THE IMPACT OF ICT ON THE NIGERIAN ECONOMIC GROWTH AND DEVELOPMENT

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CERTIFICATION

This is to certify that this research work/project upon which the report is written was carried out by **AROWOSEGBE ADEBOLA LAMI** Matric Number: **18012408002 (Computer/Biology)** in the Department of Computer Science, School of Science, Tai Solarin College of Education, Omu-Ijebu, Ogun State, Nigeria under my supervision.

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Supervisor's Name Signature & Date

DEDICATION

This research study is dedicated to Almighty God, the Gracious and the compassionate, to who the dominion of Heaven and Earths belong for making the whole research study successful.

I also dedicate this project to my parents and my sister and brother for their support and heavenly prayer on me for my succession in life

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My immeasurable gratitude and appreciation goes to Almighty God for his care, love and support throughout this program.

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ABSTRACT

Information and communication technology (ICT) offers the promise of fundamentally changing the lives of much of the world's population. In its various forms, ICT affects many of the processes of government and business, how individuals live, work and interact, and the quality of the natural and built environment. The development of internationally comparable ICT statistics is essential for governments to be able to adequately design, implement, monitor and evaluate ICT policies Information and Communication Technology (ICT) has now been accepted as one of the main driving force behind organizational competitiveness in the present day business environment. Presently, ICT is having dramatic influence on almost all areas of human activities and one of the areas of economic activities in which this influence is most manifest is the banking sector. The banking industry is one of the critical sectors of the economy which makes invaluable contributions to the pace of economic growth and development of nations

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND TO THE STUDY

Information and communication technology (ICT) offers the promise of fundamentally changing the lives of much of the world's population. In its various forms, ICT affects many of the processes of government and business, how individuals live, work and interact, and the quality of the natural and built environment. The development of internationally comparable ICT statistics is essential for governments to be able to adequately design, implement, monitor and evaluate ICT policies (Madueme, 2010).

Information and Communication Technology (ICT) has now been accepted as one of the main driving force behind organizational competitiveness in the present day business environment. Presently, ICT is having dramatic influence on

almost all areas of human activities and one of the areas of economic activities in which this influence is most manifest is the banking sector. The banking industry is one of the critical sectors of the economy which makes invaluable contributions to the pace of economic growth and development of nations (Ajayi, 2003; Madueme, 2010). However, this study seeks to examine the impact of ICT on the Nigerian economic growth and development.

Most developing nations including Nigeria have embarked on various reforms that foster the use of ICTs in their economies. These reforms tend to yield little or minimal benefits to economic growth and development, especially when compared with the developed countries of the world. Technological advancement is known to impact fast rate of economic development. In Nigeria, policy on adoption of Information and Communication Technologies was initiated in 1999, when the civilian regime came into power of government. The operations

of the licensed telecommunication service providers in the country has created some well-felt macroeconomic effects in terms of job creation, faster delivery services, reduced transport costs, greater security and higher national output (Emmanuel and Adebayo, 2011).

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. The Industrial Revolutions in Europe and America, generally and specifically, have been premised on technological breakthroughs. During the late 1990s, Information and Communication Technology (ICT) was the largest contributor to growth within capital services for both Canada and the United States (Harchaoui, 2002). Similar trend has been observed with the economic development of China, Korea, Taiwan, India, South Africa, and other emerging economic powers (Fuss and Waverman, 2005).

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 ICT subsector. The policy thrives 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 software's 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.

1.2 STATEMENT OF THE PROBLEM

In Nigeria, provision of public infrastructure is grossly inadequate and poor. Necessary telecommunication services, as public infrastructure, needed for meaningful investment are lacking and, where found, are very costly. Teledensity in Nigeria is still very low.

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. GSM is ICT based telecommunication that can contribute to the growth and development of any nation. 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. Past studies on the developing economy have bothered on the challenges and roles of ICTs on economic growth (Carayamis and Popescu, 2005; Ndukwe, 2003, 2004; Igwe, 2005). Thus, this study examines the impact of ICT on the Nigerian economic growth and development.

1.3 OBJECTIVES OF THE STUDY

The general objective of this study is to analyze the impact of ICT on the Nigerian economic growth and development and the following are the specific objectives:

To examine the impact of ICT on the Nigerian economic growth and development;

To identify ways by which ICT can contribute to economic growth and development;

To determine the factor limiting the use of ICT in all sectors of the Nigerian economy.

1.4 RESEARCH QUESTIONS

1. What is the impact of ICT on the Nigerian economic growth and development?

2. What are the ways by which ICT can contribute to econ mic growth and development?

3. What are the factors limiting the use of ICT in all sectors of the Nigerian economy?

1.5 HYPOTHESIS

HO: ICT has not contributed to Nigerian economic growth and development.

HA: ICT has contributed to Nigerian economic growth and development.

1.6 SIGNIFICANCE OF THE STUDY

The following are the significance of this study:

The outcome of this study will be a useful guide to the government of Nigeria, policy makers and the general public on how ICT can be used as a tool for economic growth and development of Nigeria.

This research will also serve as a resource base to other scholars and researchers interested in carrying out further research in this field subsequently, if applied will go to an extent to provide new explanation to the topic

1.7 SCOPE OF THE STUDY

This study on the impact of ICT on Nigerian economic growth and development will covers every area of ICT used in Nigeria and its effect on the economic growth and development.

1.8 LIMITATIONS OF STUDY

Financial constraint- Insufficient fund tends to impede the efficiency of the researcher in sourcing for the relevant materials, literature or information and in the process of data collection (internet, questionnaire and interview).

Time constraint- The researcher will simultaneously engage in this study with other academic work. This consequently will cut down on the time devoted for the research work.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1. INTRODUCTION

The importance or impact of information communication technology (ICT) may have to a very large extent influenced proceedings and happenings in this dispensation. The Nigerian economy has over the years witnessed its fair share of inconsistencies and they may have been as a result of several factors. In addressing and maintaining economic growth in Nigeria, one of the aspects that one has to study with critical attention is the impact of the information communication technology on the Nigerian economic growth and development. The ICT sector is a critical sector not just for economic growth alone but for

educational and social development of any nation Nigeria inclusive.

2.2. THEORITICAL FRAMEWORK

In appreciating the impact of ICT on the economic growth and development of Nigeria, certain theories has to be studied about different models of economic growth and development in the world.

2.2.1. LINEAR STAGES OF ECONOMIC GROWTH MODEL

In the 1950s and the early 1960s, the process of development was viewed as a series of successive stages through which all countries must pass.

With the right mix of savings, investment and foreign aid – these countries could be put on the path to development, thereby making development synonymous with aggregate economic growth.

Walt Rostow became the most influential advocate of the stages of growth model of development- he argued that the advanced countries had all passed through a series of steps leading to development and growth.

The developing countries were still in either the traditional society or the preconditions stage and had to follow a set of rules to take-off into self-sustaining economic growth.

The principal strategy to help this takeoff was the mobilization of domestic and foreign savings in order to generate sufficient investment to accelerate economic growth.

The economic mechanism through which more investment leads to more growth can be described by the *Harrod- Domar Model*.

In simple words the Harrod Domar theory of economic growth states that the rate of growth of GNP is determined jointly by the national savings ratio and the national capital-output ratio.

Thus the most fundamental strategies to grow for economies is to save and invest a certain proportion of their GNP – but the actual rate at which they can grow for any level of saving and investment, depends on how much additional output can be had from an additional unit of investment.

According to this theory the major obstacle to growth is the capital constraint, which became the reason for transfer of capital and technical assistance to the developing countries.

2.2.2. NEOCLASSICAL ECONOMIC GROWTH THEORY

This is a more modern approach to growth theory. Two forces come into play in this theory. Concerning the population, as incomes rises the opportunity cost of birthing children increases. This is because of the time associated with raising children, maternity leave, and other factors.

Also, as incomes rise, the standard of living and life expectancy follows suit. These two conflicting forces offset one

another, and therefore, it is hypothesized that economic growth has no effect on population growth.

Therefore, there must be another factor that can make a difference in the growth of productivity. Technology is the factor that this theory chooses as the driving force behind productivity growth. This makes sense, since technological advances can be credited with huge increases in productivity.

Just think of what happened when light bulbs, steam engines and automobiles were invented. These all provided huge returns and increases in productivity. The computer, however, has not had the expected impact on productivity – yet. Sometimes it takes a while for a change in technology to change the way people work.

There is one final aspect of the neoclassical growth theory involving standard of living. It postulates that as countries

gain access to the same technologies, their standard of living will converge.

2.2.3. NEW ECONOMIC GROWTH THEORY

As you recall from the neoclassical growth theory, the theory predicts that standards of living will converge as countries gain access to the same technologies. However, this does not hold true in practice. Countries maintain their impoverished status despite apparently having access to the same technologies that wealthy countries do. The new growth theory attempts to explain this discrepancy.

The new growth theory explains this by including motivation factors in the economic model. Basically, the theory suggests that the more motivation there is for people to pursue innovative ideas, the more creativity will be fostered. This is directly related to the rate of technological advancement. Although breakthroughs appear to be random, they are

actually related to how much capital is allocated to providing incentive to innovate.

A kernel of New Growth theory is that, unlike land and capital, knowledge is not subject to diminishing returns.

The importance of knowledge

Indeed, the development of knowledgies seen as a key driver of economic development. The implication is that, in order to develop, economies should move away from an exclusive reliance on physical resources to expanding their knowledge base, and support the institutions that help develop and share knowledge.

Governments should invest in knowledge because individuals and firms do not necessarily have private incentives to do so. For example, while knowledge is a merit good, and acquiring it does not deny anyone else that knowledge, its usefulness to individuals and firms may be undervalued, and yet knowledge

can generate increasing returns and drive economic growth. Government should, therefore, invest in human capital, and the development of education and skills. It should also support private sector research and development and encourage inward investment, which will bring new knowledge with it.

The role of the public sector

Because 'public' investment in social capital is subject to market failure, New Growth theorists argue that government should allocate resources to compensate for this failure.

Public Utilities and infrastructure

Essential utilities like electricity, gas, and water are natural monopolies, and in many countries are provided by the public sector. However, if these utilities are under-supplied due to inadequate public funds, the private sector will suffer and growth will be limited. This is because the industrial sector

relies on energy and water for its production and distribution, without which it will not produce efficiently or competitively. The accumulation of private capital, therefore, depends up the correct level of expenditure by government.

Similarly, New Growth theorists argue that government should also finance, or seek finance for, infrastructure projects, such as road, rail, sea, and air transport. Such projects involve the creation of quasi-public goods, and the theory of market failure suggests that they would be 'under-supplied' without government. The huge fixed costs and the difficulty of charging users prevents the private sector supplying, and the state may choose to act like a producer and financier, and provide necessary legislation for and co-ordination of such projects.

These projects also generate positive externalities, and as such justify government involvement. For example, an improved infrastructure increases the likelihood of tourist revenue as well as reducing production costs.

2.2.4 THE STRUCTURAL THEORY

The Lewis model

The Lewis model, presented in 1955, dominated development theory between the 1960s and 1970s. It is also known as the two sector model, and the surplus labour model. It focused on the need for countries to transform their structures, away from agriculture, with low productivity of labour, towards industrial activity, with a high productivity of labour.

In the Lewis model the line of argument runs:

- An economy starts with two sectors; a rural agricultural sector and an urban industrial sector. Agriculture generally under-employs workers and the marginal productivity of agricultural labour are virtually zero.
- Therefore, transferring workers out of agriculture does not reduce productivity in the whole economy.

- Labour is then released for work in the more productive, urban, industrial sector.
- Industrialisation is now possible, given the increase in the supply of workers who have moved from the land.
- Industrial firms start to make profits, which can be re-invested into even more industrialisation, and capital starts to accumulate.
- As soon a capital accumulates, further economic development can sustain itself.

Evaluation of the Lewis model

Though highly influential at the time, and despite the considerable logic of the Lewis approach, the benefits of industrialization may be limited because:

- Profits may leak out of the developing economy and find their way to developed economies through a process called *capital flight*.

- Capital accumulation may reduce the need for labour in the urban industrial sector.
- The model assumes competitive labour and product markets, which may not exist in reality.
- Urbanization may create problems, such as poverty, squalor and shanty-towns, with unemployment replacing underemployment.
- The financial benefits from industrialization might not trickle down to the majority of the population.

Development of a tertiary sector

Clark-Fisher

As early as 1935, Allen Fisher had suggested that economic progress would lead to the emergence of a large service sector, which followed the development of a primary and secondary sector. Later, in 1940, Colin Clark developed this theme to

create the Clark-Fisher development theory, also called the Fisher-Clark model.

The Clark-Fisher model shares some characteristics of early *linear stage* models and later *structural change* models. In this model, structural change must occur for economic progress to occur in capitalist economies.

Their work is still very relevant to modern explanations of development and the importance of a large service sector as an indicator of development. The Clark-Fisher hypothesis states that development will eventually lead to the majority of the labour force working in the service sector.

Why does a service sector emerge after industrialization?

According to this model, there are two essential reasons why a service sector will emerge.

High income elasticity of demand

There is generally a high income elasticity of demand for services, especially leisure, tourism and financial services. As incomes rise, demand for services increases and more employment and national output are allocated to service production. For example, in the UK and many developed economies over two-thirds of all workers are employed in the service sector (for the UK it is around 72%).

Low productivity of labour

Secondly, productivity in the service sector is lower than in the manufacturing sector because it is harder to apply new technology to many services. This means that, over time prices of services rise relative to primary and secondary goods.

The effect of high income elasticity of demand and low productivity is that an increasing proportion of national income and consumption is allocated to the service sector.

Victor Fuchs

The importance of the service sector

In the 1960s and 1970s, American economist Victor Fuchs also focused on the service sector, and attempted to develop a general theory of economic development by looking, in particular, at changes that were happening within the American economy during that period. In particular he looked at changing patterns of employment associated with the rise of a service sector, and took this to be a key indicator of economic progress. Increasingly, growth in service sector employment could be seen across western economies.

This, he argued, also contributed to the slow-down in economic growth rates in more developed economies. As the Clark-Fisher model had proposed, productivity growth in the service sector would tend to be much slower than for the manufacturing sector. He argued that the service sector itself

would need to go through an industrialisation process if growth rates were to be maintained. Fuchs also pointed to the increased participation of females in the labour force as being an important contributory factor to service sector development - families with working wives tends to spend more of their income on services.

Balanced and unbalanced growth

One of the earliest debates in development economics was about whether development would proceed more effectively with balanced or unbalanced growth. The advocates of balanced growth stressed that, as an economy grew, it needed all sectors to grow to support each other. The interconnectedness of different sectors implied that growth was required across the economy at a constant rate.

This view suggested a clear role for government in supporting those sectors that might not 'naturally' grow, or might lack

investment from the private sector. If all parts of the economy need to grow, then government should support those sectors that might not naturally develop.

Big push theories are an extension of the balanced growth approach. A big push might be needed by a government to help the economy grow in a balanced way. For example, ensuring that farming remains well developed even when the economy is experiencing a manufacturing boom.

In contrast, unbalanced growth theory, which is associated with the German political economist Albert Hirschman, suggests that overall growth is faster when it is unbalanced. If growth is unbalanced, resource prices will rise in those areas where output growth is relatively slow, and this will act as a signal for investors to allocate funds to opening up these bottlenecks. An imbalance is likely to result in greater investment and growth because it leads to a more efficient allocation of resources. The role of government should be to

help support those industries with the strongest *linkages* to the growth industries. For example, if off-shore banking is seen as a growth industry, then the government should encourage resources to support this industry – such as giving grants to students to train in banking and finance. Similarly, if the tourist industry is the driver of growth, it might be necessary for the state to provide incentives to farmers and growers to diversify into tourist-friendly foodstuffs.

2.3. CONCEPTUAL REVIEW

2.3.1. Concept of Growth and Development

Dependency theorists argue that poor countries have sometimes experienced economic growth with little or no economic development initiatives; for instance, in cases where they have functioned mainly as resource-providers to wealthy industrialized countries. There is an opposing argument, however, that growth causes development because some of the

increase in income gets spent on human development such as education and health.

According to Ranis et al., economic growth and development is a two-way relationship. According to them, the first chain consists of economic growth benefiting human development, since economic growth is likely to lead families and individuals to use their heightened incomes to increase expenditures, which in turn furthers human development. At the same time, with the increased consumption and spending, health, education, and infrastructure systems grow and contribute to economic growth.

In addition to increasing private incomes, economic growth also generates additional resources that can be used to improve social services (such as healthcare, safe drinking water, etc.). By generating additional resources for social services, unequal income distribution will be mitigated as

such social services are distributed equally across each community, thereby benefiting each individual.

Concisely, the relationship between human development and economic development can be explained in three ways. First, increase in average income leads to improvement in health and nutrition (known as Capability Expansion through Economic Growth). Second, it is believed that social outcomes can only be improved by reducing income poverty (known as Capability Expansion through Poverty Reduction). Lastly, social outcomes can also be improved with essential services such as education, healthcare, and clean drinking water (known as Capability Expansion through Social Services).

John Joseph Puthenkalam's research aims at the process of economic growth theories that lead to economic development. After analyzing the existing capitalistic growth-development theoretical apparatus, he introduces the new model which integrates the variables of freedom, democracy and human

rights into the existing models and argues that any future economic growth-development of any nation depends on this emerging model as we witness the third wave of unfolding demand for democracy in the Middle East. He develops the knowledge sector in growth theories with two new concepts of 'micro knowledge' and 'macro knowledge'. Micro knowledge is what an individual learns from school or from various existing knowledge and macro knowledge is the core philosophical thinking of a nation that all individuals inherently receive. How to combine both these knowledge would determine further growth that leads to economic development of developing nations.

Yet others believe that a number of basic building blocks need to be in place for growth and development to take place. For instance, some economists believe that a fundamental first step toward development and growth is to address property rights issues, otherwise only a small part of the economic

sector will be able to participate in growth. That is, without inclusive property rights in the equation, the informal sector will remain outside the mainstream economy, excluded and without the same opportunities for study.

2.3.2. Benefits of Economic Growth and Development

Economic growth is a phrase used to indicate the increase in per capita GDP (gross domestic product). Many other factors like increase in aggregate income of the individuals of a nation also reflect economic growth. Economic growth is usually calculated as the rate with which GDP changes in a particular period. The number of goods and services produced by a country is a reflection of economic growth in that country. It can either be negative or positive depending upon the decrease or increase when compared to data of previous years. Negative growth is often associated with economic depression and economic recession. Whenever the GDP of a country increases it means there is economic growth which is quite beneficial for

the country, its people and the global economies. Some of these benefits include:

Improves living standards

Economic growth is vital to a country in bringing about an improvement in the living standards of its people. It also helps to reduce the rates of poverty for people of low incomes. This is principally true for underdeveloped and developing countries where growth is considered a principal method of reducing poverty among the populace.

High rate of employment

Economic growth results in bringing a high rate of employment. When firms and businesses produce more outputs, their internal requirement for people gradually increases. They bring in more people to work, thus increasing the rate of employment.

Increased capital investment

As an accelerator effect of economic growth there is an increase in capital investment. As a result, economic growth is sustained for long periods of time.

Benefits to the Government

Economic growth brings in higher tax revenues for the government, making it stronger. Along with this, the government spends less amount of money as unemployment benefits.

Increased fiscal dividend

Government finances are usually of a cyclical nature. As the country's economy boosts up, more tax revenues flow into the Government Treasury. This provides the government with additional money, which can be used for financing other projects that might lead to further development.

Enhanced business confidence

Economic growth creates a positive impact on the confidence that people should have when they are running their businesses. As profits of small firms and businesses gradually increase with economic growth, their business confidence rises and they exert more efforts to grow big.

Superior public services

When economic growth brings about an increase in government income, the government can spend more on public services like education and NHS, thus resulting in superior public services.

However, nothing in this world comes for free and same is the case with economic growth. The human population is continuously engaged in extraction of natural resources which are non -renewable. With this rapid rate of extraction we will not be able to sustain this growth for very long periods of time.

Thus, we should take sufficient care to keep these extractions within prescribed limits so that growth can be sustained for long.

2.3.3. Basic concept of ICT

ICT refers to technologies that provide access to information through telecommunications. It is similar to Information Technology (IT), but focuses primarily on communication technologies. This includes the Internet, wireless networks, cell phones, and other communication mediums.Information communication technology is a manifestation of public and private investment in the economy of a nation that is enabling broad and significant changes in a society. Many observation, compare the rapid development and expansion of information communication technology to the industrial revolution in terms of its potential scope & impact on the society. Few other modern advances in technology have the capacity to affect so fundamentally the way people work, live, learn and govern

themselves and by extension the economic development of a society. As with the industrial revolution, both the time and direction of many changes are difficult to predict.

The relationship between information communication technology and economic growth and development has two aspects. In addition to being a product of science and engineering, ICT enabling change in the economy. ICT has become an important part of the world economy for example science and technology make extensive use of computer modeling & simulation and large share of database advances in networking facilitate global collaboration in research and product development, implement the results of academic research, ICT also influences the social growth and development through its effects on the demand for people with technical skills and through its use in education at all levels.

Information communication technology reflects the combination of three technologies, digital computing, data

storage and ability to transmit digital signal through telecommunication network. Rapid change in semiconductors technology, information storage & networking, combined with advance in software, has enabled new application, cost reduction and widespread diffusion of ICT. The expanding array application makes ICT more useful in the economic development of any nation and further fuels the expansion of ICT.

2.4. EMPIRICAL REVIEW

The effect of ICT on economic growth has been analyzed by many authors in last decades. Most of the evidences in this area confirm that the positive effect of ICT on economic growth is not apparent before mid-1990s. Oliner and Sichel (1996: 12) use ICT capital components such as computer hardware, software and telecommunication equipment along with capital and labor as inputs and empirically verify a very high ICT contribution to economic growth and development in the late

1980s, but they find no evidence of a positive relationship before the mid-1990s. In 2000, Jorgenson and Stiroh (1998: 32) show that the contribution of IT in economic growth of the United States is because of the substitution of computers, related equipment and services, not due to technological change.

Moreover, other studies explain the significant effect of ICT on economic growth such as Brynjolfsson and Yang, Motohashi and Kraemer and Dedrick. Most of these studies have been reviewed by Pohjola. Jalava and Pohjola (2001:56) indicate that ICT use and production quality are the most important factors in US economic growth in the 1990s. In addition, they provide evidence that ICT boosts growth in Finland from 0.3% to 0.7% between the early and late 1990s.

In Europe, Schreyer explores the impact of ICT capital and indicates that the contribution of ICT to economic growth of four European countries, the United States, Canada, and

Japan during 1990–1996 is about 0.17–0.29%. Daveri expands Schreyer's study to 13 European and five others and shows a much higher contribution of ICT for each country. Both of them conclude that large European countries are far behind the US in this area. Applying a broad data set, Van Ark et al. Also confirm that the gains from ICT capital are higher in the US than in Europe.

Despite the numerous studies, the evidence of ICT contribution to economic growth in developing countries is still scarce. For instance, Dewan and Kraemer estimate the effect of IT investment on output growth for the panel data of 36 countries over the period 1985–1993, and discuss the contrasting policy implications for IT capital investment by developed and developing economies. They reveal that return from IT capital investment is positive and significant for the developed countries in the sample but not statistically significant for the developing ones. This study attributes this

gap to the low level of IT investment as well as lack of complementary assets in developing countries. They explain that complementary investments in infrastructure, human capital, and knowledge-based structures are prerequisite for IT investments to be productive which are mostly available in developed countries rather than developing ones.

Moreover, Lee et al indicates the significant impact of ICT on economic growth of many developed and Newly Industrialized Economies (NIEs), but not in developing countries. In line with this result, Edquist conclude that the vague impact of ICT on economic growth in developing countries may account for the late introduction of ICT in these countries; for example, Internet service was not available in most developing countries until the late 1990s.

In contrast with the above discussion, Antonelli suggests that developing countries may gain more benefit from ICT than developed countries since switching from the predominant

technology to a new “ICT-oriented paradigm” enforce significant costs to developed countries. It can effectively lock developed countries into those paradigms while simultaneously, important opportunities open up for less-industrialized countries to catch up and even “leapfrog” beyond the industrialized countries because they have relatively lower switching costs. In this point of view developing countries may have an advantage over advanced countries with respect to ICT diffusion.

Generally, we can divide the empirical evidence of the impact of ICT on economic growth to two categories based on the methodology used in these literatures. The first is studies employing the growth accounting technique, which weights growth in inputs by their share in the value of output and express the contribution of ICT to economic growth in percentage point. These studies comprise Jorgenson and Stiroh , Oliner and Sichel and Jorgenson, for the United

States; Jalava and Pohjola for Finland; Oulton for the United Kingdom; Colecchia and Schreyer, Daveri, Van Ark et al. and Timmer et al. for Europe; Jorgenson for the group of seven (G7) countries; Jorgenson and Motohashi for Japan; and Jorgenson and Vu for 110 countries.

It should be noted that all the above evidences are at the national level whereas there are some other studies at the firm or industry level. For instance, O'Mahony and Vecchi (2002:34) applying heterogeneous dynamic panels method with a unique dataset covering the entire non-agricultural market economy at the industry level for the US and UK from 1976 to 2000, find a positive and significant effect of ICT on economic growth and excess returns to ICT compared with non-ICT assets.

The second category consists of researches that use cross country regression techniques to investigate the impact of ICT on economic growth. Madden and Savage, using the sample of

27 Central and Eastern European countries, show a positive and significant impact of telecommunication investment on economic growth during the period 1990–1995. Roller and Waverman (2000: 36) also confirm a causal relationship among telecommunication investment and economic growth for 21 OECD countries over the period 1970 to 1990. Jacobsen and Waverman (1997:78) et al. in a similar study indicate a positive impact of mobile phones on economic growth. Another study conducted by Koutroumpis for 22 OECD countries during 2002 to 2007, shows that there is a positive casual link among broadband infrastructure as a driving factor of ICT and economic growth, especially in the presence of critical infrastructure mass. Applying panel data of 29 countries, Seo et al. investigate the bidirectional relationship between ICT investment and economic growth. They only verify the positive impact of ICT on economic growth in the 1990s. The positive and significant effect of mobile telecommunications diffusion on both economic growth and

productivity growth has proven by Gruber and Koutroumpis for 192 countries over the period 1990–2007.

Although ICT is well known as a driving engine of economic growth, there are few evidences that show the negative effect of ICT on economic growth. For example, Kiley (2006:23) applying the traditional growth accounting framework in the US, explains the negative contribution of computers to economic growth due to adjustment costs. He indicates that the introduction of a new investment good like computers can impose large adjustment costs to the economy and decrease economic growth. Moreover, Pohjola finds no significant relationship between ICT investment and economic growth for the sample of 43 countries over the period of 1985–1999. In another research, Jacobsen reveals no significant positive impact of computer penetration on the economic growth of 84 countries during 1990–1999, although he confirms the positive link among mobile phone and growth.

However, the empirical results of the previous studies are somewhat fragile and depend on data period specifications and econometric techniques, the dominant impact of ICT as a production input on economic growth and productivity is positive.

Evidently, most of the literatures in the field of ICT effect on economic growth and productivity, concentrate on the ICT investment as a whole and evidence on the impact of ICT use on economic growth and productivity is scarce. Only a few studies investigate the effect of ICT use on economic performance applying different proxies such as telephone penetration estimated by number of telephones per 100 persons and teledensity defined as the number of fixed-line and mobile phone subscribers per 100 persons. No study to date has used ICT use index presented by ITU to evaluate the impact of ICT use on economic growth.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter describes the techniques and procedures used by the researcher in conducting the study and accumulating the data for the study. It comprises of the description of the population of the study, sampling techniques, sample size, sources of data, method of data collection and method of data analysis and testing hypothesis. The area of the study is United Bank of Africa Ibadan Road, located near Ibadan Garage, Ijebu Ode.

3.2 POPULATION OF STUDY

The population of the study consists of 25 staff of United Bank of Africa, Ibadan Road branch, Ijebu Ode and the first 50 customers that were issued ATM cards. As such the population consists of 75 persons.

20 staff as well as 34 customers was drawn from the total population of 75 persons using the stratified random sampling technique in form of Hatdrawn. The sample is considered appropriate using Ndagi population and sampling table which is a modification of Kregcie and Morgan sampling chart that indicates that small population less than 100 persons or object should adopt more than half of the population as it sample size (Ndogi, 2006).

3.3 SOURCES OF DATA

Primary data was obtained through questionnaire while secondary data was obtained through source documents from the internet.

The researcher uses both the primary and secondary data in the study. The primary data are collected by the researcher through the use of questionnaire.

3.4 METHOD OF DATA COLLECTION

The questionnaire was the instrument use to collect empirical data (primary data) from the field. While the source document was used to obtain secondary data required for the literature review.

In order to obtain the validity of the instrument, the supervisor of the project was requested to judge the appropriateness, comprehensiveness and clarity of items in the questionnaire. His contribution in form of suggestion and constructive criticism were used in the final draft.

A pilot study was carried out on 10 respondents from GTB Folagbade branch, Ijebu Ode to test pretest the efficiency of the questionnaire. The feedback received from the pilot survey was used in the final draft which enhances it reliability.

The researcher personally collected data from the respondent through the help of the human resource manager. After distribution of the questionnaire, respondents were given five

days to fill-out the questionnaire. This time frame was given in order to give ample time to the respondents to reflect on the items on the questionnaire to facilitate valid responses.

3.5 METHOD OF DATA ANALYSIS

The statistical mean scores was used to analyze the Livert's five-point questionnaire while the frequency 10 unit and simple percentage was used to analyze respondents' characteristics. The criteria for calculating the mean is: -

$$\text{Mean } (x) = \frac{\sum fx}{}$$

The chi-square test was employed by the researcher to test the significance of the responses from the credit officers of GTB Plc (respondent). The chi square test is performed by defining the numbers categories and observing the number of case falling into each category and knowing the expected number of cases fully in each category, the formulae for the chi-square is:Z2 = (oi-ei)2

Where Z2 = Chi-square

0i = Number of observed case in category i

Ei = Number of expected cases in category i

K = Number of category, summation runs from 1=1 to 1=K

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND INTERPRETATION

This chapter is devoted to the p-resentation, analysis and interpretation of the data gathered in the course of this study. The data are based on the number of copies of the questionnaire completed and returned by the respondents. The data are presented in tables and the analysis is done using the chi-square test.

4.1 DATA PRESENTATION AND ANALYSIS

The data presented below were gathered during field work:

4.2. BIO DATA OF RESPONDENTS

Table 1 gender of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	male	25	46.3	46.3	46.3
	female	29	53.7	53.7	100.0
	Total	54	100.0	100.0	

Source: field survey, October, 2015.

Table1 above shows the gender distribution of the respondents used for this study.

Out of the total number of 54 respondents, 25respondents which represent 46.3percent of the population are male.

29 which represent 53.7 percent of the population are female.

Table 2 age range of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	15-20years	4	7.4	7.4	7.4
	21-30years	10	18.5	18.5	25.9
	31-40years	15	27.8	27.8	53.7
	41-50years	20	37.0	37.0	90.7
	above 50years	5	9.3	9.3	100.0
	Total	54	100.0	100.0	

Source: field survey, October, 2015.

Table 2 above shows the age distribution of the respondents used for this study.

4 respondents which represent 7.4percent of the population are between 15-20years.

10 respondents which represent 18.5 percent of the population are between 21-30years.

15respondents which represent 27.8percent of the population are between 31-40years

20respondents which represent 37.0percent of the population are between 41-50years.

5respondents which represent 9.3percent of the population are above 50 years.

Table 3 educational background of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	FSLC	8	14.8	14.8	14.8
	WASSCE/NECO/GCE	10	18.5	18.5	33.3
	OND/HND/BSC	18	33.3	33.3	66.7
	MSC/PGD/PHD	18	33.3	33.3	100.0
	Total	54	100.0	100.0	

Source: field survey, October, 2015.

Table 3 above shows the educational qualification of the respondents used for this study.

8 respondents which represent 14.8 percent of the population are FSLC holders.

10 respondents which represent 18.5 percent of the population are WASSCE/NECO/GCE holders.

18 which represent 33.3 percent of the population are OND/HND/BSC holders.

18 which represent 33.3 percent of the population are MSC/PGD/PHD holders

Table 4 marital status of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	single	24	44.4	44.4	44.4
	married	24	44.4	44.4	88.9
	divorced	4	7.4	7.4	96.3
	widowed	2	3.7	3.7	100.0
	Total	54	100.0	100.0	

Source: field survey, October, 2015.

Table 4 above shows the marital status of the respondents used for this study.

24 respondents which represent 44.4 percent of the population are single.

24 respondents which represent 44.4percent of the population are married.

4 respondents which represent 7.4 percent of the population are divorced.

2 respondents which represent 3.7 percent of the population are widowed.

Tables based on research questions

Table 5 ICT is important Nigeria economy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	15	27.8	27.8	27.8
	agree	20	37.0	37.0	64.8
	undecided	10	18.5	18.5	83.3
	disagree	5	9.3	9.3	92.6
	strongly disagree	4	7.4	7.4	100.0
	Total	54	100.0	100.0	

Source: field survey, October, 2015.

Table 5 shows that ICT is important to Nigerian Economy

15 of the respondents representing 27.8 percent strongly agreed.

20 of the respondents representing 37.0percent agreed.

10 of the respondents representing 18.5 percent were undecided.

5 of the respondents representing 9.3 percent disagreed.

4 of the respondents representing 7.4 percent strongly disagreed.

Table 6ICT influences economic growth and development.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	15	27.8	27.8	27.8
	agree	14	25.9	25.9	53.7
	undecided	9	16.7	16.7	70.4
	disagree	8	14.8	14.8	85.2
	strongly disagree	8	14.8	14.8	100.0
	Total	54	100.0	100.0	

Source: field survey, October, 2015.

Table 6 shows thatICT influences economic growth and development.

15 of the respondents representing 27.8 percent strongly agreed.

14 of the respondents representing 25.9 percent agreed.

9 of the respondents representing 16.7 percent were undecided.

8 of the respondents representing 14.8 percent disagreed.

8 of the respondents representing 14.8 percent strongly disagreed.

Table 7ICT has contributed to Nigerian economy growth and development

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	15	27.8	27.8	27.8
	agree	18	33.3	33.3	61.1
	undecided	5	9.3	9.3	70.4
	disagree	10	18.5	18.5	88.9
	strongly disagree	6	11.1	11.1	100.0
	Total	54	100.0	100.0	

Source: field survey, October, 2015.

Table 7 shows thatICT has contributed to Nigerian economy growth and development.

15 of the respondents representing 27.8 percent strongly agreed.

18 of the respondents representing 33.3 percent agreed.

5 of the respondents representing 9.3 percent were undecided.

10 of the respondents representing 18.5 percent disagreed.

6 of the respondents representing 11.5 percent strongly disagreed.

Table 8the level of ICT awareness in Nigeria is high

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	12	22.2	22.2	22.2
	agree	18	33.3	33.3	55.6
	undecided	10	18.5	18.5	74.1
	disagree	14	25.9	25.9	100.0
	Total	54	100.0	100.0	

Source: field survey, October, 2015.

Table 8 shows that the level of ICT awareness in Nigeria is high.

12 of the respondents representing 22.2 percent strongly agreed.

18 of the respondents representing 33.3 percent agreed.

10 of the respondents representing 18.5 percent were undecided.

10 of the respondents representing 18.5 percent disagreed.

14 of the respondents representing 25.9 percent strongly disagreed.

Table 9ICT is useful in all aspect of Nigeria's economy

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	strongly agree	8	14.8	14.8	14.8
	agree	7	13.0	13.0	27.8
	undecided	8	14.8	14.8	42.6
	disagree	15	27.8	27.8	70.4
	strongly disagree	16	29.6	29.6	100.0
	Total	54	100.0	100.0	

Source: field survey, October, 2015.

Table 9 shows the ICT is useful in all aspect of Nigeria's economy.

8 of the respondents representing 14.8 percent strongly agreed.

7 of the respondents representing 13.0 percent agreed.

8 of the respondents representing 14.8 percent were

undecided

15 of the respondents representing 27.8 percent disagreed.

16 of the respondents representing 29.6 percent strongly disagreed.

Hypothesis to be tested

H_0: ICT has not contributed to Nigerian economic growth and development.

H_1: ICT has contributed to Nigerian economic growth and development.

Level of significance: 0.05

Decision rule: reject the null hypothesis if the p value is less than the level of significance. Accept the null hypothesis if otherwise.

Table 11 Test Statistics

	ICT has contributed to Nigerian economic growth and development
Chi-Square	11.741[a]
Df	4
Asymp. Sig.	.019

a. 0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 10.8.

Conclusion based on the decision rule:

Since the p-value (0.019) is less than the level of significance (0.05). We reject the null hypothesis and accept the alternative which says that ICT has contributed to Nigerian economic growth and development.

CHAPTER FIVE

FINDINGS, CONCLUSION AND RECOMMENDATION

5.1 FINDINGS

The objective of the study was to

- To examine the impact of ICT on the Nigerian economic growth and development.
- To identify ways by which ICT can contribute to economic growth and development.
- To determine the factor limiting the use of ICT in all sectors of the Nigerian economy.

5.2 CONCLUSION

Findings made from the study revealed the following:

- ICT is important to Nigeria economy.
- ICT influences economic growth and development.
- ICT has contributed to Nigeria's economic growth and development.

- The level of ICT awareness in Nigeria in high
- ICT is useful in all aspects of Nigeria's economy.

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QUESTIONNAIRE ADMINISTRATION

INSTRUCTION: Please endeavor to complete the questionnaire by ticking the correct answer (s) from the options or supply the information required where necessary.

SECTION A: Personal information/data

1. **Gender**
   a. Male ☐
   b. Female ☐
2. **Age range**
   a. 15-20years ☐
   b. 21-30years ☐
   c. 31-40years ☐
   d. 41-50years ☐
   e. Above 50years ☐

3. Educational background

a. FSLC ☐

b. WASSCE/NECO/GCE ☐

c. OND/HND/PHD ☐

d. MSC/PGD/PHD ☐

e. Others ☐

4. Marital status

a. Single ☐

b. Married ☐

c. Divorced ☐

d. Widowed ☐

SECTION B

Questions on the impact of e-banking on customer's satisfaction

5. **ICT is important to Nigerian economy.**
   a. Strongly agreed ☐
   b. Agreed ☐
   c. Undecided ☐
   d. Disagreed ☐
   e. Strongly disagreed ☐
6. **ICT influences economic growth and development.**
   a. Strongly agreed ☐
   b. Agreed ☐
   c. Undecided ☐
   d. Disagreed ☐
   e. Strongly disagreed ☐

7. **ICT has contributed to Nigerians economic growth and development.**

   a. Strongly agreed ☐
   b. Agreed ☐
   c. Undecided ☐
   d. Disagreed ☐
   e. Strongly disagreed ☐

8. **The level of ICT awareness in Nigeria is high.**

   a. Strongly agreed ☐
   b. Agreed ☐
   c. Undecided ☐
   d. Disagreed ☐
   e. Strongly disagreed ☐

9. **ICT is useful in all aspect if Nigeria's economy.**

   a. Strongly agreed ☐
   b. Agreed ☐
   c. Undecided ☐

d. Disagreed 

e. Strongly disagreed 

10. What are the factors limiting the use if ICT in all sectors of Nigeria's economy?

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