided	8	5.6	5.6	16.7
	Agreed	66	45.8	45.8	62.5
	Strongly Agreed	54	37.5	37.5	100.0
	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.84 reveals that 54 respondents representing 37.5% strongly agreed that establishments of Virtual Libraries in Tertiary Institutions capable of enhancing ICT penetration required for job creation in Ikwerre local government area, 66 and 8 of the respondents representing 45.8 and 5.6% agreed and undecided respectively while 6 and 10 respondents each representing 4.2% and 6.9% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that the establishments of Virtual Libraries in Tertiary Institutions is capable of enhancing ICT penetration among youth is meant for job creation in Ikwerre local government. This is because the Virtual Libraries in these Tertiary Institutions are to improve the ICT intuition of the students which they build on when the graduated and use it to create job for the people in the community they resides.

Table 5.85: Establishment of virtual libraries in tertiary institutions in rural communities enhances ICT penetration in the communities.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	22	15.6	15.6	15.6
	Disagreed	12	8.5	8.5	24.1
	Undecided	6	4.3	4.3	28.4
	Agreed	48	34.0	34.0	62.4
	Strongly Agreed	53	37.6	37.6	100.0
	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.85 reveals that 30 respondents representing 20.8% strongly agreed that establishment of virtual libraries in tertiary institutions in rural communities enhances ICT penetration in Ikwerre local government area, 72 and 17 of the respondents representing 70% and 11.8% agreed and undecided respectively while 14 and 11 respondents representing 9.7% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that establishment of virtual libraries in tertiary institutions in rural communities enhances ICT penetration in the communities. This helped the students in their learning and creative development aim at introducing them to the use of ICT which meant to equip them for greater future in ICT and creativity to create jobs for themselves and others when they graduated.

Table 5.86: NITDA can achieve its objectives of bringing socio-economic development in rural areas by establishing network operating centers (NOC) for RITC project

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	23	16.3	16.3	16.3
	Disagreed	18	12.8	12.8	29.1
	Undecided	11	7.8	7.8	36.9
	Agreed	51	36.2	36.2	73.0
	Strongly Agreed	38	27.0	27.0	100.0
	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.86 reveals that 23 respondents representing 19.4% strongly agreed that NITDA can achieve its objectives of bringing socio-economic development in rural areas by establishing network operating centers (NOC) in Ikwerre local government area, 70 and 13 of the respondents representing 48.6 and 9% agreed and undecided respectively while 22 and 11 respondents representing 15.3% and 7.6% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that NITDA can achieve its objectives of bringing socio-economic development in rural areas by establishing network operating centers (NOC) as an ICT resources centers which is being managed by NITDA to see that the resources center is effective and performed it roles which is to create productive opportunities to the rural dwellers of the area.

Table 5.87: The network operation centers (NOC) established by NITDA in Eleme local government areas of Rivers State is meant to enhance people usage of ICT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	12	8.3	8.3	8.3
	Disagreed	16	11.1	11.1	19.4
	Undecided	20	13.9	13.9	33.3
	Agreed	68	47.2	47.2	80.6
	Strongly Agreed	28	19.4	19.4	100.0
	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.87 reveals that 28 respondents representing 19.4% strongly agreed that the network operation centers (NOC) established in Ikwerre local government areas of Rivers State is meant to enhance people usage of ICT, 68 and 20 of the respondents representing 47.2% and 13.9.% agreed and undecided respectively while 16 and 12 respondents representing 11.1% and 8.3% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that he network operation centers (NOC) established in Ikwerre local government areas of Rivers State is meant to enhance people usage of ICT which is to create productive opportunities to the rural dwellers of the area.

Table 5.88: Establishment of campus wide area Network (WAN) in tertiary institutions by NITDA is an effective instrument in allowing rural dwellers to be used to ICT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	11	7.6	7.6	7.6
	Disagreed	14	9.7	9.7	17.4
	Undecided	29	20.1	20.1	37.5
	Agreed	66	45.8	45.8	83.3
	Strongly Agreed	24	16.7	16.7	100.0
	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.88 reveals that 24 respondents representing 16.7% strongly agreed that establishment of campus wide area Network (WAN) in tertiary institutions is an effective instrument allowing rural dwellers to be use to ICT in Ikwerre local government areas, 66 and 29 of the respondents representing 45.8% and 20.1% agreed and undecided respectively while 14 and 11 respondents representing 11.1% and 8.3% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that establishment of campus wide area Network (WAN) in tertiary institutions is an effective instrument allowing rural dwellers to be use to ICT which is to create productive opportunities to the students and rural dwellers of the area.

Table 5.89: Problems of illiteracy, government policy, inadequate electricity, poverty affect ICT penetration

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	25	17.4	17.4	17.4
	Disagreed	11	7.6	7.6	25.0
	Undecided	11	7.6	7.6	32.6
	Agreed	76	52.8	52.8	85.4
	Strongly Agreed	21	14.6	14.6	100.0
	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.89 reveals that 21 respondents representing 14.6% strongly agreed that problems of illiteracy, government policy, inadequate electricity, poverty affect ICT penetration in Ikwerre local government areas, 76 and 11 of the respondents representing 52.8% and 7.6% agreed and undecided respectively while 11 and 25 respondents representing 7.6% and 17.4% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that problems of illiteracy, government policy, inadequate electricity, poverty affect ICT penetration. Owing to this, ICT resources centers are needed to reduce the level of illiteracy and poverty which is meant to improve the welfare of rural dwellers of the area.

Table 5.90: ICT has been accepted by rural people

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	10	6.9	6.9	6.9
	Disagreed	9	6.3	6.3	13.2
	Undecided	2	1.4	1.4	14.6
	Agreed	84	58.3	58.3	72.9
	Strongly Agreed	39	27.1	27.1	100.0
	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.90 reveals that 39 respondents representing 27.1% strongly agreed that ICT has been accepted by rural people in Ikwerre local government areas, 84 and 2 of the respondents representing 58.3% and 1.4% agreed and undecided respectively while 9 and 10 respondents representing 6.3% and 6.9% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that establishment of campus wide area Network (WAN), RITC and other resources centers has influenced rural dwellers accepted and used ICT which created productive opportunities to the dwellers of the area.

TABLE 5.91: Indigenes of the selected local governments benefited from NITDA scholarship scheme.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	11	7.6	7.6	7.6
	Disagreed	11	7.6	7.6	15.3
	Undecided	13	9.0	9.0	24.3
	Agreed	77	53.5	53.5	77.8
	Strongly Agreed	32	22.2	22.2	100.0
	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.91 reveals that 32 respondents representing 22.2% strongly agreed that indigenes of selected local governments benefited from NITDA scholarship scheme, 77 and 13 of the respondents representing 53.5% and 9% agreed and undecided respectively while 9 and 10 respondents representing 6.3% and 6.9% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that indigenes of selected local governments benefited from NITDA scholarship schemed being given to enable the dedicated individuals in ICT usage to further their education and this go a long way to implored people to put in their best in ICT so that the welfare of the rural dwellers of the area.

Table 5.92: ICT acceptance enhanced socio-economic growth, especially in job creation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	12	8.3	8.3	8.3
	Disagreed	15	10.4	10.4	18.8
	Undecided	15	10.4	10.4	29.2
	Agreed	68	47.2	47.2	76.4
	Strongly Agreed	34	23.6	23.6	100.0
	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.92 reveals that 34 respondents representing 23.6% strongly agreed that ICT acceptance enhanced socio-economic growth especially in the area of job creation, 68 and 15 of the respondents representing 47.2% and 10.4% agreed and undecided respectively while 15 and

12respondents representing 10.4% and 8.3% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that ICT acceptance through the usage of all ICT resources centers established in the local government areas enhanced socio-economic growth, especially in job creation in the area.

Table 5.93: Establishment of campus wide area Network (WAN) in tertiary institutions is an effective instrument in taking awareness to the door steps of Nigerians especially the rural dwellers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	19	13.2	13.2	13.2
	Disagreed	20	13.9	13.9	27.1
	Undecided	11	7.6	7.6	34.7
	Agreed	60	41.7	41.7	76.4
	Strongly Agreed	32	23.6	23.6	100.0
	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.93 reveals that 34 respondents representing 20.8% strongly agreed that establishment of campus wide area Network (WAN) in tertiary institutions is an effective instrument in taking awareness to the door steps of Nigerians especially the rural dwellers, 60 and 11 of the respondents representing 70% and 11.8% agreed and undecided respectively while 20 and 19 respondents representing 9.7% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that establishment of campus wide area Network (WAN) in tertiary institutions is an effective instrument in taking awareness to the door steps of Nigerians

especially the rural dweller. This helped the students in their learning and creative development aim at introducing them to the use of ICT which meant to equip them for greater future in ICT and creativity to create jobs for themselves and others when they graduated.

Table 5.94: WAN help in extending ICT awareness to the rural dweller

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	10	6.9	6.9	6.9
	Disagreed	32	22.2	22.2	29.2
	Undecided	45	31.3	31.3	60.4
	Agreed	42	29.2	29.2	89.6
	Strongly Agreed	15	10.4	10.4	100.0
	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.94 reveals that 15 respondents representing 10.4% strongly agreed that establishment of campus wide area Network (WAN) help in extending ICT awareness to the rural dwellers, 42 and 45 of the respondents representing 29.2% and 31.3% agreed and undecided respectively while 32 and 10 respondents representing 22.2% and 9.7% disagreed and strongly disagreed respectively. Thus, majority of the respondents are undecided whether establishment of wide area Network (WAN) help in extending ICT awareness to the rural dwellers. This is due to the fact that there are many procedures needed before one can make use of the WAN facilities and this may discourage the people in using the facilities.

Table 5.95: NITDA intervention programme has provided the skills necessary for youths employment in Rivers state.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	10	6.9	6.9	6.9
	Disagreed	36	25.0	25.0	31.9
	Undecided	33	24.3	24.3	56.3
	Agreed	44	30.6	30.6	86.8
	Strongly Agreed	19	13.2	13.2	100.0
	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.95 reveals that 19 respondents representing 13.2% strongly agreed that NITDA intervention programme in Ikwerre, Eleme and Ahoada east local government areas of Rivers State has provided the youths with the necessary skills for employment, 44 and 35 of the respondents representing 30.6% and 24.3% agreed and undecided respectively while 36 and 10 respondents representing 25% and 9.7% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that NITDA intervention programme in Ikwerre, Eleme and Ahoada east local government areas of Rivers State has provided the youths with the skills for employment in ICT. This helped the rural dwellers in their learning and creative development aim at introducing them to the use of ICT which meant to equip them for greater future in ICT and creativity to create jobs for themselves and others.

Table 5.96: Established of software testing quality assurance and capacity building laboratory established by NITDA in Ikwerre, Eleme and Ahoada east local government areas of Rivers State has enhance efficiency in internet services, especially in the rural areas

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	12	8.3	8.3	8.3
	Disagreed	21	14.6	14.6	22.9
	Undecided	30	22.9	22.9	45.8
	Agreed	55	38.2	38.2	84.0
	Strongly Agreed	23	16.0	16.0	100.0
	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.96 reveals that 23 respondents representing 16% strongly agreed that establishment of software testing quality assurance and capacity building laboratory in Ikwerre, Eleme and Ahoada east local government areas of Rivers State has enhanced efficiency in internet services in the areas, 55 and 33 of the respondents representing 30.6% and 24.3% agreed and undecided respectively while 21 and 12 respondents representing 25% and 9.7% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that establishment of software testing quality assurance and capacity building laboratory in Ikwerre, Eleme and Ahoada east local government areas of Rivers State enhanced the efficiency in internet services. This helped the rural dwellers in their learning and creative development through the uses of internet to source for information that would aid their knowledge and made them productive in the areas.

Table 5.97: Government measures influenced ICT awareness in your area

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	9	6.3	6.3	6.3
	Disagreed	9	6.3	6.3	12.5
	Undecided	1	.7	.7	13.2
	Agreed	60	41.7	41.7	54.9
	Strongly Agreed	62	45.1	45.1	100.0
	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.97 reveals that 65 respondents representing 45.1% strongly agreed that government measures influenced ICT awareness in the areas, 60 and 2 of the respondents representing 41.7% and 0.3% agreed and undecided respectively while 21 and 12 respondents representing 25% and 9.7% disagreed and strongly disagreed respectively. Thus, majority of the respondents strongly agreed that government measures through NITDA policy implementations and investment on ICT facilities and infrastructure influenced ICT awareness in Ikwerre, Eleme and Ahoada east local government areas of Rivers State.

Table 5.98: The awareness created is enough to enhance effective ICT penetration

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	10	6.9	6.9	6.9
	Disagreed	8	5.6	5.6	12.5
	Undecided	3	2.1	2.1	14.6
	Agreed	49	34.0	34.0	48.6
	Strongly Agreed	71	51.4	51.4	100.0

	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.98 reveals that 74 respondents representing 51.4% strongly agreed that the awareness created by NITDA is enough to enhance effective ICT penetration, 49 and 3 of the respondents representing 34% and 2.1% agreed and undecided respectively while 8 and 10 respondents representing 5.6% and 9.6% disagreed and strongly disagreed respectively. Thus, majority of the respondents strongly agreed that the awareness created by NITDA is enough to enhance effective ICT penetration in Eleme local government areas of Rivers State.

Table 5.99: ICT has the potential for job creation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	11	7.6	7.6	7.6
	Disagreed	10	9.0	9.0	16.7
	Undecided	5	3.5	3.5	20.1
	Agreed	67	46.5	46.5	66.7
	Strongly Agreed	48	33.3	33.3	100.0
	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.99 reveals that 48 respondents representing 33.3% strongly agreed that ICT has the potential for job creation, 67 and 5 of the respondents representing 46.5% and 3.5% agreed and undecided respectively while 13 and 11 respondents representing 9% and 7.6% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that ICT has the potential for job creation through the different NITDA programs, ICT resources centers and RITC which are meant to help people in the communities to be aware and built themselves on

the usage of the ICT knowledge to improve their areas and provide productive opportunities for the populace.

Table 5.100: ICT create jobs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	11	7.6	7.6	7.6
	Disagreed	10	6.9	6.9	14.6
	Undecided	15	10.4	10.4	25.0
	Agreed	75	52.1	52.1	77.1
	Strongly Agreed	30	22.9	22.9	100.0
	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.100 reveals that 30 respondents representing 22.9% strongly agreed that ICT create jobs, 75 and 15 of the respondents representing 52.1% and 10.4% agreed and undecided respectively while 10 and 11 respondents representing 7.6% and 9.6% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that ICT create jobs through various NITDA programs, ICT resources centers and RITC which are meant to help people in the communities to be aware and built themselves on the usage of the ICT knowledge to improve their areas and provide productive opportunities for the populace.

Table 5.101: ICT has created jobs in your local government

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	9	6.3	6.3	6.3
	Disagreed	9	6.3	6.3	12.5
	Undecided	11	7.6	7.6	20.1

	Agreed	90	62.5	62.5	82.6
	Strongly Agreed	22	17.4	17.4	100.0
	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.101 reveals that 22 respondents representing 17.4% strongly agreed that ICT has created jobs in your local government, 90 and 11 of the respondents representing 62.5% and 7.6% agreed and undecided respectively while 9 respondents each representing 6.3% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that ICT has created jobs for those that worked with NITDA programs, resources centers and those ones that worked in private business/companies on ICT which are meant to help people in the communities to improve their areas and provide productive opportunities for the populace.

Table 5.102: The situation before the advent of ICT, would you say that the present situation showed reduction in unemployment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	10	6.9	6.9	6.9
	Disagreed	12	8.3	8.3	15.3
	Undecided	7	4.9	4.9	20.1
	Agreed	71	51.4	51.4	71.5
	Strongly Agreed	41	28.5	28.5	100.0
	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.102 reveals that 41 respondents representing 28.5% strongly agreed that the situation before the advent of ICT and the present situation showed reduction in unemployment, 71 and 7 of the respondents representing 51.4% and 4.9% agreed and undecided respectively while 12 and

10 respondents representing 8.3% and 6.9% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that the present situation of ICT showed that there is reduction in unemployment in the local government areas and this can be attributed to the fact that the various NITDA programs, ICT resources centers and RITC which are meant to help people in the communities to be aware and built themselves on the usage of the ICT knowledge has really enhanced job creation and reduced unemployment to certain extent in the areas.

Table 5.103: The local governments recorded reduction in unemployment since the advent of ICT

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagreed	12	8.3	8.3	8.3
	Disagreed	12	8.3	8.3	16.7
	Undecided	7	4.9	4.9	21.5
	Agreed	74	53.5	53.5	75.0
	Strongly Agreed	36	25.0	25.0	100.0
	Total	141	100.0	100.0	

Source: Field Survey, 2018.

Table 5.103 reveals that 36 respondents representing 25% strongly agreed that the local governments recorded reduction in unemployment since the advent of ICT, 77 and 7 of the respondents representing 53.5% and 4.9% agreed and undecided respectively while 12 of the respondents each representing 8.3% disagreed and strongly disagreed respectively. Thus, majority of the respondents agreed that the local governments recorded reduction in unemployment since the advent of ICT. Owing to this, ICT create jobs through various NITDA

programmes, ICT resources centres and RITC which are meant to help people in the communities to be aware and built themselves on the usage of the ICT knowledge to improve their areas and provide productive opportunities for the populace.

5.3 Diagnostic Tests

To achieve the underlying assumption of the multiple regression analysis, the variables were examined with the aim of establishing normality, multicollinearity, linearity, homoscedasticity and auto correlation.

5.3.1 Normality Test

Among the statistical tests necessary to be conducted before significant and relational tests is to confirm the normality of the data to be utilized in the study. The normality test result revealed that the data has normal distribution as evidenced in the histogram and P-P plots, where all the bars of the histogram are close to a normal curve (See Appendix).

5.3.2 Linearity Test

To check for linearity, the study used the residual scatter plot. If the assumptions are satisfied, the residuals should scatter around 0 or most of the scores shall concentrate in the centre along 0 point. The scatterplots for the residuals of our regression is displayed in Appendix. The plot shows that the residual scores are concentrated at the centre along the zero (0) point, thus, suggesting the linearity assumption was not violated.

5.3.3 Multicollinearity Test

Another assumption of linear regression is that of multicollinearity. Multicollinearity increases the variance of regression coefficients and threatens the validity of the regression equation. In this study, multicollinearity has been examined between the independent variables using the Variance Inflated Factor (VIF) and tolerance values.

The VIF is also presented in table 5.104 below. It is generally accepted that any VIF that exceeds 10 or tolerance value lower than 10 indicates a potential problem of multicollinearity (Norusis, 1995).

Table 5.104: Multi-collinearity Test

	Collinearity Statistics	
	Tolerance	VIF
User-Ability	.847	1.181
Access	.619	1.616
ICT Awareness	.454	2.204
ICT Acceptance	.399	2.509
Enabling Environment for the Use of ICT	.801	1.248

Table 5.104 shows the tolerance and VIF values for the independent variables. The VIF for all the variables, being less than 10 indicates the absence of any harmful multicollinearity among the independent variables.

5.3.4 Test for Auto Correlation

The assumption of no auto correlation of the error terms is also a requirement of linear regression. Norusis (1995) is of the opinion that Durbin-Watson can be used to test the independence of error terms. He added that the general rule of thumb is that if the Durbin-Watson value is between 1.5 and 2.5, the assumption of independence of the terms is not violated. The Durbin Watson coefficient stood at 1.811 as shown in Table 5.xx (Regression Table 2) which falls within the benchmark. This indicates the absence of harmful serial correlation. This fulfils one of the assumptions of linear regression.

5.4 Multiple Regression Analysis and Test of Hypotheses

To test for the hypotheses formulated in this research, multiple regressions were used to determine the multiple effects of all independent variables on job creation. The preliminary analysis to the multiple regression are discussed as follows:

Table 5.105: Regression Output (ANOVA[a])

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	14.121	5	2.824	10.599	.000[b]
	Residual	108.720	408	.266		
	Total	122.841	413			

a. Dependent Variable: Job Creation

b. Predictors: (Constant), Enabling Environment for the Use of ICT, ICT Awareness, Access, Acceptance , User-Ability

Source: *SPSS Output, 2018*

Table 5.105 shows the results from the multiple regression analysis which tests the effects of the independent variables on job creation is shown. The F-statistic which measures the adequacy and fitness of the model used in the study stood at 10.599 with a p-value of 0.000^{b} which is significant at 5%; this shows that the model is fit for the data.

Table 5.106: Regression Output (Model Summary)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.439[a]	.215	.204	.5162076	1.811

a. Predictors: (Constant), Enabling Environment for the Use of ICT, ICT Awareness, Access, Acceptance, User-ability

b. Dependent Variable: Job Creation

Source: *SPSS Output, 2018*

Table 5.106 shows the summary of the multiple regression analysis. The empirical findings show that R, the multiple correlation coefficient stood at 0.439 which indicates a moderate correlation. R^2, the multiple coefficient of determination of the variables stood at 0.215 indicating that about 21.5% of the total variation in job creation in Ikwerre, Ahoada east and Eleme LGAs is explained by variations in the independent variables captured in the study. The adjusted R^2 being 0.204 also indicates that the independent variables was still explain 20.4% of the variations in job creation even if other variables were added to the study.

Table 5.107: Regression Output (Coefficients)

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.833	.278		10.181	.000

ICT	.136	.046	.140	1.786	.042
User-ability Access	.153	.063	.143	2.422	.016
Awareness	.170	.056	.212	3.061	.002
Acceptance	.021	.072	.021	.286	.775
Government created enabling Environment for the Use of ICT	.345	.060	.298	5.719	.000

a. Dependent Variable: Job Creation

Source: *SPSS Output, 2018*

Table 5.107 shows the outcome of the respective variables on performance. These are discussed under the Test of Hypotheses section. However, we present the test for the assumptions of linear regression in the preceding sections.

Upon the fulfillment of the assumptions of regression analysis, multiple regression analysis is considered suitable in testing the research hypotheses. From Table 5.1x, the respective hypotheses are discussed as follows:

5.4.1 Hypothesis I

H_{01}: User-ability of ICT has no significant effect on job creation in Rivers state.

The coefficient of "User-ability" stood at 0.136 which is positive. This implies that an increase in User-ability of ICT would lead to an increase in job creation in Rivers state. However, the significance of this can be judged from the t statistics and its significance.

The t statistics of "User-ability" stood at 1.786 with a p-value of 0.042. The p-value is less than 0.05, indicating that the relationship depicted in the model is significant at 95% confidence level. This implies that the study does not have enough statistical evidence to accept the null hypothesis.

Based on the above analysis, the study fails to accept the null hypothesis, H_{01} which states that User-ability has no significant relationship with job creation in Rivers state; and accepts its alternate hypothesis (H_{11}) which states that user-ability has a significant relationship with job creation in Rivers state.

5.4.2 Hypothesis II

H_{02}: Access to ICT has no significant effect on job creation in Ikwerre, Eleme and Ahoada east local government of Rivers state.

The coefficient of "Access to ICT" stood at 0.153 which is also positive. This implies that an increase in Access to ICT would lead to an increase in job creation in Rivers state. However, the significance of this can be judged from the t statistics and its significance.

The t statistics of "Access to ICT" stood at 2.442 with a p-value of 0.016. The p-value is less than 0.05, indicating that the relationship depicted in the model is significant at 95% confidence level. This implies that the study does not have enough statistical evidence to accept the null hypothesis.

Based on the above analysis, the study fails to accept the null hypothesis, H_{02} which states that Access to ICT has no significant relationship with job creation in Rivers state; and accepts its alternate hypothesis (H_{12}) which states that Access to ICT has a significant relationship with job creation in Rivers state.

5.4.3 Hypothesis III

H_{03}: ICT awareness has no significant effect on job creation in Ikwerre, Eleme and Ahoada east local government area of Rivers state.

The coefficient of "ICT awareness" stood at 0.17 which is positive. This implies that an increase in ICT awareness would lead to an increase in job creation in Rivers state. However, the significance of this can be judged from the t statistics and its significance.

The t statistics of "ICT awareness" stood at 3.061 with a p-value of 0.002. The p-value is less than 0.05, indicating that the relationship depicted in the model is significant at 95% confidence level. This implies that the study does not have enough statistical evidence to accept the null hypothesis.

Based on the above analysis, the study fails to accept the null hypothesis, H_{03} which states that ICT awareness has no significant relationship with job creation in Rivers state; and accepts its alternate hypothesis (H_{13}) which states that ICT awareness has a significant relationship with job creation in Rivers state.

5.4.4 Hypothesis IV

H_{04}: Public Acceptance has no significant effect on job creation in Ikwerre, Eleme and Ahoada east local government area of Rivers state.

The coefficient of "ICT Acceptance" stood at 0.021 which is positive. This implies that an increase in Public Acceptance of ICT would lead to an increase in job creation in Rivers state. However, the significance of this can be judged from the t statistics and its significance.

The t statistics of "ICT Acceptance" stood at 0.286 with a p-value of 0.775. The p-value is greater than 0.05, indicating that the relationship depicted in the model is insignificant at 95% confidence level. This implies that the study does not have enough statistical evidence to reject the null hypothesis.

Based on the above analysis, the study fails to reject the null hypothesis, H_{04} which states that ICT Acceptance has no significant relationship with job creation in Rivers state; and rejects its alternate hypothesis (H_{14}) which states that ICT Acceptance has a significant effect on job creation in Rivers state.

5.4.5 Hypothesis V

H_{05}: Government created enabling environment for the use ICT has no significant effect on job creation in Ikwerre, Eleme and Ahoada east local government area of Rivers state.

The coefficient of "Government creating enabling environment for the use ICT " stood at 0.345 which is positive. This implies that an increase in Government creating enabling environment for the use of ICT would lead to an increase in job creation in Rivers state. However, the significance of this can be judged from the t statistics and its significance.

The t statistics of "Government created enabling environment for the use ICT" stood at 5.719 with a p-value of 0.000. The p-value is less than 0.05, indicating that the relationship depicted in the model is significant at 95% confidence level. This implies that the study does not have enough statistical evidence to accept the null hypothesis.

Based on the above analysis, the study fails to accept the null hypothesis, H_{05} which states that Government creating an enabling environment for the use ICT has no significant effect on job creation in Rivers state; and accepts its alternate hypothesis (H_{15}) which states that Government created enabling environment for the use ICT has a significant effect on job creation in Rivers state.

5.5 Summary of Major Findings

The study investigated the effect of ICT on job creation in Rivers' State. From the analyses of data, a number of findings were arrived at which are discussed below.

The coefficient of "ICT" stood at 0.136 which is positive. Also, the t statistics of " User-ability of ICT" stood at 1.786 with a p-value of 0.042. The p-value is less than 0.05, indicating that the relationship depicted in the model is significant at 95% confidence level. Based on this, the study reject the null hypothesis which states that ICT has no significant effect on job creation in Rivers state. Thus, ICT has a positive and significant effect on job creation in Rivers State. This can be attributed to the fact that different ICT mechanisms were put in place such as ICT resources center, WAN, RITC, virtual libraries which did not only required human capacity in the usage and maintenance but also enable individual to be innovative through the available technology and facilities which lead to job creations and opportunities for the selected communities.

This is in line with the first research objective and has also addressed the first research question. User-ability of ICT is still low, especially when it comes to job creation.

Also, the coefficient of "Access to ICT" stood at 0.153 which is also positive. This implies that an increase in access to ICT, would lead to an increase in job creation in Rivers state. The statistics of "Access to ICT" stood at 2.442 with a p-value of 0.016. The p-value is less than 0.05, indicating that the relationship depicted in the model is significant at 95% confidence level. This implies that the study does not have enough statistical evidence to accept the null hypothesis and this means that access to ICT, has a positive and significant effect on job creation in Rivers State. Meanwhile, the reason for this positive relationship can be attributed to the fact that access to ICT in the local government areas has brought so many positive changes in the

area of information sourcing and outsourcing where people of the communities are trained by the experts to use and maintain the ICT resources centers and facilities provided for them by the government. Access to ICT is not encouraging, due to poverty and lack of awareness.

The coefficient of "ICT awareness" stood at 0.17 which is positive. This implies that an increase in ICT awareness would lead to an increase in job creation in Rivers state. The t statistics of "ICT awareness" stood at 3.061 with a p-value of 0.002. The p-value is less than 0.05, indicating that the relationship depicted in the model is significant at 95% confidence level. This implies that the study does not have enough statistical evidence to accept the null hypothesis. Thus, ICT Awareness has a positive and significant effect on job creation in Rivers State. Meanwhile, the positive relation between ICT awareness and job creation can be attributed to the fact that the government through NITAD has put in place different ICT resources centers and facilities such as Wide Area Network (WAN), software testing quality assurance and capacity building laboratory and so on. The ICT awareness is yet to reach the rural areas as all the workshop and seminars were held at the local headquarters.

The coefficient of "ICT Acceptance" stood at 0.021 which is positive. This implies that an increase in ICT acceptance would lead to an increase in job creation in Rivers state. The t statistics of "ICT awareness" stood at 0.286 with a p-value of 0.775. The p-value is greater than 0.05, indicating that the relationship depicted in the model is insignificant at 95% confidence level. This implies that the study does not have enough statistical evidence to reject the null hypothesis. Thus, ICT Awareness has a positive and insignificant effect on job creation in Rivers State. The positive relation can be attributed to the fact that the government through NITAD and other volunteers has put in place different ICT resources centers and facilities such as Wide Area Network (WAN), virtual libraries, network operating centers (NOC), software testing quality

assurance and capacity building laboratory and so on in the local government areas which is meant to enhance efficiency in internet services and enhance effective ICT penetration in the areas. However, the insignificant effect of the ICT acceptance on job creation can be linked to the fact that the level of illiteracy, inadequate power supply and poverty has really affected the rate at which these ICT resources can be accessed and used by the rural dwellers which may lead to ineffective effect on job creation in the local government areas.

Lastly, the coefficient of "Government created enabling environment for the use of ICT " stood at 0.345 which is positive. This implies that an increase in Government created enabling environment for the use ICT would lead to an increase in job creation in Rivers state. The t statistics of "Government created enabling environment for the use ICT" stood at 5.719 with a p-value of 0.000. The p-value is less than 0.05, indicating that the relationship depicted in the model is significant at 95% confidence level. This implies that the study does not have enough statistical evidence to accept the null hypothesis. The positive and significant effect of government created enabling environment for the use of ICT on job creation can be attributed to the fact that government through NITDA maintained the ICT resources centers so that the mandate of the government to bringing socio-economic development to the rural dwellers is being monitored where these ICT resources centers helped in training and sponsoring ICT innovation and development in order to take them to other level where they can be able to use their ICT knowledge to enhance productive activities in the areas. Although this is in agreement with the last objective, there are still challenges that are affecting acquisition of ICT knowledge. These challenges include, inadequate power supply, poverty, lack of access to ICT etc.

CHAPTER SIX

SUMMARY, CONCLUSION AND RECOMMENDATIONS

6.1 Summary

Nigeria is a country that has high rate of unemployment, which causes poverty, economic hardship and increase in the crime rates in various states. Rivers State has experienced difficult times because of the high rate of unemployment and the inability of the government to create jobs among the teeming youths. Information and Communication Technology is seen in some countries that have its high presence of it as a means of creating jobs and achieving self-reliance. Meanwhile, the growth theory suggests that Information and Communication Technology is a formidable force to achieve economic growth and development in the modern age because it offers a variety of job opportunities.

It is in this regard that this research set out to examine the effect of Information and Communication Technology (ICT) on Job Creation in Selected Local Government Areas of Rivers State. Data were collected through the primary source by administering questionnaires to ICT users in the states that formed the sample. The sample consisted of 414 respondents from across the three local governments, who filled in the questionnaires. The data were analyzed by means of ordinary least square regression after correcting for heteroskedastcity.

The study found that Information and Communication Technology has a significant effect on Job Creation in selected local governments in Rivers State. More specifically, we found that User Ability, Access to ICT facilities, Awareness about ICT, Public Acceptability and government created enabling Environment have a positive significant effect on job creation in selected local governments in Rivers State. These findings supports the ongoing agitations by various pressure

groups for the Nigerian government to increase the funding in information and communication technology infrastructure of the country in order to reduce the unemployment rate in the country.

6.2 Conclusions

The study examined the effect of information and communication technology on job creation in selected local governments in Rivers States. From the findings, the following conclusions are made:

First, the User Ability of ICT resources provided by the government in selected local government areas have positive and significant effect on job creation. Meanwhile, the ICT resources like computer lab, RITC, virtual library, NOC, WAN and software testing quality assurance and capacity building laboratory have really affected the job creation opportunities in the selected areas.

Second, Access to ICT has a positive and significant effect on job creation in Ikwerre, Eleme and Ahoada east local government5 area of rivers state.. ICT facilities access in the different sectors have helped students, experts and learners in different capacities which have really affected the productive processes in the selected areas by enhancing employment opportunities.

Third, ICT Awareness has a positive and significant effect on job creation in Rivers State. Different measures and mediums were put in place to keep people informed about the benefits of ICT and its resources which is meant to aid the ways people engage in the economic activities that would improve their welfare.

Public Acceptance of ICT has a positive and significant effect on job creation in Rivers State. This can be seen in the level of ICT facilitates in teaching, learning and job creation process. The study reveals that, establishment of virtual libraries in tertiary institutions, establishing network

operating centers (NOC) in Rivers state enhances ICT penetration in the communities but may not contributed to job creation significantly, for the period, due to the fact that not all the people in the selected areas have accesses and user-ability of ICT resources which may be affected by the level of awareness and the institutional structure of the local government where only the town where these ICT resource centers are located enjoy the benefits while the less privileged areas are not benefitting.

Fifth, the government created Enabling Environment for the Use of ICT has a positive and significant effect on job creation in Rivers State. These include the provision of ICT training centers, provision of scholarship to ICT bias students, provision of steady power supply, provision of internet fitted computers, subsidizing the price of ICT related materials and the establishment of NITDA by the government to ensure that government policies on ICT is implemented to bring about job creation in the communities under study.

6.3 Recommendations

Based on the findings of the study, the following recommendations are made.

1. ICT resources should be integrated into different economic functions and activities so that ICT would be used in every sector. This will enhance its availability and provide meaningful jobs and employment opportunities for the people, inline with the objectives of NITDA, as contained in Romer endogenous theory.
2. Government should introduce more ICT resources and related technology in schools. This will address the problem of access to ICT. The price of ICT should be subsidized to encourage more access that will eventually lead to the emergence of more entrepreneurs.

This will promote the capacity building aspect of the citizens, as emphasized by Paul Romer in his endogenous growth theory.

3. The government and private partners should create more awareness about the use of ICT to be self-reliant especially among the youths. This can be achieved by holding seminars at various local governments and using the media such as radio jingles, television advertisements and other media to reach a wider audience.
4. To increase public acceptability, ICT resource centers, such as RITC should be located in different areas in the local governments so that there would be even awareness and usage of those ICT facilities that can influence their creative mentality, capable of enhancing job creation and economic empowerment for the populace.
5. Lastly, in addition to funding NITDA adequately, government should; (i)grant scholarship to ICT bias students in tertiary institutions, especially the indigent ones, (ii)ensure stable power supply, (iii)encourage the establishment of more wide area network (WAN)in tertiary institutions to enhance effective ICT penetration that will lead to the creation of more jobs, (iv)address the issue of poverty affecting the people by giving free lap tops to the citizens as was done previously by the Rivers state government.

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APPENDIX

Department of Public Administration,
Faculty of Administration,
Ahmadu Bello University,
Zaria.
12th December, 2015

Dear Respondent,

I am a Ph.D Student in the Department of Public Administration, Ahmadu Bello University Zaria, currently conducting a research on the effect of Information and Communication Technology (ICT) on Job creation in Ikwerre, Ahoada East and Eleme Local Government Areas of Rivers State.

I would appreciate it if you can provide answers to the questions presented to you, in order to assist me in conducting this research. I wish to state clearly that your answers are for academic purpose only and would be treated with utmost confidentiality.

Thank you.

Yours faithfully,

Orluchukwu Godwin
08030668761

Department of Public Administration
Ahmadu Bello University, Zaria,
Kaduna state,
27th March, 2021.

The Director General
National Information Technology
Development Agency (NITDA)
Port Harcourt crescent,
Off Gimbiya street, Garki,
Abuja. Nigeria.

Sir,

A REQUEST FOR PERMISSION TO INTERVIEW NITDA OFFICIALS

I am a Ph.D Student in the Department of Public Administration, Ahmadu Bello University Zaria, currently conducting a research on the "Effect of NITDA Intervention on Job Creation in Selected Local Government Areas of Rivers State".

I would appreciate it, if you can provide answers to the questions that would be presented to you later, in order to assist me in conducting this research. I wish to state clearly that your answers are for academic purpose only and would be treated with utmost confidentiality.

Thank you.

Yours faithfully,

27/03/2021

Orluchukwu Godwin
08030668761
gorluchukwu@yahoo.com

Section A

Tick where appropriate [ ]; take note of the following abbreviations:

Personal Data of Respondents

1. Sex: male[ ] Female [ ]
2. Educational Status: OND [ ],NCE [ ],HND [ ], BSC [ ], BA [ ], MSC and above[ ]
3. Years of Experience : 6-10 [ ],11-15 [ ], 16 and above [ ]
4. Age : 31-40 [ ], 41-60 [ ] 61 and above [ ]

Section B

Government created Enabling Environment

1. Government's set objective of bringing socio-economic development to Rivers state through ICT (NITDA) is achievable.

Strongly Agreed [ ], Agreed [ ], Undecided [ ], Disagreed [ ], Strongly Disagreed [ ]

2. Government has done enough to encourage job creation through ICT

Strongly Agreed [ ], Agreed [ ], Undecided [ ], Disagreed [ ], Strongly Disagreed [ ]

3. Government creates awareness on the use of ICT

Strongly Agreed [ ], Agreed [ ], Undecided [ ], Disagreed [ ], Strongly Disagreed [ ]

4. There are measures taken by the government to create jobs through ICT

   Strongly Agreed [ ], Agreed [ ], Undecided [ ], Disagreed [ ], Strongly Disagreed [ ]

5. The measures influenced ICT awareness in your area

   Strongly Agreed [ ], Agreed [ ], Undecided [ ], Disagreed [ ], Strongly Disagreed [ ]

6. The rural information technology centers (RITC) established by government is effective

   Strongly Agreed [ ], Agreed [ ], Undecided [ ], Disagreed [ ], Strongly Disagreed [ ]

7. Government has provided rural information technology centers (RITC) in Ikewerre, Eleme and Ahoada east local government areas of Rivers State.

   Strongly Agreed [ ], Agreed [ ], Undecided [ ], Disagreed [ ], Strongly Disagreed [ ]

8. Government provides virtual libraries in tertiary institutions in Rivers State

   Strongly Agreed [ ], Agreed [ ], Undecided [ ], Disagreed [ ], Strongly Disagreed [ ]

9. The impact of NITDA capacity building for Nigerian youths in business process is felt by the indigenes of Ikwerre, Ahoada east and Eleme local government areas of Rivers State

   Strongly Agreed [ ], Agreed [ ], Undecided [ ], Disagreed [ ], Strongly Disagreed [ ]

10. NITDA has encouraged ICT graduates through award of scholarship in Ikwerre, Ahoada East and Eleme local government areas of Rivers State

    Strongly Agreed [ ], Agreed [ ], Undecided [ ], Disagreed [ ], Strongly Disagreed [ ]

11. Establishments of Virtual Libraries in Tertiary Institutions is capable of enhancing ICT penetration required for job creation.

Strongly Agreed [ ], Agreed [ ], Undecided [ ], Disagreed [ ], Strongly Disagreed [ ]

Section C

User-Ability of ICT

1. NITDA training on ICT enhances job creation

Strongly Agreed [ ], Agreed [ ], Undecided [ ], Disagreed[ ], Strongly Disagreed[ ]

2. ICT training has the potential to improve the economic well being of the citizens

Strongly Agreed [ ], Agreed[ ], Undecided[ ], Disagreed[ ], Strongly Disagreed

3. Getting ICT related job is dependent on the citizens' ability to use it

Strongly agreed[ ], Agreed[ ], Undecided[ ], Disagreed[ ], Strongly disagreed[ ]

4. NITDA intervention programme has wider coverage in Rivers state

Strongly Agreed[ ], Agreed[ ], Undecided[ ], Disagreed[ ],Strongly disagreed

5.NITDA intervention programme has provided the skills necessary for youths employment in Rivers state.

Strongly Agreed[ ] Agreed[ ] Undecided[ ]Disagreed[ ] Strongly Disagreed

Section D

Public Acceptance

1. Establishment of virtual libraries in tertiary institutions in Nigeria enhance ICT penetration in the rural communities.

Strongly Agreed [ ], Agreed [ ], Undecided [ ], Disagreed [ ], Strongly Disagreed [ ]

2. NITDA can achieve its objectives of bringing socio-economic development in rural areas by establishing network operating centers (NOC) for RITC project.

Strongly Agreed [ ], Agreed [ ], Undecided[ ], Disagreed [ ], Strongly Disagreed [ ]

3. There are network operation centers (NOC) for RITC project established in Ikwerre, Ahoada east and Eleme local government areas of Rivers State meant to enhance people usage of ICT

Strongly Agreed [ ], Agreed [ ], Undecided [ ], Disagreed [ ], Strongly Disagreed [ ]

4. Establishment of campus wide area Network (WAN) in tertiary institutions is an effective instrument allowing rural dwellers to be used to ICT

Strongly Agreed [ ], Agreed [ ], Undecided [ ], Disagreed [ ], Strongly Disagreed [ ]

5. Problems such as illiteracy, government policy, inadequate electricity, poverty etc can affect ICT penetration

Strongly Agreed [ ], Agreed [ ], Undecided [ ], Disagreed [ ], Strongly Disagreed [ ]

6. ICT has been accepted by rural people

Strongly Agreed [ ], Agreed [ ], Undecided [ ], Disagreed [ ], Strongly Disagreed [ ]

7. Do you have network operating centers for (RITC) project established by NITDA in your local government?

Strongly Agreed [ ], Agreed [ ], Undecided [ ], Disagreed [ ], Strongly Disagreed [ ]

8. Indigenes of selected local governments benefited from NITDA scholarship scheme.

Strongly Agreed [ ], Agreed [ ], Undecided [ ], Disagreed [ ], Strongly Disagreed [ ]

9. ICT acceptance enhanced socio-economic growth, especially in job creation

Strongly Agreed [ ], Agreed [ ], Undecided [ ], Disagreed [ ], Strongly Disagreed [ ]

Section E

ICT Awareness

1. Establishment of campus wide area Network (WAN) in tertiary institutions is an effective instrument in taking awareness to the door steps of Nigerians especially the rural dwellers

Strongly Agreed [ ], Agreed [ ], Undecided [ ], Disagreed [ ], Strongly Disagreed [ ]

2. WAN help in extending ICT awareness to the rural dweller

Strongly Agreed [ ], Agreed [ ], Undecided [ ], Disagreed [ ], Strongly Disagreed [ ]

3. Government has established software testing quality assurance and capacity building laboratory in Ikwerre, Eleme and Ahoada east local government areas of Rivers State so as to improve the level of awareness of the populace on ICT

Strongly Agreed [ ], Agreed [ ], Undecided [ ], Disagreed [ ], Strongly Disagreed [ ]

4. Establishment of software testing quality assurance and capacity building laboratory in Ikwerre, Eleme and Ahoada east local government areas of Rivers State has enhance efficiency in internet services, especially in the rural areas

Strongly Agreed [ ], Agreed [ ], Undecided [ ], Disagreed [ ], Strongly Disagreed [ ]

5. Government has done enough to encourage job creation through ICT

Strongly Agreed [ ], Agreed [ ], Undecided [ ], Disagreed [ ], Strongly Disagreed [ ]

6. Government measures influenced ICT awareness in your area

Strongly Agreed [ ], Agreed [ ], Undecided [ ], Disagreed [ ], Strongly Disagreed [ ]

7. The awareness created is enough to enhance effective ICT penetration

Strongly Agreed [ ], Agreed [ ], Undecided [ ], Disagreed [ ], Strongly Disagreed [ ]

Section F

Job Creation

1. ICT has the potential for job creation

Strongly Agreed [ ], Agreed [ ], Undecided [ ], Disagreed [ ], Strongly Disagreed [ ]

2. ICT creates jobs

Strongly Agreed [ ], Agreed [ ], Undecided [ ], Disagreed [ ], Strongly Disagreed [ ]

3. ICT has created jobs in your local government

Strongly Agreed [ ], Agreed [ ], Undecided [ ], Disagreed [ ], Strongly Disagreed [ ]

4. Given the situation before the advent of ICT, would you say that the present situation showed reduction in unemployment?

Strongly Agreed [ ], Agreed [ ], Undecided [ ], Disagreed [ ], Strongly Disagreed [ ]

5. The local government recorded reduction in unemployment since the advent of ICT

Strongly Agreed [ ], Agreed [ ], Undecided [ ], Disagreed [ ], Strongly Disagreed [ ]

APPENDICES

Ikwerre

Descriptive

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Section B: Question 1	144	1	5	3.85	1.077	-1.441	.202	1.678	.401
Section B: Question 2	144	1	5	3.94	1.036	-1.532	.202	2.184	.401
Section B: Question 3	144	1	5	3.93	1.055	-1.416	.202	1.767	.401
Section B: Question 4	144	1	5	3.97	1.090	-1.456	.202	1.626	.401
Section B: Question 5	144	1	5	3.98	1.131	-1.488	.202	1.594	.401

Section B: Question 6	144	1	5	3.78	1.191	-1.146	.202	.380	.401
Section B: Question 7	144	1	5	4.17	1.090	-1.716	.202	2.481	.401
Section B: Question 8	144	1	5	3.96	1.134	-1.378	.202	1.242	.401
Section B: Question 9	144	1	5	3.71	1.322	-1.050	.202	-.055	.401
Section B: Question 10	144	1	5	3.87	1.262	-1.285	.202	.600	.401
Section B: Question 11	144	1	5	4.03	1.109	-1.490	.202	1.752	.401
Valid N (listwise)	144								

Descriptive

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Section C: Question 1	144	1	5	3.67	1.140	-.978	.202	.226	.401

Section C: Question 2	144	1	5	3.57	1.186	-.792	.202	-.363	.401
Section C: Question 3	144	1	5	3.58	1.168	-.845	.202	-.114	.401
Section C: Question 4	144	1	5	3.54	1.115	-.797	.202	.014	.401
Section C: Question 5	144	1	5	3.40	1.318	-.839	.202	-.612	.401
Section C: Question 6	144	1	5	3.92	1.078	-1.511	.202	1.839	.401
Section C: Question 7	144	1	5	3.75	1.119	-1.162	.202	.728	.401
Section C: Question 8	144	1	5	3.67	1.188	-.942	.202	.016	.401
Section C: Question 9	144	1	5	3.93	1.545	-1.082	.202	-.504	.401
Valid N (listwise)	144								

DESCRIPTIVES VARIABLES=D1 D2 D3 D4 D5 D6 D7

/STATISTICS=MEAN STDDEV MIN MAX KURTOSIS SKEWNESS.

Descriptive

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Section D: Question 1	144	1	5	3.49	1.343	-.681	.202	-.808	.401
Section D: Question 2	144	1	5	3.14	1.094	-.118	.202	-.693	.401
Section D: Question 3	144	1	5	3.18	1.157	-.112	.202	-.928	.401
Section D: Question 4	144	1	5	3.39	1.165	-.507	.202	-.564	.401
Section D: Question 5	144	1	5	4.13	1.123	-1.614	.202	1.928	.401
Section D: Question 6	144	1	5	4.17	1.167	-1.630	.202	1.789	.401
Section D: Question 7	144	1	5	3.83	1.225	-.981	.202	-.063	.401
Valid N (listwise)	144								

Descriptive

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Section E: Question 1	144	1	5	3.89	1.189	-1.225	.202	.612	.401
Section E: Question 2	144	1	5	3.76	1.117	-1.153	.202	.750	.401
Section E: Question 3	144	1	5	3.78	1.012	-1.405	.202	1.752	.401
Section E: Question 4	144	1	5	3.86	1.132	-1.248	.202	.876	.401
Section E: Question 5	144	1	5	3.78	1.160	-1.206	.202	.664	.401
Valid N (listwise)	144								

AHOADA EAST

Descriptive

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Section B: Question 1	129	1	5	4.01	1.215	-1.475	.213	1.237	.423
Section B: Question 2	129	1	5	3.77	1.202	-1.102	.213	.279	.423
Section B: Question 3	129	1	5	3.14	1.144	-.246	.213	-.679	.423
Section B: Question 4	129	1	5	3.10	1.067	-.086	.213	-.573	.423
Section B: Question 5	129	1	5	3.48	1.119	-.631	.213	-.275	.423
Section B: Question 6	129	1	5	4.14	1.116	-1.718	.213	2.368	.423

Section B: Question 7	129	1	5	4.12	1.192	-1.507	.213	1.313	.423
Section B: Question 8	129	1	5	3.79	1.248	-.917	.213	-.276	.423
Section B: Question 9	129	1	5	3.74	1.332	-1.055	.213	-.101	.423
Section B: Question 10	129	1	5	3.84	1.100	-1.261	.213	1.113	.423
Section B: Question 11	129	1	5	3.78	1.023	-1.464	.213	1.883	.423
Valid N (listwise)	129								

DESCRIPTIVES VARIABLES=C1 C2 C3 C4 C5 C6 C7 C8 C9

/STATISTICS=MEAN STDDEV MIN MAX KURTOSIS SKEWNESS.

Descriptive

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error

Section C: Question 1	129	1	5	3.86	1.164	-1.172	.213	.572	.423
Section C: Question 2	129	1	5	3.84	1.165	-1.154	.213	.507	.423
Section C: Question 3	129	1	5	3.74	1.108	-1.071	.213	.597	.423
Section C: Question 4	129	1	5	4.05	1.127	-1.538	.213	1.759	.423
Section C: Question 5	129	1	5	3.81	1.130	-1.142	.213	.676	.423
Section C: Question 6	129	1	5	3.61	1.319	-.808	.213	-.473	.423
Section C: Question 7	129	1	5	3.74	1.079	-1.085	.213	.830	.423
Section C: Question 8	129	1	5	3.78	1.231	-1.159	.213	.368	.423
Section C: Question 9	129	1	5	3.93	1.112	-1.590	.213	1.963	.423
Valid N (listwise)	129								

Descriptive

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Section D: Question 1	129	1	5	3.33	1.174	-.543	.213	-.774	.423
Section D: Question 2	129	1	5	3.87	1.078	-1.481	.213	1.803	.423
Section D: Question 3	129	1	5	3.40	1.289	-.464	.213	-.902	.423
Section D: Question 4	129	1	5	3.84	1.204	-1.263	.213	.771	.423
Section D: Question 5	129	1	5	3.05	1.127	-.441	.213	-.711	.423
Section D: Question 6	129	1	5	3.43	1.322	-.601	.213	-.889	.423
Section D: Question 7	129	1	5	3.98	1.053	-1.681	.213	2.562	.423
Valid N (listwise)	129								

Descriptive

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Section E: Question 1	129	1	5	3.97	1.089	-1.632	.213	2.221	.423
Section E: Question 2	129	1	5	4.06	1.109	-1.589	.213	2.023	.423
Section E: Question 3	129	1	5	4.05	1.127	-1.504	.213	1.692	.423
Section E: Question 4	129	1	5	3.90	1.081	-1.378	.213	1.558	.423
Section E: Question 5	129	1	5	3.98	1.049	-1.684	.213	2.586	.423
Valid N (listwise)	129								

ELEME

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Section B: Question 1	141	1	5	3.78	1.394	-1.090	.204	-.184	.406
Section B: Question 2	141	1	5	3.58	1.348	-.868	.204	-.525	.406
Section B: Question 3	141	1	5	3.00	1.242	-.204	.204	-.998	.406
Section B: Question 4	141	1	5	2.94	1.191	-.004	.204	-.876	.406
Section B: Question 5	141	1	5	3.02	1.290	-.101	.204	-1.237	.406
Section B: Question 6	141	1	5	3.71	1.432	-.911	.204	-.599	.406
Section B: Question 7	141	1	5	3.70	1.444	-.895	.204	-.638	.406

Section B: Question 8	141	1	5	3.45	1.426	-.603	.204	-1.031	.406
Section B: Question 9	141	1	5	3.51	1.361	-.730	.204	-.709	.406
Section B: Question 10	141	1	5	3.40	1.346	-.722	.204	-.808	.406
Section B: Question 11	141	1	5	3.51	1.285	-.843	.204	-.428	.406
Valid N (listwise)	141								

Descriptive

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Section C: Question 1	141	1	5	3.48	1.350	-.757	.204	-.723	.406
Section C: Question 2	141	1	5	3.45	1.391	-.662	.204	-.920	.406

Section C: Question 3	141	1	5	3.42	1.316	-.698	.204	-.697	.406
Section C: Question 4	141	1	5	3.67	1.387	-.962	.204	-.400	.406
Section C: Question 5	141	1	5	3.56	1.306	-.895	.204	-.348	.406
Section C: Question 6	141	1	5	3.38	1.366	-.620	.204	-.859	.406
Section C: Question 7	141	1	5	3.22	1.299	-.576	.204	-.887	.406
Section C: Question 8	141	1	5	3.55	1.422	-.745	.204	-.861	.406
Section C: Question 9	141	1	5	3.59	1.299	-1.041	.204	-.135	.406
Valid N (listwise)	141								

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Section D: Question 1	141	1	5	3.13	1.277	-.360	.204	-1.089	.406
Section D: Question 2	141	1	5	3.57	1.283	-1.032	.204	-.147	.406
Section D: Question 3	141	1	5	3.32	1.485	-.432	.204	-1.301	.406
Section D: Question 4	141	1	5	3.40	1.429	-.669	.204	-.993	.406
Section D: Question 5	141	1	5	2.93	1.234	-.048	.204	-1.022	.406
Section D: Question 6	141	1	5	3.33	1.360	-.594	.204	-1.017	.406
Section D: Question 7	141	1	5	3.66	1.314	-1.072	.204	-.085	.406
Valid N (listwise)	141								

Descriptives

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Section E: Question 1	141	1	5	3.63	1.306	-1.101	.204	-.040	.406
Section E: Question 2	141	1	5	3.70	1.340	-1.046	.204	-.147	.406
Section E: Question 3	141	1	5	3.70	1.515	-.868	.204	-.808	.406
Section E: Question 4	141	1	5	3.62	1.313	-.931	.204	-.302	.406
Section E: Question 5	141	1	5	3.64	1.300	-1.081	.204	-.055	.406
Valid N (listwise)	141								

Regression

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	Enabling Environment for the Use of ICT, ICT Awareness, Access, Acceptance, User ability of ICT.	.	Enter

a. Dependent Variable: Job Creation

b. All requested variables entered.

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.439[a]	.215	.204	.5162076	1.811

a. Predictors: (Constant), Enabling Environment for the Use of ICT, ICT Awareness, Acceptance, Access , User-ability.

b. Dependent Variable: Job Creation

ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	14.121	5	2.824	10.599	.000[b]
	Residual	108.720	408	.266		
	Total	122.841	413			

a. Dependent Variable: Job Creation

b. Predictors: (Constant), Enabling Environment for the Use of ICT, ICT Awareness, ICT Acceptance, Access and Public User-Ability of ICT.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	2.833	.278		10.181	.000		
	ICT	.136	.046	.140	1.786	.042	.847	1.181
	Introduction of ICT	.153	.063	.143	2.422	.016	.619	1.616
	ICT Awareness	.170	.056	.212	3.061	.002	.454	2.204
	ICT Resources	.021	.072	.021	.286	.775	.399	2.509

	Enabling Environment for the Use of ICT	.345	.060	.298	5.719	.000	.801	1.248

a. Dependent Variable: Job Creation

Collinearity Diagnostics[a]

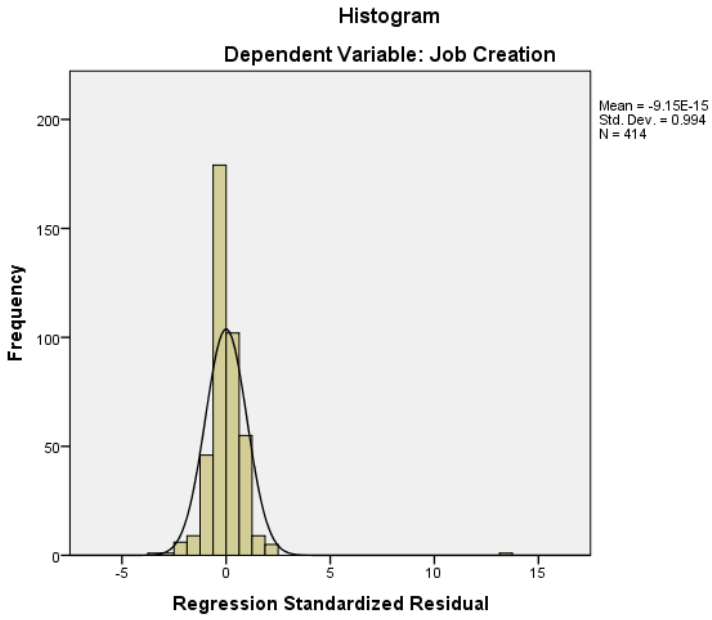
Model	Dimension	Eigenvalue	Condition Index	Variance Proportions					
				(Constant)	ICT	Introduction of ICT	ICT Awareness	ICT Resources	Enabling Environment for the Use of ICT
1	1	5.942	1.000	.00	.00	.00	.00	.00	.00
	2	.024	15.848	.01	.28	.00	.23	.04	.03
	3	.015	19.651	.03	.53	.00	.07	.00	.32
	4	.008	28.003	.03	.17	.82	.04	.05	.20
	5	.007	30.112	.83	.02	.16	.08	.11	.14
	6	.005	34.513	.10	.00	.02	.58	.81	.32

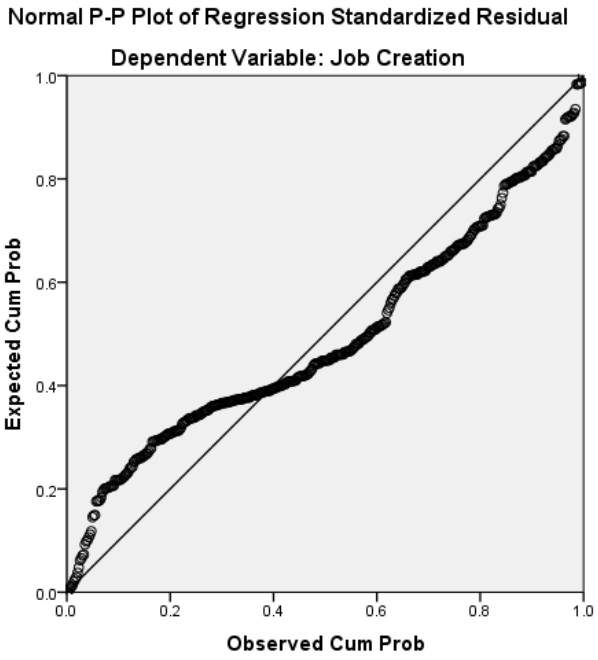
a. Dependent Variable: Job Creation

Residuals Statistics

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	3.681536	4.781269	4.279227	.1849120	414
Residual	-1.7907695	7.0568781	.0000000	.5130733	414
Std. Predicted Value	-3.232	2.715	.000	1.000	414
Std. Residual	-3.469	13.671	.000	.994	414

a. Dependent Variable: Job Creation




Normal P-P Plot of Regression Standardized Residual
Dependent Variable: Job Creation
Expected Cum Prob
Observed Cum Prob
0.0
0.2
0.4
0.6
0.8
1.0