



Contribution of ICT sector to economic diversification and sustainable growth in Nigeria

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ABSTRACT

This study appraised the contributions of Information and Communication Technology (ICT) sector to Economic Diversification and sustainable growth in Nigeria. The specific objectives are to (i) ascertain the effect of Microsoft office skills on economic diversification and sustainable growth in Nigeria, (ii) determine the impact of QuickBooks skills on economic diversification and sustainable growth, (iii) examine the relationship between Social Media skill and economic diversification and sustainable growth and (iv) evaluate the effect of Graphic Design Skills on economic diversification and sustainable growth in Nigeria. A descriptive survey research method was adopted. Stratified random sampling method was used to select the respondents. The respondent's level of agreement was measured using five (5) point Likert-type rating scale. Multiple regression models were employed to analyze the relationship between dependent and independent variables in the study. The study reveals that the increasing global phenomenon and awareness on ICT sector opportunities will enhance the acquisition of necessary skills to diversify the Nigerian economy and sustainable growth. The study recommends, among others, that stakeholders in the ICT sector should ensure provision and maintenance of infrastructural facilities necessary for ICT sector development, such as the reliable supply of electricity, telecommunications network and transport. Government of the day should develop the political will to diversify the Nigerian economy, via the ICT sector.

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1.0. Introduction

The economy of Nigeria for some decades was anchored on a mono-economy, which is crude oil. The current reality is that oil is no longer a viable economic mainstay. Throughout the whole world, the price has fallen badly, and any Nation that made the mistake of putting their eggs in one basket is quickly looking for a way out.

However, diversification has been identified as a viable solution, and that is where Nigeria is based for survival. Eventually, identifying what to diversify into is as im-

portant as the diversification itself, and the ICT sector has come to mind.

Information and Communication Technology (ICT) sector has been discovered to be an enabler of change, an essential element of new developments, and a significant contributor to globalization that has become part of daily life. The impact of ICT on our daily life is extensive, affecting every spare of life, individuals, businesses, industry sectors, communities and governments. It has changed the way our daily activities are accomplished, and processes are executed, and in doing so, it also has impacts on social

and economic development of nations and regions (Osuagwu, 2016)

The spread of ICT uplifted the development of information society, where economic success and social development became more dependent on the availability and accessibility of Information and Communication Technology. Again, the ICT sector has changed the fundamental methodologies activities, which gave rise to e-services in communication, trade, employment, education, government, and health.

In recent time one has witnessed the rising nature of social media and mobile devices using as they facilitate the interaction between citizens and their investment in decision-making processes. Today with the increase of knowledge societies and knowledge-based economies, the focus is on value-added products and processes, placing more demands on ICT development, industry and government (Osuagwu, 2016)

Despite the importance of the ICT on development", studies both at global and regional levels in this area are still ongoing. ICT development includes many types of infrastructure and services, ranging from telecommunications, such as voice, data, and media services, to specific applications, such as in banking, education, or health, and the implementation of electronic government (e-government). Each of these types has its trends that vary across nations and regions. (Nwankwo & Agu, 2017)

Masiero (2013) observes that one of the most positive trends has been observed in voice communications and internet operation. Thus, the proportion of mobile phone subscriptions and use of internet in developing countries increased from about 30 percent of the world total in 2000 to more than 50 percent in 2004 and almost 70 percent in 2007, and this trend is ongoing. In India, the total number of mobile phone subscriptions reached 851.70 million in June 2011, among which 289.57 million came from rural areas, with a higher percentage of increase than that in urban areas, and 35 percent of the population in developing countries has access to the internet (versus about 80 percent in advanced economies) (Masiero, 2013).

Olivier (2010) observes that access to ICTs in the developing world has been framed through the concepts of the digital divide and use/non-use. Market liberalization and competition, as well as various regulatory and technical solutions, are believed to be useful in closing the digital divide and ensuring the universal access to it. The general perception is that people who have access to ICT will benefit from it, and those who do not would not benefit include boundless information sharing, connectivity, participation in the global economy (Olivier, 2010).

The use of mobile phones as part of ICT for development (ICT4D) initiatives shows some positive effects in improving access to information and services. For example, the arrival of mobiles brought a reduction in the variability of price and the amount of waste in the fishing system along the Kerala coast, India. In Kenya, a study identified innovation in mobile technologies for development, in particular, the success of M-PESA mobile banking through the partnerships between private and public sectors (Wikipedia, 2016)

Another analysis of mobile phone use in developing countries shows that the use of mobile phones improves access to information, helps to address market inefficiencies,

and can be used in disaster relief. In contrast, evidence from Ethiopia suggests that farmers use mobile phones to connect to those who are already in their social network, which limits the usability of mobile phones for broader information sharing and change in practices. Those who do not have access to technology run the risk of being marginalized and bypassed (Heeks, 2014)

This study tends to contribute to the global, national and regional level of diversification into the ICT sector.

1.1. Statement of the Problem

It has been observed that the high cost of living and the high unemployment rate in Nigeria has become a serious source of concern. The nature a nation's economy is highly essential to the growth and development of that Nation as well as the wellbeing, which is nonetheless dependent on how effective those in governance are managing the economy. Nigeria in recent times has been harassed and threatened with the alarming scenario as a result of unemployment which has resulted in extreme poverty, hunger and insecurity. To building a robust and sustainable economy is building a diversified economy. That is an economy that is not dependent on a single commodity, and that has a strong external and internal focus (Shediac, Abouchakra, Moujaes & Najjar 2008)

Information and Communication Technology (ICT) has been discovered to be an enabler of change, an essential element of new developments, and a significant contributor to globalization. Its impact is extensive, affecting all sector of human life. It changes the way our daily activities are accomplished and processes are executed, and doing it also impacts on economic growth and poverty reduction of Nations and regions. The problem which this study tends to address, therefore is to appraise the contribution of the ICT sector to economic diversification and sustainable growth in Nigeria.

1.2. Objectives of the Study

The main objective of the study is to appraise the contribution of the ICT sector to economic diversification and sustainable growth in Nigeria. The specific objectives are to:

- Examine the effect of Microsoft office Skills on economic diversification and sustainable growth in Nigeria.
- Determine the impact of QuickBooks Skills on economic diversification and sustainable growth in Nigeria.
- Ascertain the relationship between Social Media Skills and economic diversification and sustainable growth in Nigeria.
- Evaluate the level of association between Graphic Design and economic diversification and growth in Nigeria

1.3. Research Questions

- ◆ Does Microsoft office Skills have a significant effect on economic diversification and sustainable growth in nature?
- ◆ How does QuickBooks Skills impact on economic diversification and sustainable growth in Nigeria?
- ◆ What is the relationship between Social Media Skills

and economic diversification and sustainable growth in Nigeria?

- ♦ To what extent does a Graphic Design Skills associate with economic diversification and sustainable growth in Nigeria?

2.0. Review of Related Literature

2.1. Conceptual Review

2.1.1. Information and Communication Technology (ICT):

There have been several definitions given to explain and interpret the acronym ICT, and the one given below seems to be more acceptable:

'ICTs are a generic term referring to technologies that are used for collecting, storing, editing and passing on (communicating) information in various forms. (Kundishora, 2014)

The above definition separates distinct fields of ICTs and at the same time, links them together to operate as an entity.

Agu (2014) describes Information and communication technology as a combination of Information Technology and Communication Technology. It merges computing with high-speed communication link carrying sound and video. Information Technology (IT) deals with the collection, storage, manipulation and transfer of information using electronic means. Communication Technology (CT) refers to the physical devices and software that link various computer hardware components and transfer data from one physical location to another.

Computing and Telecommunications used to be quite a distinct industry, involving distinct technologies. Now they have covered around certain vital activities such as the use of the internet.

2.1.2. Diversification.

Diversification is a business strategy in which a company enters a field or market different from its core activity it spreads out rather than specialize. (Merriam-Webster, 2019). Some business leaders believe that capital should be allocated in a way that reduces exposure to any one particular asset or risk. Others, however, believe specialization is the only practical way forward in today's economy. Diversification has been pursued in order to reduce the risk of relying on just one or a few income sources- not putting all your eggs in one basket. By diversifying, commercial enterprises can avoid seasonal or cyclical fluctuations by producing goods or delivering services with varying demand cycles.

A Nation that put all your eggs in one basket will run the risk of losing everything at once. However, lots of baskets are more expensive, and keeping an eye on all of them requires more work. The most crucial reason for diversification is to generate growth. Diversification is considered to offer an antidote to natural or market risks. (Anosike, & Coughenour 1990)

Another argument for diversification is the positive impact on peoples' incomes, lesser environmental impact, occupation of surplus family labour, and higher technical training to manage production. Also, diversification stimulates manufacturing activity by creating jobs for less-skilled workers. Diversification meets people's needs to improve

their living conditions.

Diversified productive activity yields a series of benefits; the most unquestionable is diversifying risk, by lessening exposure to potential price increases, demand changes, and quickly-shifting technology.

Markowitz (2018) focused on diversification in his Portfolio Theory, saying that an investor maintains a portfolio in order to diversify investment risk, by diversifying the securities comprising the portfolio. If there is any change in the market, only some securities will be affected and decline in value while others prosper, so companies' investments will not be so drastically affected.

Diversification is a Strategy for Economic, Social, and Environmental Development shows that development goes hand-in-hand with market expansion, more productive use of funds, and better opportunities for diversification. Buenaventura (2001) which enable the progressive allocation of resources to more beneficial uses, increasing productivity endogenously as well as reducing variability in growth.

2.1.3. Economic diversification

Economic diversification implies movement into new fields, and stimulation and expansion of existing neglected product line or economic sector (Jaja, 2019) Economic Diversification demand that resources be extended to best alternative economic activities in the long-run interest of the society. A successfully diversified economy is expected to reduce the economies exposure to adverse micro and macroeconomic shocks and instability.

2.1.4. Sustainable growth

Sustainable growth has two primary meanings in the world of business and finance – a traditional and more original meaning. Sustainable growth, traditionally, has meant the realistically achievable growth that a company or national economy could maintain without running into problems.

The term is frequently used by environmentalists, meaning economic growth that can continue over the long term without creating excessive pollution or using up all the non-renewable resources. (Market Business News, 2019).

According to Doyle (2019) the ICT skills are as follows;

2.1.5. Microsoft Office Skills

Microsoft's suite of productivity products known as Office, or MS Office, is a fixture at businesses around the world. The Office suite includes Word, a word-processing program; Excel, a financial spreadsheet program; Access, a database program; Publisher, for desktop publishing; PowerPoint, a program for creating presentations; Outlook, a program for e-mail and scheduling; OneNote, to keep your notes organized; and InfoPath, an application to track information as it passes through the other applications and the business. Knowing how to use MS Office is essential at many businesses, and you can require skills from basic to advanced skills in a job posting to ensure potential employees will be equipped to manage the job.

2.1.6. QuickBooks Skills

QuickBooks is an accounting software package developed and marketed by Intuit. QuickBooks products are geared mainly toward small and medium-sized businesses and offer on-premises accounting applications as well as cloud-based versions that accept business payments, manage

and pay bills, and payroll functions

QuickBooks is an accounting software package developed and marketed by Intuit. QuickBooks products are geared mainly toward small and medium-sized businesses and offer on-premises accounting applications as well as cloud-based versions that accept business payments, manage and pay bills, and payroll functions

This skill is used for accounting software skill in finance or business sectors. Much small business (and some large ones) uses QuickBooks for accounting, payroll, invoicing, reporting and more. QuickBooks skills are in the area of E-mail using Microsoft outlook

2.1.7. Social Media Skills:

Social media refers to websites and applications that are designed to allow people to share content quickly, efficiently, and in real-time. Many people define social media as apps on their Smartphone or tablet, but the truth is that this communication tool started with computers. This misconception stems from the fact that most social media users access their tools via apps.

The ability to share photos, opinions, events, etc. in real-time has transformed the way we live and, also, the way we do business. Retailers who use social media as an integral part of their marketing strategy usually see measurable results. But the key to successful social media is not to treat it like an extra appendage but to treat it with the same care, respect, and attention you make all of your marketing efforts

These skills are more commonly desired for positions in public relations, marketing and advertising. Knowledge of specific social media software like Hoot suite is often required for many of these positions (Doyle, 2019)

2.1.8. Graphic Design Skills:

Graphic design is the process of visual communication and problem-solving through the use of typography, photography, and illustration. The field is considered a subset of visual communication and communication design, but sometimes the term "graphic design" is used synonymously. Graphic designers create and combine symbols, images and text to form visual representations of ideas and messages. They use typography, visual arts, and page layout techniques to create visual compositions. Typical uses of graphic design include corporate design (logos and branding), editorial design (magazines, newspapers and books), way finding or environmental design, advertising, web design, communication design, product packaging, and signage.

Graphic design is applied to everything visual, from road signs to technical schematics, from interoffice memorandums to reference manuals.

Design can aid in selling a product or idea. It is applied to products and elements of company identity such as logos, colours, packaging and text as part of branding (see also advertising). Branding has become increasingly more important in the range of services offered by graphic designers. Graphic designers often form part of a branding team.

Graphic design is applied in the entertainment industry in decoration, scenery and visual storytelling. Other examples of design for entertainment purposes include novels, vinyl album covers, comic books, DVD covers, opening

credits and closing credits in filmmaking and programs and props on stage. This could also include artwork used for T-shirts and other items screen printed for sale (Doyle, 2019)

From scientific journals to news reporting, the presentation of opinion and facts is often improved with graphics and thoughtful compositions of visual information - known as information design. Newspapers, magazines, blogs, television and film documentaries may use graphic design. With the advent of the web, information designers with experience in interactive tools are increasingly used to illustrate the background to news stories. Information design can include data visualization, which involves using programs to interpret and form data into a visually compelling presentation, and can be tied in with information graphics designer creates visual concepts to convey information through photos and art

A graphic designer creates posters, bus wraps, billboards, packaging, logos and marketing materials, depending on the industry. Graphic designers work at magazines, advertising and marketing agencies, and more. Selecting photos and typefaces, and developing layouts for advertisements, annual reports, brochures, magazines and other projects are also part of their assignment (Talley, 2019)

2.2. Contextual Underpinning

2.2.1. ICT Skills

Information and communications technology (ICT) skills refer to one's ability to converse with people through various technologies. Similar to information technology (IT), ICT refers to the technology used for regular, everyday tasks: sending an e-mail, making a video call, searching the internet, using a tablet or mobile phone, and more.

Almost every job requires some ICT skills, and many require hybrid skills, a skill set that is a mix of technical and non-technical skills. (Doyle, 2019) These skills are complementary and necessary to work across a variety of sectors, including transportation, logistic.

These ICT skills are complementary and necessary to work across a variety of sectors, including transportation, logistics, and sales. They apply to both blue-collar and white-collar jobs (Ohno and Kogiso, 2015)

Cedefop (2014) states that computer skills fit into two categories: hardware and software.

Hardware skills allow you to operate a computer physically. Hardware skills can be as simple as knowing how to turn devices on and off. They might also involve more complex tasks like connecting machines to networks, changing parts or fixing broken devices. For these complex tasks, many employers hire trained technicians with advanced computer skills.

Software skills help you to use computer programs and applications efficiently. There are some software skills that employers may consider as prerequisites to employment. Employers may not include some software skills on job posts under the assumption they are universally understood. For example, many employers may believe all applicants have a basic knowledge of word processing programs, like Microsoft Word.

Some necessary computer skills include:

- Social Media
- Graphic Design
- Microsoft Office
- QuickBooks Skills etc

Specific software skills are more commonly desired in different fields. If you are a computer programmer, you may be required to know various coding languages like Python, C++, Java or HTML, among others.

2.2.2. Microsoft Basic Skills

Entry-level skills for most office work include the ability to open, create, save and modify documents in Word, send and receive e-mail in Outlook and create spreadsheets in Excel. For any of these programs, job candidates should also know how to format the documents for printing, be comfortable with using the printer menu to preview documents before they are printed and print the pages. Word is the most-used program in MS Office, so knowledge on how to change the font, the margins, insert or delete pages and use the built-in spellchecker and grammar check should be part of a basic skill set.

2.2.3. Microsoft Intermediate Skills

Many everyday tasks in the daily operation of an office go beyond necessary MS Office skills, such as using Mail Merge in Word to personalize business letters for an entire mailing list or creating posters and other graphics-heavy documents in Publisher. Creating slideshows in PowerPoint is an intermediate-level task often used in the office. At this level, employees should know how to create formulas in Excel to calculate desired results such as sales commissions or taxes, and some office workers use Excel instead of access to create lists of customers or other information. Intermediate skills for Outlook include knowing how to create address books and set up auto-responders for when you are out of the office or on vacation (Doyle, 2019)

2.2.4. Why Your Business Needs QuickBooks

Business needs QuickBooks Skill to get a detailed picture of the business performance — view the profit and loss, income and expenses, stock report, financial statement report instantly from the report window.

Manage multiple currency transactions. Create local and domiciliary accounts. View foreign exchange gain or loss and generate a financial report. Track stock, set reorder points and create purchase orders. Create and keep records of already invoiced clients/ customers: track payment and any outstanding balances. Get insights from your customer balance report, overdue invoice report and collection details report to plan your cash flow.

It is also used to set up VAT and withholding taxes, track charges, deductions remitted to FIRS.

Enable collaboration by having many users on the software.

Set individual user permissions to control access to sensitive information. Track your balance sheet by class — Track financial data separately by location, department, or profit centre. Track and bill clients/ customers by time, material, job phase, or percentage completion, depending on what works for you. Manage your inventory, monitor

your stock movement, reconcile warehouse/ store balances, and generate inventory report.

Easily send PDF copies of created invoices to your customers, all from QuickBooks software. (Wikipedia, the free encyclopedia, 2019)

2.2.5. Types of Social Media Skills:

According to Doyle (2019) social media skills are;

- Writing skills:** Most social media posts include text, and many are text-based. That means that, for your posts to be useful, your text has to be worth reading - bright, engaging, and on-message. Part of writing good copy is simply the craft of putting words together: grammar, spelling, and punctuation. There is also the aspect of understanding a company's "voice" and employing that with consistency, intelligence, and sometimes with humour.
- Design skills:** While most social media posts include text, images and video are becoming increasingly popular. Even text has a visual element for many platforms, since you can choose colour, size, font, alignment, and in some cases, you will want to include emoji or other symbols. Designing these elements well will make the visual dimension of your posts more precise, more engaging, and more productive:
- Public Speaking Skills:** Public speaking on social media? Especially live video is one of the best ways to engage your audience. Moreover, if you are going to star in your video, you are going to have to be comfortable and well-presented in the public eye.
- Customer Service skills:** Social media is not just a way to get your message out; it is also a way to listen. You can use these channels to engage in dialogue, receive feedback, and address concerns. If you work for a business, this type of work falls mostly under the heading of customer service. Another way to describe this part of the role could be community engagement. In either case, to do it well, you have to be open-minded, diligent, and genuinely interested in what your visitors and customers have to say to you through social media.
- Analytics skills:** Social media services provide a variety of ways to measure the performance of your posts and tweets. From public information such as shares, likes, plays, and comments to private information that only you can see, these metrics help you find out what works best for your message. With this insight, you can tweak your topics, format, and even times of day work to maximize impact.

Bear in mind, though, that the numbers do not tell the whole story. To make sense of the picture, you must also know a bit about behavioural psychology, so you can make good guesses about why a tweet or a post is doing well, and adjust your social media use accordingly (Doyle, 2019)

2.2.6. Economic effects of ICT Sector

Elena, (2013) observes that the following are the five common economic effects of ICT Sector;

- Direct job creation:** The ICT sector is, and is expected to remain, one of the largest employers. In the US alone, computer and information technology jobs are

expected to grow by 22% by the year 2020, creating 758,800 new jobs. In Australia, building and running the new super-fast National Broadband Network will support 25,000 jobs annually. Naturally, the growth in different segments is uneven. In the US, for each job in the high-tech industry, five additional jobs, on average, are created in other sectors. In 2013, the global tech market will grow by 8%, creating jobs, salaries and a widening range of services and products (World Economic Forum, 2013)

2. Contribution to GDP growth: Findings from various countries confirm the positive effect of ICT on growth. For example, a 10% increase in broadband penetration is associated with a 1.4% increase in GDP growth in emerging markets. In China, this number can reach 2.5%. The doubling of mobile data use caused by the increase in 3G connections boosts GDP per capita growth rate by 0.5% globally. The internet accounts for 3.4% of overall GDP in some economies. Most of this effect is driven by e-commerce – people advertising and selling goods online (Elena, 2013)
3. The emergence of new services and industries:

Numerous public services have become available online and through mobile phones. The transition to cloud computing is one of the critical trends for modernization. The government of Moldova is one of the first countries in Eastern Europe and Central Asia to shift its government IT infrastructure into the cloud and launch mobile and e-services for citizens and businesses. ICT has enabled the emergence of an entirely new sector: the app industry. Research shows that Face book apps alone created over 182,000 jobs in 2011 and that the aggregate value of the Face book app economy exceeds \$12 billion.

4. Workforce Transformation:

New "microwork" platforms, developed by companies like oDesk, Amazon and Sam source, help to divide tasks into small components that can then be outsourced to contract workers. The contractors are often based in emerging economies. Microwork platforms allow entrepreneurs to significantly cut costs and get access to qualified workers (Lee-Roy, 2013). In 2012, oDesk alone had over 3 million registered contractors who performed 1.5 million tasks. This trend had spillover effects on other industries, such as online payment systems. 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.

5. Business innovation:

In OECD countries, more than 95% of businesses 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. The unprecedented explosion of connected devices throughout the world has created new ways for businesses to serve their customers (Elena, 2013)

2.2.7. Other Emerging ICT skills in the Business Sector

As well as traditional fax and fixed-line communications, a range of emerging communication and information access technologies have become widely available in Botswana in the last five years. These include e-mail/internet access, mobile communications, satellite, (VSAT) extended microwave communications, and a range of value-added telecommunication end-user services. A number of these were considered (Ramkissoon, 2012)

- E-mail:

E-mail enables fast and relatively cheap communication internally, between networked computers, and externally, within the locality, regionally and worldwide. An e-mail message, and any accompanying computer files, can be sent via the phone line within a few minutes to any global destination. E-mail creates many advantages for business communication. Fore mostly, it is significantly cheaper and quicker than other methods of communication, including phone, fax and postal services. The E-mail also enables the user to message multiple clients simultaneously, to re-route messages and to pick up messages.

In contrast, at different locations (Lee-Roy, 2013) Within relatively isolated LDCs, such as Botswana, e-mail has been the fastest-growing emerging technology amongst business users. The unreliability of existing mail services within a vast geographically spread country has also encouraged the adoption of e-mail. Within the survey sample, approximately 50% of the responses were e-mail users. 66% used e-mail very often, 25% used it quite often, and only 9% did not use it very often. Those who used e-mail very often was predominantly in the service sector from the technical services, IT and tourism sub-sectors covered in the sample.

- Internet and Worldwide Web:

Connection to the internet enables communication with a global network of computers, and access to enormous quantities of information, providing for multi-media content based on text, pictures, sound, graphics and moving images. The internet, as well as providing for e-mail, also gives access to the information published on websites, from other commercial and non-commercial organizations. The internet also allows small companies to publish their websites as a means of promoting their products/services. The internet also allows users to discuss common problems and interests through User-groups and Newsgroups (Jensen, 2007) Levels of internet usage in Botswana have also proliferated in recent years, although not as fast as e-mail. Approximately 50% of those who responded to the survey had internet access. 43% used the internet very often, 33% used it quite often, and 24% did not use it very often. When asked how important the internet was as a source of 87 information for their business, 30% stated it was essential, 37% that it was quite remarkable, 20% stated not very important and 13% not necessary. In terms of the effectiveness of the internet as a method of promoting products and services, only 13% of internet users regarded it as very useful, 20% said it was quite effective, 20% regarded it as not very useful. A further 47% had not used the internet as a business promotion tool (Heeks, 2014) The results tend to indicate that at present in Botswana the internet is being used as a method of accessing information, rather than as a tool of business promotion, amongst internet users. However, a significant number of small business websites have been set up in Botswana mostly in the tourism sector and business services (Lee-Roy, 2013)

- Local networking:

Businesses can benefit from creating internal networks by connecting computers using cabling. This enables them to communicate with each other, to share data files, printers and faxes. Computers can be linked within a single location known as a Local Area Network (LAN) or between multiple locations, known as a Wide Area Network (WAN) networks can also be connected to external networks such as the World Wide Web (Internet) (Donner, 2008) Internal networking gives the potential to work faster, to work more efficiently and to have better internal communications. The extent to which businesses can benefit from internal networking, however, will be dependent on a wide range of other business management factors relating to the information needs of the enterprise, the level of internal information management and the available business management skills. A total of 16 respondents had internal networking of computer systems. These were all 'information-intensive' enterprises in the services sector covering technical services, IT and tourism. They all regarded further upgrading and continued expansion of computer-based management systems as being critical or very important for the future success of their businesses.

- Mobile communications:

Mobile communications based on new digital technology, allows business owners to answer calls, from customers immediately, and to reach staff working away from the office, no matter what their location. This can bring greater flexibility, faster customer response and time savings. In developed countries, mobile phones are now part of the business fabric. In Botswana, the growth in mobile communications, since their introduction in 1997, has been extremely rapid (Masiero, 2013) Within the survey sample response, 60% were mobile phone users. 43% used them very often, 24% used them quite often, and 33% of owners did not use them very often. Mobile phone users were equally spread across all the manufacturing and service-based sectors covered in the survey. This figure is, of course, unrepresentative of overall SMMEs, but only suggests high levels of use by relatively well educated urban-based entrepreneurs.

- Electronic commerce:

Electronic commerce is one area, which is predicted, will have a significant effect on the SME sector. Electronic commerce, of course, is already used in Botswana, through the use of the telephone and credit cards, electronic payment and money transfer systems and smart cards. However, it is through the medium of the internet and online services that rapid expansion is likely to take place. The number of internet users is predicted to reach 300 Million worldwide by the year 2000, having risen from a mere 4.5 million users in 1985. Although at present only a fraction of 1% of total worldwide transactions is via the internet, it is predicted this will grow to 3% by the year 2001 and 15% by 2007. (Ramkissoon, 2012) Within Botswana, there is evidence of the growth of network-based electronic commerce taking place in the tourism sector. The extension of the high-speed telecommunications ring to the north-west of the country, and the introduction of a local internet server, has enabled rapid adoption of internet/E-mail-based communication. Tourism operators are highly dependent on external communications, and interviews with Maun-based enterprises suggest that e-mail is now the preferred option for exchanging information with clients and parent companies, driven primarily by substan-

tial cost savings and convenience factors. There is also evidence of a growth of direct bookings and payment utilizing Botswana-based company websites (Olivier, 2010).

2.3. Theoretical Framework

This study is anchored on the theory of Cognitive flexibility theory propounded by Spiro and Jehng, which focuses on the nature of learning in complex and ill-structured domains. Spiro & Jehng (1990) state: "By cognitive flexibility, we mean the ability to spontaneously restructure one's knowledge, in many ways, an adaptive response to radically changing situational demand. This is a function of both the way knowledge is represented (e.g., along multiple rather single conceptual dimensions) and the processes that operate on those mental representations (e.g., processes of schema assembly rather than intact schema retrieval)."

The theory is primarily concerned with the transfer of knowledge and skills beyond their initial learning situation. For this reason, the emphasis is placed upon the presentation of information from multiple perspectives and use of many case studies that present diverse examples. The theory also asserts that active learning is context-dependent, so instruction needs to be very specific. Besides, the theory stresses the importance of constructed knowledge; learners must be allowed to develop their representations of information in order to learn correctly. (Spiro and Jehng, 1990)

Cognitive flexibility theory builds upon other constructivist theories (e.g., constructivist, subsumption, genetic epistemology) and is related to the work of symbol systems in terms of media and learning interaction.

The application of Cognitive flexibility theory is specially formulated to support the use of interactive technology (e.g., videodisc, hypertext). Its primary applications have been literary comprehension, history, biology and medicine.

3.0.METHODOLOGY

3.1. Research design, Nature and Sources of Data

A descriptive survey design was adopted in this study. Data used in this study are both primary and secondary data. The nature of primary data was the use of questionnaire while that of secondary data were internet materials. The population of this study comprises employees in ICT sector skills, namely, Microsoft office skills, QuickBooks skills, Social Media skills and Graphic Design skills. The population size of the study is 5,000. The sample frame of this study consists of male and female ICT skill employees in Abia, Anambra, Ebonyi, Enugu, and Imo states of South-East Nigeria. Data were collected from 5,000 respondents randomly.

The questionnaires which served as the instrument for eliciting information were divided into two sections. The first section collected demographic information, such as age and sex. In contrast, the second section contained sixteen (16) items that measured the contribution of ICT skills to economic diversification and sustainable growth in Nigeria.

Out of the 5000 questionnaires distributed to respondents, 4,800 were returned given a response rate of 90%. The responses were analyzed/ measured with simple distribu-

tion table of frequency and five (5) point Likert -type scale, where strongly agree (SA) =5; Agree (A) =4; Disagree (D) =3; strongly disagree (SD) =2; Neutral (N) =1.

Also, in analyzing the data, means, scores, and standard deviation were used. A cut off point was determined by finding the means of the nominal values assigned to the responses. Thus $5 + 4 + 3 + 2 + 1 = 15/5 = 3.00$. For the decision to be reached, mean scores of 3.00 and above were regarded as an agreed statement while mean scores below 3.00 were regarded as a disagreed statement.

3.2. Method of Data Analysis and model specification

In this study, descriptive statistics was introduced to analyze the data of the study using percentages and table of frequency. Multiple regression models were employed to analyze the relationship between the dependent and independent variables. The regression model for analysis is formulated as follows;

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \dots + \beta_n X_n + U_t$$

Where;

Y = Dependent variable

X₁, X₂, X₃, X₄, ..., X_n = the explanatory or independent variables

B₁, B₂, B₃, B₄, ..., B_n = the coefficient of the parameter estimate or the slope

U = Error or disturbance term

t = Time

In relating this to the study;

$$EDSG = f(MOS, QBS, SMS, GDS) + U_t$$

Relating to econometric form, it will appear thus;

$$EDSG = \beta_0 + \beta_1 MOS + \beta_2 QBS + \beta_3 SMS + \beta_4 GDS + \dots + U_t$$

Where;

EDSG = Economic Diversification and Sustainable Growth

MOS = Microsoft Office Skills

QBS = QuickBooks Skills

SMS = Social Media Skills

GDS = Graphic Design Skills

B₀ = intercept (Constant term)

U_t = Error term

3.3. Description of Variables in the Model

3.3.1. Microsoft office

Microsoft's suite of productivity products known as Office, or MS Office, is a fixture at businesses around the world. The Office suite includes Word, a word-processing program; Excel, a financial spreadsheet program; Access, a database program; Publisher, for desktop publishing; PowerPoint, a program for creating presentations; Outlook, a program for e-mail and scheduling; OneNote, to keep your notes organized; and InfoPath, an application to track information as it passes through the other applications and the business. Knowing how to use MS Office is

essential at many businesses, and you can require skills from basic to advance in a job posting to ensure potential employees will be equipped to manage the job.

Basic Tasks: Entry-level skills for most office work include the ability to open, create, save and modify documents in Word, send and receive e-mail in Outlook and create spreadsheets in Excel. For any of these programs, job candidates should also know how to format the documents for printing, be comfortable with using the printer menu to preview documents before they are printed and print the pages. Word is the most-used program in MS Office, so knowledge on how to change the font, the margins, insert or delete pages and use the built-in spellchecker and grammar check should be part of a basic skill set.

Intermediate Tasks: Many everyday tasks in the daily operation of an office go beyond basic MS Office skills, such as using Mail Merge in Word to personalize business letters for an entire mailing list or creating posters and other graphics-heavy documents in Publisher. Creating slideshows in PowerPoint is an intermediate-level task often used in the office. At this level, employees should know how to create formulas in Excel to calculate desired results such as sales commissions or taxes, and some office workers use Excel instead of access to create lists of customers or other information. Intermediate skills for Outlook include knowing how to create address books and set up auto-responders for when you are out of the office or on vacation.

3.4. QuickBooks Skills:

QuickBooks is accounting software designed to track purchases and expenses, manage inventory and other bookkeeping needs of any business type – retails, wholesale, manufacturing, transport, distribution, NGO, courier service, legal firms, travel agency, schools, event managers, real estates etc. It is designed to make the complex process of managing your cash flow a lot easier, and enable you to make informed decisions with reports generated.

QuickBooks Accounting editions include Premier, Pro, and Enterprise. Each of these editions is developed according to SME size and business operations.

4.0. Data Presentation and Analysis

4.1. Analysis of Demographic Information

The study sought to establish the background information of respondents in terms of gender and age.

The researcher sought to determine the age of various ICT skills employee in South-East, Nigeria. Table 4.2 shows that 1318 respondents representing 27.46% are within the age bracket of 18-25 years, 1820 respondents representing 37.91% fall within the age bracket of 26-35 years, 838 respondents representing 17.46% fall within the age bracket of 36-40 years, while the remaining 824 respondents representing 17.17% are between the ages of 41-50. We observed that more than 82.83% of the ICT Skills are youths, i.e. 26-40 years, thus creating age balance between the employees.

The result in table 4.3 shows that those engaged in Microsoft Office Skills in ICT sector contributes to economic diversification and sustainable growth in Nigeria. The response shows that about 2400 (53.84%), agreed that

knowledge of Microsoft Office Skills in ICT sector enhances recruitment chances and marketing to employers. While 1960 (40.84%), disagreed. With a mean score of 3.13, shows that respondents accepted that Microsoft Office Skills creates employment opportunities in Nigeria. 2540 (52.92%) agreed that a candidate who has the skills in creating complex macros to organize spreadsheet information is in high demand by employers in the ICT sector. While 1740 (36.25%) disagreed. 2400 (50.84%) respondents with a mean score of 3.46 agreed that a solid grasp of PowerPoint for workers who wish to conduct dynamic presentations or prepare materials for bosses and students is essential. While 1920 or 40.84% of the respondents disagreed. 2280 (48.34), with a mean score of 3.43 agreed that job seekers who can manipulate and organize data through programs like Microsoft Access have advantages in today's information-intensive economy, while 2080 (30) disagree. Judging from the responses, it has been established that acquiring Microsoft skills has a positive and significant impact on economic diversification and sustainability in Nigeria.

The result in table 4.4 above shows that the contributions of QuickBooks Skills in the ICT sector on the creation of sustainable economic growth in Nigeria by increasing em-

ployment level. The responses were on the use of e-mail as part of employers and employees' personal and professional lives. About 1960 or 40.44% agree that ICT e-mail programs like Microsoft outlook can increase office productivity. While 2400 or 50.84%, disagreed, but a mean score of 3.21 indicates acceptance of the statement. The table also shows that items 7 and 8 with mean scores of 3.40, and 3.7, which suggests that all the respondents agreed that Microsoft outlook and knowledge of QuickBooks could increase productivity and enhanced assets to the ICT sector.

The result in table 4.5 shows that 2300(47.92%) agreed that workers who can maintain and upgrade websites using tools like content management system, HTML, Dream weavers, word-press and Java are very attractive to the employers of labour. While 2080(43.33% disagreed. With a mean score of 3.43, the statement was accepted. 2200 (48%) agreed that candidates who understand how to leverage social media to convey messages about their organization are in high demand by employers, 1960 (40.84%) disagreed. Respondents with mean scores 3.46, 3.53, 2400 (50%) and 2500(52.08) agreed that candidates with social media skills are more desired for positions in public relations, while people with social media skills should have an open-minded, diligent and genuine interest in doing their work.

Table 4.1: Distribution of Respondents according to Gender

OPTION	FREQUENCY	%
Male	3170	
Female	1630	66.04%
Total	4800	33.96%
		100

Source: Survey Data, 2019

Table 4.6 was used to measure the contribution of Graphic Design Skills to ICT sector for ease of economic diversification. All the items with mean scores of 3.46, 3.40, 3.21 and 3.7 agreed that job opportunities in Graphic Design, Photoshop, conveying information through photos and art, creating posters, bus wraps, billboards and development of

layouts for advertising annual reports would enhance economic diversification and sustainable growth. Judging from the above, it has been established that Graphic Design Skills has a positive and significant response to economic diversification and sustainable growth.

Table 4.3: Rating of Respondents on the contribution of Microsoft Office Skills in the ICT sector

S/N	Option	SA	A	D	SD	N	Mean
1	Knowledge of Microsoft office enhances recruitment chances and marketing to employers?	1240 (25.83)	1160 (24.17)	1040 (21.67)	920 (19.17)	440 (9.17)	3.13
2	A candidate who has the skills in creating complex macros to organize spreadsheet information is in high demand by employers?	1260 (26.25)	1280 (26.67)	1100 (22.92)	640 (13.33)	520 (10.83)	3.53
3	A solid grasp of PowerPoint for workers who wish to conduct dynamic presentations or prepare materials for bosses and students is essential?	1160 (24.17)	1240 (25.83)	920 (19.17)	1040 (21.67)	440 (9.17)	3.46
4	Job seekers, who can organize and manipulate data through programs like Microsoft Access have an advantage in today's information-intensive economy?	1040 (21.67)	1240 (26.67)	1160 (24.17)	920 (19.17)	440 (10.83)	3.43

Source: Survey Data, 2019

4.2. Regression analysis

The researcher conducted a multiple regression analysis to determine the factors affecting ICT skills employees in Nigeria. The researcher applied the statistical package for social sciences (SPSS) to code, enter and compute the measurements of the multiple regressions for the study.

4.3 Coefficient of Determination

The study conducted a multiple regression analysis and from the regression model, holding (Microsoft Office Skills, QuickBooks Skills, Social Media Skills and Graphic Design Skills) constant at zero, the contribution of ICT Skills was 2.559. One percent (1%) change in Microsoft Office skills will lead to 0.05% variation on economic diversification and sustainable growth. This result means that Microsoft Office skills have a positive and significant

impact on economic diversification and sustainable growth in Nigeria.

One percent (1%) change in QuickBooks skills will lead to a 135% variation on economic diversification. This result shows that QuickBooks skills have a positive and no significant effect on economic diversification and sustainable growth in Nigeria. One percent (1%) change in Social media skills will lead to 0.79% variation on economic diversification. This finding implies that social media skills have a positive but no significant relationship with economic diversification and sustainable growth in Nigeria. A one (1%) changes in Graphic Design skills will lead to a 0.50% variation on economic diversification. This shows that Graphic Design skills have a positive no significant association with economic diversification in Nigeria.

The unstandardized beta coefficients column in Table 4.7

Table 4.4: Rating of Respondents on the contribution of QuickBooks Skills in the ICT sector

S/N	Option	SA	A	D	SD	N	Mean
5	We use e-mail as part of our personal and professional lives to contribute to the employment level in Nigeria.	920 (19.17)	1040 (21.27)	1160 (24.17)	1240 (26.67)	440 (9.17)	3.21
6	Use of QuickBooks for Accounting, Payroll, Invoice, and Reporting enhances administrative role?	1240 (26.67)	1260 (26.25)	1100 (22.92)	640 (13.33)	520 (10.83)	3.45
7	With e-mail programs like Microsoft outlook can increase office productivity?	1100 (22.92)	640 (13.13)	1260 (25.26)	1240 (26.67)	520 (10.83)	3.40
8	Working knowledge of QuickBooks is an asset to the ICT sector?	1260 (26.25)	520 (10.83)	1240 (26.67)	1100 (22.92)	640 (13.33)	3.7

Source: Survey Data, 2019

Note: SA = Strongly Agree, A = Agree, D = Disagree, SD = Strongly Disagree, N = Neutral

were used to obtain the overall equation, as suggested in the model specification. When these beta coefficients are substituted in the equation, the model becomes:

$$Y = 2.559 + 0.005X_1 + 0.135X_2 + 0.79X_3 + 0.50X_4$$

Where;

Y = Economic Diversification and sustainable growth,
X₁ = Microsoft Office Skills, X₂ = QuickBooks Skills, X₃ = Social Media Skills, X₄ = Graphic Design Skills.

The value of R² (0.967) and the adjusted R² (0.689) in the above regression estimates indicated that the model adequately explains the influence of ICT Skills on economic diversification using the variables given above. The coefficient of determination (R²) is (0.967), which shows that the independent variables have explained 97 % of the variation in the dependent variable while 3% remain unexplained in the model.

Summary of findings, Conclusion and Recommendation

Table 4.5: Rating of respondents on the contribution of Social Media Skills in the ICT sector

S/N	Option	SA	A	D	SD	N	Mean
9	Workers who can maintain and upgrade websites using tools like Content Management Systems, HTML, Dream Weavers, Word Press and Java are very attractive to the employers of labour?	1040 (21.67)	1260 (26.25)	1240 (25.83)	840 (17.50)	420 (8.75)	3.43
10	Candidates who understand how to leverage Social Media to convey messages about their organization are in high demand by employers?	1240 (25.83)	1160 (22.17)	1040 (21.67)	920 (19.17)	440 (9.17)	3.13
11	Candidates with Social Media Skills are more commonly desired for positions in public relations, marketing and advertising?	1160 (24.17)	1240 (26.67)	920 (19.17)	1040 (21.67)	520 (10.83)	3.46
12	One of the roles of Social Media is community engagement and to do it well, being open-minded, diligent and genuinely interested in what visitor and customers have to say to them through social media?	1260 (26.25)	1240 (22.83)	1100 (22.92)	640 (13.13)	520 (10.83)	3.53

Source: Survey Data, 2019

tions

5.0. Summary of Findings

The findings of the study are that;

- i. Microsoft office skills have a positive and significant impact on economic diversification and sustainable growth in Nigeria
- ii. QuickBooks Skills has a positive and significant effect on economic diversification and sustainable

growth in Nigeria.

- iii. Social Media Skills has a positive and significant relationship with economic diversification and sustainable growth in Nigeria
- iv. Graphic Design Skills has a positive and significant association with economic diversification and sustainable growth in Nigeria.

Table 4.6: Rating of Respondents on the contribution of Graphic Design Skills in the ICT sector

S/N	Option	SA	A	D	SD	N	Mean
9	Knowledge of Photoshop and graphic programs like InDesign and illustrator enable employees to optimize the look and feel of websites and other communications?	1160 (24.17)	1240 (25.83)	920 (19.17)	1040 (221.67)	440 (9.17)	3.46
10	A graphic designer creates visual concepts to convey information through photos and art?	1100 (22.92)	640 (13.13)	1260 (26.25)	920 (19.17)	520 (10.83)	3.40
11	Do graphic designers create posters, bus wraps, billboards, packaging, logos and marketing materials?	920 (19.17)	1040 (2.67)	1160 (24.17)	1040 (21.67)	440 (9.17)	3.21
12	Part of the work of graphic designers is selecting photos and typeface, and developing layouts for advertisements, annual reports, etc.?	1260 (26.25)	520 (10.83)	1240 (26.25)	640 (13.13)	640 (13.13)	3.7

Source: Survey Data, 2019

6.0. Conclusion

This study was conducted to appraise the contribution of ICT Skills to economic diversification and sustainable growth in Nigeria. It is a known fact that the ICT sector is an enabler of a wide range of economic opportunities and benefits for users. This is because of its cross-cutting nature, thus affecting all sectors of the Nigerian economy. Building an ICT sector-based economy requires developing long term strategic focus and recognizing that the ben-

efits are not always immediate or direct. For instance, it has taken Malaysia, Brazil and India over ten years to develop an internationally competitive ICT sector and even after ten years, the impact on development is still not conclusively evident. This agrees with Nwaogu (2016), which states that technology demands business models that allow them to become part of the fabric of society. Among low-income individuals and SMEs, business Model innovations such as low-cost distribution systems, value-added

Table 4.7: Regression Analysis Result

Coefficients		Unstandardized Coefficient		Standardized Coefficient	
Model		Beta	Std. Error	Beta	t
1	Constant	2.559	.177		13.920
	MOS	.005	.034	.344	.127
	QBS	.135	.041	.575	3.055
	SMS	0.79	.62	.318	1.429
	GDS	0.50	.55	.205	1.043

a Dependent variable: Economic Diversification and Sustainable Growth

content and service partnerships, and appropriate financing options have all been critical in this regard.

Holistic adoption and proper utilization of ICT Skills will lead to increased yields and quality production of goods and services in Nigeria.

7.0. Recommendations

In light of the findings, the following recommendations were made;

- i. Stakeholders in the ICT sector should ensure provision and maintenance of infrastructural facilities necessary for Microsoft Office Skills, such as the relia-

ble supply of electricity, telecommunications Network and transport.

- ii. Stakeholders in the ICT sector should pay more attention to the development of QuickBooks Skills since it was aimed at maintaining a proper accounting system, payroll, invoicing and reporting using accounting software.
- iii. Appropriate regulatory measures should be put in place by the stakeholders in the ICT sector to enhance the development and operations of those in the social media sector.
- iv. Stakeholders in the ICT sector should provide the

appropriate infrastructures necessary for sustaining Graphic Design that is meant to create visual concepts to convey information through photos and arts.

7.1. Other Recommendations

Table 4.8: Model Summary

Model	F	R	R Square	Adjusted R square	Std. Error of the Estimate
1	20.32	.801	.967	.689	.21023

a, Predictors: (Constant), Microsoft Office Skills, QuickBooks Skills, Social Media Skills and Graphic Design Skills
Source: Authors Computations, 2019

ment that will provide equitable access to ICTs enabled education and training in all parts of the country, including the disadvantaged communities.

- iii. Government and stakeholders should lower the cost of PCs for targeted population, groups and relaxation of import duties, tax breaks and assurance that investors can regularly repatriate their investment.
- iv. The government should offer incentives that foster the knowledge economy. Numerous examples indicate that access to reliable and steady sources of funding is essential to the ICT sector and technological growth and sustainability.
- v. Government of the day should develop the political will to diversify the Nigerian economy

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