ICT and National Development: Can Nigeria Emulate India?

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ABSTRACT

Information and communication technology (ICT) has become part of our society. It is so important these days that without it one would have imagined how life would have been. ICT has an indispensable part of human society. It has revolutionized the way we do things, communicate, and many more. Information and communications technology (ICT) refers to all the technology used to handle telecommunications, broadcast media, intelligent building management systems, audiovisual processing and transmission systems, and network-based control and monitoring functions. ICT has more recently been used to describe the convergence of several technologies and the use of common transmission lines carrying different forms of data and communication types and formats. In this paper, we discussed the role ICT plays in national development using India as a case study. The paper shows clearly how ICT has been used to drive and developed India's economy in the last three decades or so and what lessons Nigeria can learn from this in order to develop her ICT sector and stop relying on Oil and gas, which is a single major source of our nation's economy.

Keywords: ICT, telecommunication, Internet, National Development, Nigeria & India

1. INTRODUCTION

Information and communication Technology (ICT) has become an integral part of human society. It has revolutionized the way we think and do things in the 21st century so much that the world has turned to a global village in which one can easily communicate and interact with others very far away as if they are in one particular place or the same locality. Information and communications technology (ICT) refers to all the technology used to handle telecommunications, broadcast media, intelligent building management systems, audiovisual processing and transmission systems, and network-based control and monitoring functions [1]. ICT has more recently been used to describe the convergence of several technologies and the use of common transmission lines carrying different forms of data and communication types and formats [2] [3].

ICT is leveraged for economic, societal and interpersonal transactions and interactions. ICT has drastically changed how people work, communicate, learn and live. Moreover, ICT continues to revolutionize all parts of the human experience as first computers and now robots do many of the tasks once handled by humans. In the past, computers can answer phones and directed calls to the appropriate individuals to respond; these days, however, robots are also used to answer calls. They not only answer calls, they are used to handle callers' requests quickly and efficiently for better services [4]. ICT has made banking operations faster and efficient than it used to be in the some two decades ago.

Many people no longer go to banking halls for all their transactional purposes. Customers now sit at the comfort of their homes and do most of their transactions online with the help of their smart phones and other Internet services. They can transfer money, check their balances, open accounts, pay for utilities bills such as PHCN, DSTV, etc. Customers now do online shopping, purchasing a host of items online without physically going to the venue or shops where the items or goods are displayed.

The importance of ICT today to business growth and social-economic development cannot be overemphasized. ICT has revolutionized the world such that it is today referred to as the World's Fourth Industrial Revolution [5]. It has changed the way people interact together in society. In fact, it has changed the entire mode of communication. In the past, communication used to be face-to-face and interpersonal. However, the story is no longer the same today. Through phone calls, email, social media (e.g. Twitter, Facebook, WhatsApp, Instagram, etc.), newsgroup, blogs, etc., most communications and interactions are now made possible no matter the geographical locations of those concerned. This new era is now often referred to as the Digital Age [6] [7].

Despite all these hypes about a revolutionized world of digital age where people have changed the way they think and do things, through information and communication technology, ICT capabilities are not yet evenly distributed. The richer countries of the world and individuals enjoy more access to ICT facilities and therefore, have the greater ability to enjoy the advantages and opportunities provided by ICT globally [8]. As noted by World Bank (2016) [9], although, more than 75% of world populations have access to cellphone, however, Internet access through either mobile or fixed broadband remains very expensive in many countries due to lack of ICT infrastructure. The report further stated that out of about 7.4 billion of global population, more than an estimated 4 billion people still do not have access to Internet. In addition, the report estimated that only 1.1 billion people have access to high-speed Internet. This discrepancy in ICT and Internet facilities is what is referred to as the digital divide. This problem of digital divide is mostly affected by African countries and other underdeveloped countries of the world who cannot afford Internet facilities and better still a high speed one.

Today, numerous efforts have been made to bridge the digital divides between the rich and powerful nations of the world and the poorest countries. Among organizations found championing the course include the World Bank, United Nations Agency for International Development (USAID) [10], United Nations Educational, Scientific, and Cultural Organization (UNESCO) [11], government and non-government organizations (NGOs), World Health Organization (W.H.O), etc., have all suggested various policies and programs all geared towards bridging this gap among the nations of the world through the provision of greater access to ICT to individuals and poor countries of the world that cannot afford it or cannot provide a fast Internet services for their struggling populations [12]. As noted by these institutions, those individuals and countries without ICT capabilities are left out of the multiple opportunities and benefits that ICT offer in this present dispensation and will therefore be left behind in social-economic developments going on in the world. According to the United Nations (UN), one of their major goals today is to see how to bridge the digital divides between the rich and the poor countries so that development can spread to the nook and crannies of the world. This goal is what they referred to as the Sustainable Development Goals (SDGs). Thus this goal according to UN will ensure that they "significantly increase access to information and communication technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020 [13]."

Various economic advantages abound within the ICT market as well as especially in the business environment and in the larger society. With the advancement in ICT market, ICT capabilities has brought about the development and delivery of cheaper technologies for ICT vendors and their customers while also providing new business opportunities for the teeming populations in those countries and areas where ICT has deeply been deployed and used. Today, many businesses now embraced the various technologies for payment systems such as credit card transfer, POS, and other forms of cashless technologies for payment of goods and services. This has significantly reduced the time of rendering services and has also reduced the costs of services and customers now enjoy more choices in terms of prices of goods and services and in the delivery methods.

2. ICT IN PERSPECTIVE

The term Information and Communication Technology (ICT) is an umbrella term that includes all technologies for the communication of information. A number of definitions are considered in this paper, although all of them meaning almost the same thing. The Cambridge Advanced Learners' Dictionary [14] defines ICT as the use of computers and other electronic equipment to store and send information. Techtarget [15] defines ICT as an "umbrella term that includes any communication device or application, encompassing: radio, television, smart phones, cellular phones, computer and network hardware and software, satellite systems, etc., as well as the various services and applications associated with them, such as video conferencing and distance learning. Although, it must be noted that ICTs are often spoken of in a particular context, such as ICTs in education, health care, or libraries based on the various usages of the ICT infrastructures, but generally, ICT involves the use of computer and other electronic and communication gadgets for storing and dissemination of information."

ICT refers simply to all equipment, applications and services that involve communication. Computers, cell phones, televisions, radios and satellite systems are all part of ICT. It involves the design of a set of technologies that includes any communication device or application, encompassing: radio, television, cellular phones, computer and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as videoconferencing and distance learning. ICTs are often spoken in a particular context, such as ICTs in education, health care or libraries. According to [World Bank, 2002] [16], "ICT refers to a unified communications and the integration of telecommunications (telephone lines and wireless signals), computers as well as necessary enterprise software, middleware, storage, and audio-visual systems, which enable users to access, store, transmit, and manipulate information. Thus it is the convergence of audio-visual and telephone networks with computer networks through a single cabling or link system."

ICT is general term that is used to describe the general processing and communication of information through technology, which include technologies such as computers, mobile technology; email; two-way instant messaging; chat rooms; blogs; personal web pages; online shopping rating systems; download of images, audio, and video; and video games. These technologies have been classified into the following constructs: ICT use preferences, Internet use preferences, online media activities, digital communications, ICT-facilitated learning activities, ICT-facilitated social/economic activities, and video games. Videoconferencing and distance learning allow people thousands of miles apart to speak together as if they are in the same room. However, it must be noted that ICT is not just about sharing information; it also includes the quest to improve communication throughout the world, especially to more underserved areas of the world. ICT encompasses telephone, wireless and computer technologies which are the industries that have changed the way the world operates in terms of data collection, processing and sharing of the resulting information.

The importance of ICT lies less in the technology itself; but in its ability to create greater access to information and communication to underserved populations through mobile phone technology and the Internet. In fact the, Internet has proved a huge advancement in the ICT community [17].

3. ISSUES AND CHALLENGES FACING ICT IN NIGERIA

Nigeria as a country is been faced with several challenges as far as ICT is concerned [18] [19]. Some of these challenges are discussed in this section.

Power: Lack of electric power supply is the major factor militating against the development and use of ICT and computing infrastructure in Nigeria. Most remote and even urban centres in Nigeria have no mains power and, where available, such power is usually extremely unreliable or so unstable that it poses a threat to unprotected electronic equipment. The implication is that vast majority of organizations and industries both in the rural and urban areas provide power to run their businesses. Most of these organizations often use alternative sources of energy to drive their productions and to also operate their computers and other ICT infrastructure. These alternative sources include solar power, inverters, and generators. These alternative sources of power often increase production costs in terms of fuel consumption and maintenance and often make ICT companies charge more for consumption of their resources as subscribers and also by setting up ICT companies for business purpose.

Pending the time when stable, grid power can be extended to the Nigeria populace, one solution to this problem is for hardware producers to provide low-power-consuming hardware. Fortunately, these days, there are cost-effective hardwares that can run on solar (or other renewable) or in partial-grid power. Due to a number of factors, including increased energy cost, the market shakeup due to the proliferation of mobile platforms, increased focus on "bottom of the pyramid" opportunities, which should increase availability of processors that can support cost-effective health applications in the developing world. Efforts should also be made by organizations to minimize their system resource requirements and also find other means to improve overall performance on low-power, energy-efficient hardware platforms. There should be synergy for better integration, repeatability and performance of our ICT equipment through regular power and energy supply to ensure the overall development of Nigeria ICT sector.

Inadequate Funding: Government is underfunding the industrial and technological infrastructure of this nation. Technologically, industrially, education, research and development (R&D), health, electricity (power), human capital, etc., are all underfunded; these impacts negatively on the quality of its ICT. The Ajaokuta Steel Company, Aladja Steel Company, are all dead. With these two companies alone, Nigeria would have become one of the super powers in the world if properly managed. Today, Nigeria would have been producing all nature of steel and irons that we could have used to produce most of the computer hardware such that there will be employment opportunities for our teeming youths roaming the streets. Government is always paying leap service to R&D. Funds are often not available for our research institutes and universities. Where there is some level of funding, corruption is the order of the day. Funds allocated for research and development are often embezzled by those managing such institutions to the extent that most R&D institutions are in state of comatose. Even where there are good discoveries by our scientists and researchers, government do not support them to patent their discoveries and most of the results of such discoveries are sold to other nations of the world by government.

The implication is that we continue to depend on countries like USA, China, India, Italy, Germany, Malaysia, for our technological and ICT products and innovations. Nigeria can and should fund our research institutions, universities, and polytechnics very well and should encourage ground-breaking researches in these institutions in the area of ICT and other technologies that can bring advancement to the technological growth of our nation.. Government should also support their discoveries and results so that they can turn these into products that can generate income for our nation and thus increase our Gross Domestic Product (GDP), thus providing us with more income to develop other sectors of our national economy.

Changing Roles and Norms: With the rapid change in technologies today, and especially ICT, there has been dramatic change in the way we do things and the way we communicate. Thus through ICT communication has been made faster and efficient that we used to have some 20 years ago in Nigeria. In fact, with the advent of Internet and cellular mobile technologies, communication has been made easier and this has impacted on the way people do things and communicate with each other. Apart from the normal voice call, there has been e-mail, real-time chatting and online discussions using many of today's technologies such as Facebook, WhatsApp, Twitter, IMO, Instagram, etc. ICT has revolutionized our health sector through e-health; e-banking in the banking and financial sector, e-learning in education sector, e-government in the running of government institutions on day-to-day activities. Generally, ICT has changed our ways of life and our norms such that life has become much easier for the common man. However, the challenge remains that in Nigeria, many people especially in the rural areas are still backward in the use of ICT infrastructure due to a number of factors ranging from poverty, poor Internet connections and facilities, low illiteracy level, old age, acceptance of these technologies, etc.

Environmental Challenges: The physical environment in most Nigerian cities and communities is characterized by heat, dust and humidity, each of which is a challenge for standard computer hardware to operate effectively. High speed CPUs generate enormous amounts of heat that, if not properly dissipated, reduces performance or can render these systems inoperable or even degradable quickly than normal. Dust threatens sensitive electronics by shorting circuits and impeding airflow and heat dissipation. Humidity leads to condensation, corrosion and even mold, all of which can cause electrical problems and possibly shorten equipment lifespan. Besides reducing power costs, power-efficient computing also helps to resolve these environmental challenges. CPUs with slower clock speeds generate less heat and, with appropriate thermal design, can be deployed without fans. This allows computer enclosures to be better sealed against these threats. Fewer moving parts also means greater reliability and lower overall operating costs.

Internet Connectivity Challenges: Lack of affordable connectivity and bandwidth is the primary obstacle to ICT development. Lack of Internet access also complicates more basic efforts in ensuring that more and more people especially in the rural areas and among the old populace to have good knowledge of ICT. Also, lack of reliable connectivity complicates core IT functions, such as systems updates and virus control, thus increasing costs while reducing use value. Although most cell networks do not yet provide high-speed connectivity, they can support a number of valuable asynchronous and low-bandwidth applications, like email, which are easy to use, powerful and sustainable. As these networks expand and are upgraded, they will provide crucial connectivity for a large number of rural communities and will be better able to support data-intensive applications. Open protocols, such as WIFI, and durable off-the-shelf products offer an alternative, often complementary, approach. WIFI allows increased bandwidth over long distances. The technology relies on line-of-site to create a small and easy-to-use reliable broadband (6mbps) link over distances as great as 100-200km. Such links can be used to extend low cost Internet connections in urban settings to the near periphery at low cost or to share a VSAT connection to multiple facilities in more remote settings.

Even in the absence of Internet service, this approach can support high-speed networking among health facilities to deliver access to shared resources, tele-medicine, tele-training, VOIP telephony or other applications that require higher bandwidth. Still, while connectivity options are improving, careful design for low-bandwidth and delay tolerance remain critically important. Only systems-level design that accounts for system resource as well as networking constraints can support this objective.

Human Resources and Other Non-Technical Challenges: Nigeria is still deficient in terms of experience computer users and trained technical support staff to man our ICT infrastructure. This is even evident in almost all the higher institutions in Nigeria. Computer scientists and other related technical staff are still very few. There is need for government to pay more attentions to the training and retraining of technical staff to help in developing our teeming youths on how to use ICT infrastructure available in our ICT centres nationwide. As a matter of urgency, government, should set up ICT universities in Nigeria where preference is given to practical rather than theoretical knowledge because organizations are more interested in what our graduates can do these days and not just about certificates alone. Thus, (1) lack of adequate trained manpower (2) lack of experienced computer users, (3) uncoordinated or absence of government mechanisms, (4) widespread poverty and insecurity are among the human resources and other technical challenges facing the ICT development in Nigeria, and (5) poor remuneration for the inadequate personnel in ICT which consequent keep people away from labour markets in Nigeria.

4. LESSONS LEARNED FROM INDIA

Several lessons could be learned from some developing and developed countries of the world including China, India, Philippines, etc. Here, we present some lessons that we can learn from using India point.

India is the world's largest sourcing destination for the information technology (IT) industry, accounting for approximately 67 percent of the US market. Starting on a small scale some three (3) decades ago, the Indian IT Industry has grown at an exponential rate over the past 10 years of export, fetching for India valuable foreign exchange, increasing the Indian Stock Market through competitive prices and reaching a very high level, and employing about 10 million workforce. The IT industry in India has led the Indian economic transformation and altered the perception of India in the global economy. One major reason for this success is that India IT is 3-4 times cheaper than the US in providing IT services thus providing cost competitiveness. This has made India IT sector to enjoy continuous mainstay and increasing competitiveness due to its Unique Selling Proposition (USP) in the global market. From 1991 to 2000, Indian ICT companies grew at a mind-boggling rate of 200- 500%, attracting lucrative projects from companies all over the world, especially the US. Table one show the historical data and forecast in Indian IT sector from 2009 to 2016.

Table 1: Indian IT Sector (2009-2016)

	2009	2010	2011	2012	2013	2014	2015	2016
IT Markets (US$mn)	13,254	15,639	18,141	20,681	23,577	28,292	33,667	40,064
IT Market as % GDP	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Hardware (Component market sales (US$mn)	6,680	7,726	8,794	9,808	10,934	12,823	14,906	17,318
Services (US$mn)	5,010	6,037	7,148	8,314	9,666	11,826	14,342	17,388
Software (US$mn)	1,564	1,877	2,200	2,559	2,977	3,643	4,419	5,359
PCs (including notebooks (US$mn	5,344	6,258	7,141	8,043	9,053	10,618	12,342	14,339
Servers (US$mn)	601	695	791	883	984	1,154	1,342	1,559

**Sources:** ITU (Internet and Broadand penetration) (2002)

Software export figures run from 1980; overall IT outputs from 1991; and detailed breakdown from 1998 including BPO (business process outsourcing) data from 2000. Indian software exports are huge amounting to approximately $100 billion US Dollar in 2014 (Heeks, 2015) continuously registering double digit annual growth, and is projected to be around $209 billion US Dollars in 2020 ( ) with export destinations mainly in countries like USA and North America (63%), UK (13%) other European countries (11%), Australia and New Zealand (4%), Asia (6%), and Africa and other countries (3%).

A study by Heeks [22] shows that the location of the products has, however, changes from 75% on-site work and 25% in India in the 1990s to 20% on-site work and 80% in India as at 2014. The implication is that the net foreign exchange earnings will have risen as a proportion of gross since offshore work requires much less foreign exchange outflow than on-site working, although, there is a little rise in productivity(as measured by average revenue per employee) in recent times has declined due to recession in India amounting to 1-2 percent per annum. Figure 1 shows Indian software export from 1980-2015. Although, the figure shows that there is dramatic drop in Indian software export between 2009-2011 due to economic recession which affected most businesses and countries around the world, Indian had before this time made hundreds of millions of US Dollars (US$) from the export of software to USA and other parts of the world. However, as seen from the graph, from 2011 onward, the export of Indian's software continued on the positive side showing that they have been able to overcome some of the initial setbacks they had.
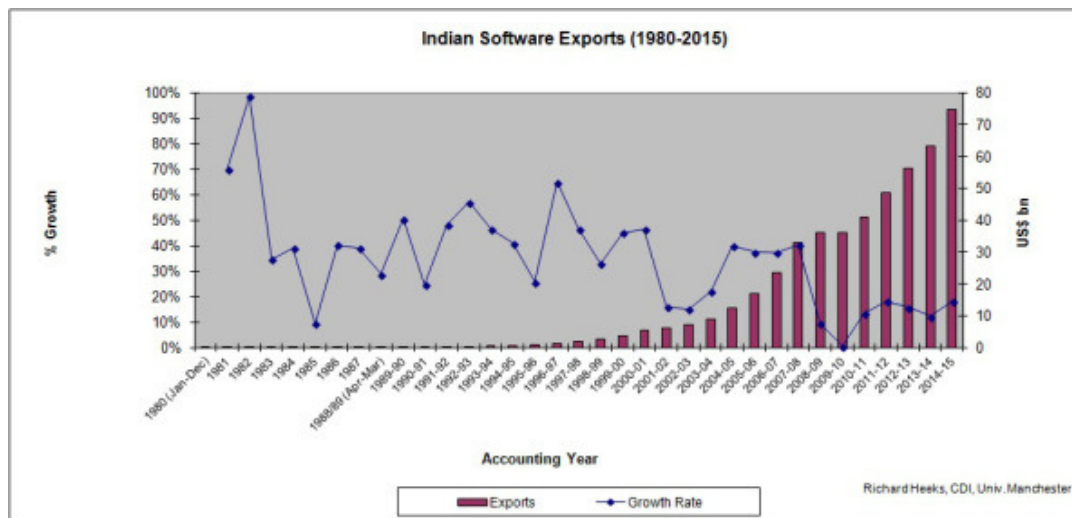

Fig. 1: Indian Software Export)(180-2015)
Source: Heeks [22]

However, again it can be noted that, although, the Indian domestic IT market is large and growing, production for exports is growing faster than production for the domestic market. As a result, the share of exports in total IT output has risen from 19% in 1991/92 to 49% in 2000/01 to 67% in 2007/08 to 81% in 2014/15. IT production for the Indian domestic market and domestic IT consumption are very different. For example, domestic computer hardware production in 2013/14 was roughly US$3bn. But domestic IT consumption was US$12.4bn
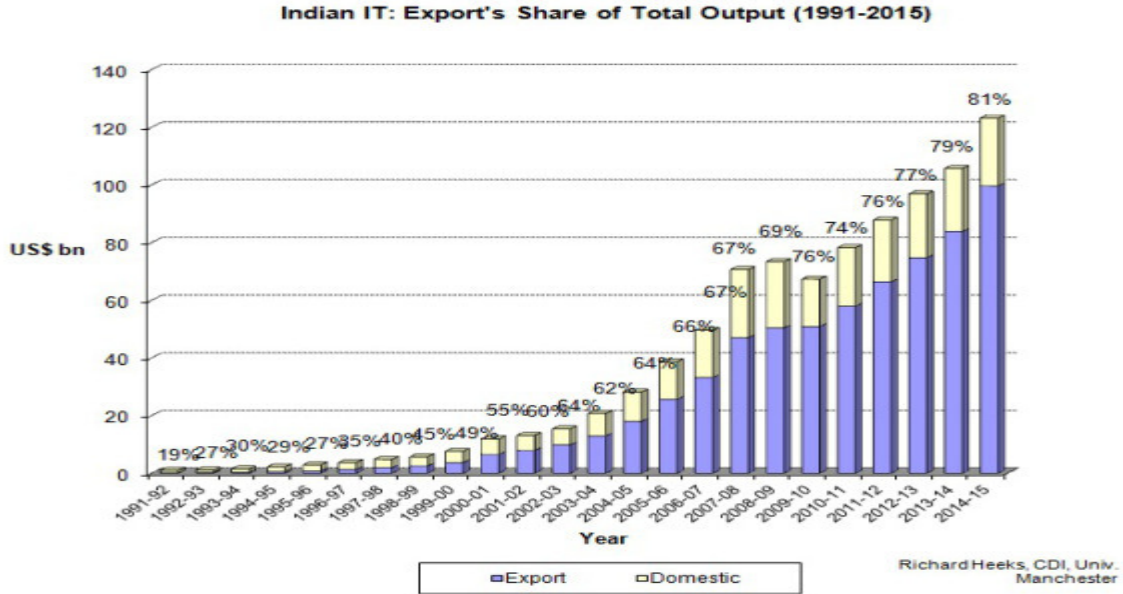
Fig. 2: Export share of total output Indian IT (191-2015)
Source: Heeks [22]

Overall, the IT sector in India alone has contributed significantly to the Gross Domestic Product (GDP) between 1991 -2015. In 2013, the revenue of the Indian ICT sector was valued at $109 billion and it is expected to reach $225 billion by 2020. Thus up till date, India is still the major preferred destination for outsourcing software products due to the low costs of ICT products compared to other parts of the world.
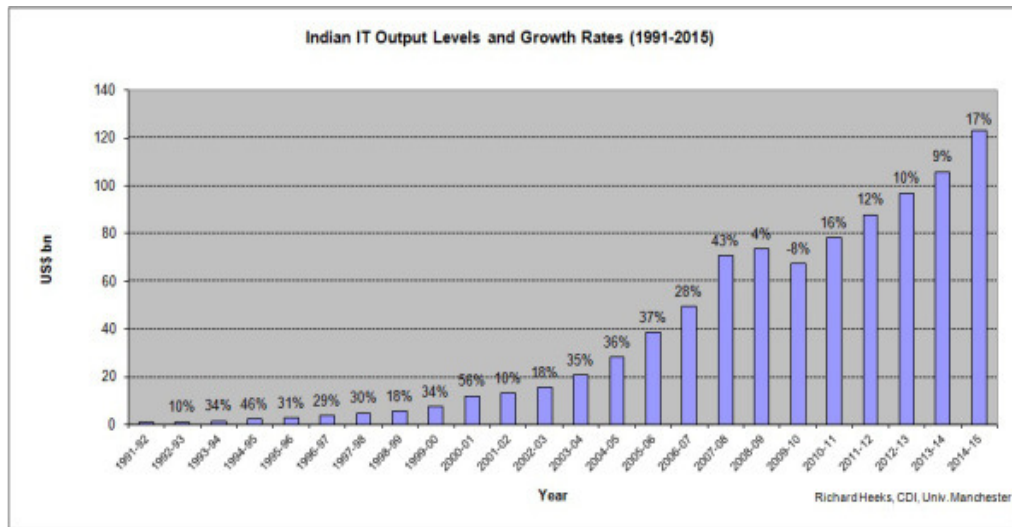
Fig. 2: Indian IT output level and growth rates (1991-2015)
Source: Heeks [22]

However, the average annual growth in IT industry has slowed down from an average of 30% annual growth from 1991-2013 to about 7% annual growth in 2017 due to a number of factors among which are: Indian government economic policies, global financial crisis arising from global recession, outsourcing of hardware import from other countries, and sharp decrease in export of software and IT-enabled services. According to data from the Reserve Bank of India, "the rate of growth of the combined exports of software and IT-enabled services had fallen from 20.8 per cent in 2012-13 to 14.9 per cent in 2014-15 and to a low of 7.3 per cent in 2015-16." The truth is that the Indian IT sector is still 99% better than as is in Nigeria presently. The US dominated the IT market in Indian in the 1990s accounting for about two-thirds (67%) of India's IT exports and EU about a quarter (25%), the statistics has not changed much. According to Financial Times, in 2015-2016, the US still came first with 62% of the industry's exports and Europe second with 24% [23]. The implication is that not much had changed.

Most reputable IT companies in Nigeria are owned by foreign companies. In fact, the top ten (10) IT companies in Nigeria are owned by foreign companies. These companies are: Cisco, IBM, Microsoft, HP, VmWare, Oracle, EMC, Huawei, Check Point. Out of top ten (10) communication companies in Nigeria: MTN Group, Globacom Limited, 9Mobile, Airtel, Cisco Systems, ipNX Nigeria Limited, Motorola, Mobitel, Integrated Telecom & Networks Limited, Dizengoff WA (Nig) Ltd, and Multi-Links Telecommunication Limited, MTN Group, a South African company, is the leading communication company while Multi-Links Telecommunication Limited, another South African company, is the leading telecommunication company [24] [25].

4.1 Why Indian ICT Industry Succeeded
India became a global player in the IT revolution because of a number of factors [26]. These include:
- Provision of Customized Software to other countries at Low Costs
- Provide Services Rather than Products
- Indian Software Exports Consists Largely of Low-Level Design, Coding, and Maintenance
- They Offer Services in System Integration Projects
- Supply of Manpower Such as Programmers to Industrialized Nations:

Provision of Customized Software to other countries at Low Costs
Indian IT industries provide customized software. Customized software is software that is specially developed for specific organization or individual user for particular purpose (Wikipedia, 2018). That is, customized software is software developed for a single customer. *Customized software* enables an organization to develop a software solution that maps the organization's unique business processes. The services they provided to these countries at low costs. Thus customized software helps to (1) drive competitive advantage, (2) address gaps in the functionality provided by commercial package applications, (3) address aspects of the business process that are unique to ones organization, and (4) address business processes for which no solutions are available in the market. That is, India IT firms provide services at costs 3-4 times lower than US firms. Thus this made their software products popular and their services well accepted by these countries. They also supply IT professional and programmers at low costs.

Provide Services Rather than Products

The Indian software industry is remarkable in a number of ways. It is service rather than product oriented, heavily dependent on export and largely managed by professional and entrepreneurial managements. They export software to countries like US (58%), EU (21%), SE Asia (6%), Japan (4%), Australia & New Zealand (2%), West Asia (2%), and other parts of the world (7%). The services they provided to these countries at low costs. For instance, they provide services at 3-4 times lower than US firms. This thus them popular and their services well accepted by these countries.

Indian Software Exports Consists Largely of Low-Level Design, Coding, and Maintenance Indian ICT companies provide software services (or code writing and customization of different levels of sophistication) and IT-enabled services. The export software and IT services to other countries at cheaper rates. Their software exports consists mainly low-level design, coding, and software maintenance. They also ensure that their software are managed by their companies at home and abroad thus making the issues on design, coding and maintenance more cheaper and attractive to foreigners.

They Offer Services in System Integrated Projects

Indian IT companies also offer services in System Integrated Projects (SIP). These IT services are categorized as project based, IT consulting, outsourcing, support and training, in-house/captive IT, domestic BPO, and software products. Table 2 shows the services offered in each fiscal year between 2005 and 2014.

Table 2: Services offered by Indian IT companies

	FY2005	FY2006	FY2007	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014
Project based	1,166	2,483	3,076	4,413	4,695	6,320	7,466	8,008	7,906	7,774
IT consulting	106	874	688	987	1,036	1,099	1,385	1,585	1,602	1,552
Systems integration	751	1,235	2,031	2,917	3,122	3,805	4,426	4,672	4,574	4,509
Custom application development	309	374	357	509	537	1,416	1,655	1,751	1,730	1,713
Outsourcing	509	865	1,033	1,426	1,501	2,052	2,725	3,303	3,496	3,565
Application management	369	627	749	1,034	1,075	1.586	2,154	2,663	2,863	2,953
IT outsourcing	140	238	284	392	426	466	571	640	633	612
Support & training										
In-house/captive IT	920	898	1,200	1,764	1,555	1,657	–	–	–	–
Total IT services	2,928	4,476	5,531	7,882	8,226	9,070	11,004	12,170	12,182	12,039
Domestic BPO	914	914	1,097	1,576	1,932	2,304	2,791	3,068	3,220	3,244
Software products	1,329	1,329	1,600	2,234	2,690	2,960	3,495	3,721	3,774	3,721
Total	5,171	6,719	8,228	11,692	12,848	14,334	17,290	18,959	19,176	19.004

Note: All figures in US$ million
Source: NASSCOM Strategic Review (2005-2014)

A breakdown of each service shows that in the IT consulting service, there are other services like custom application development (i.e., development of customized application software), and system integration which results from development of each component of a system and later coupled together to form an integrated component; outsourcing which include application management and IT outsourcing. All these combined together help the Indian ICT firms to develop faster than most other countries around the world.

Supply of Cheap and Vast Manpower Such as Programmers with good knowledge of English to Industrialized Nations

One of the major reasons why Indian ICT industry succeeded is as a result of cheap labors they provided to other countries such as USA, Europe, other Asian countries, and other parts of the world. Indians had good knowledge of how to write and speak English Language much earlier than most of the Asian countries such as China. This gave them upper edge to interact with English speaking countries in Europe and North America, thus making it easier to for these counties to contract them knowing fully that Indians have enough manpower that they can use to source for low-cost software. this singular factor made India ICT industry to develop faster than that of China and helped them to penetrate the markets in over fifty-six countries in 2012, where the employed over 60,000 foreign manpower.

5. THE WAY FORWARD FOR NIGERIA

Nigeria with a population of about 170 million people has the fastest growing population in Africa and one of the fastest in the world with a large market base. The question we should be asking ourselves is where did Nigeria get it wrong? How did we get to where we are today? How can we come out of this logjam? What can we do as a nation to develop our technological know-how? These questions are addresses in this section. However, lack of infrastructural development like electricity, good hospitals, iron and steel, conducive environment for investors, etc., are the major problems bedeviling the nation. The federal government as a matter of urgency, declare a state of emergency in the power sector. Government should provide laws to ensure that Power Holding Company of Nigeria (PHCN) or whatever name they are called desist from holding our light. They should as a matter of fact release light to all Nigerians regardless of wherever they live. Government should force PHCN to provide prepaid meters to our various homes as it is done in other countries of the world. We cannot be living in the past. The era of sharing NEPA bills or climbing electric poles to disconnect customers and subscribers from using light are over. This barbarism must stop. We must be progressive; we cannot be retrogressive or remain stagnant in one place. Nigeria must move forward. Until the problem of electricity (power) is solved holistically, Nigeria cannot grow technologically.

For Nigeria to succeed in the area of ICT and other areas outlined earlier, the country must collaborate with other nations that are developing or have developed in these areas most especially Indian and China. This will directly and indirectly fast-track the economic development of ICT and other sectors of the economy. There are many areas they can collaborate with Chinese and Indian public and private sectors. Nigerian government must as a matter of urgency open its economy to the outside world. With globalization and decentralized world, Nigeria cannot afford to keep closed and secluded economy. For the country to succeed in its economic policies and agenda there is need for interactions between Nigeria and other world's economic powers. Nigeria economy must also be efficient and competitive if Nigeria must succeed among committee of nations. ICT development is one major way to achieving this.

Nigeria should have bilateral agreements and memorandum of understanding (MOU) with these countries to come and build their industries and plants here in Nigeria if they must saturate our markets with their products. Doing this will help create jobs for the youths that are roaming the streets as a result of lack of employments and to also tap from their technological know-how. This will equally help in curbing crime and would in the long run boost the economy of the nation.

There are a lot of potentials in ICT industry. The unmet ICT demand in Nigeria offers huge opportunities for Chinese and Indian companies in security, telecommunications, education, capacity building, agriculture, iron and steel, health, and other sectors of our economy. As noted by ITU (, out of the 940 million people living in the least developed countries, most of them being in Africa; only 89 million people use the Internet, corresponding to 0.5 per cent penetration rate. The organization projected that by the end of 2017, only 50 percent household in developing countries would have Internet access, compared with over 80 percent in developing countries. Clearly, this is a clarion call for African countries to invest in ICT. Nigeria as a nation must identify opportunities for collaboration, sharing best practices and exploring inclusive technologies to drive the world into truly connected community. Nigeria has a high population, opportunities for collaboration, and a well educated population.

With all these in place and with ICT at the heart of national development, Nigeria can enhance the well-being of its citizenry. Nigeria must therefore Nigeria must invest heavily in ICT. Doing this is one of the surest ways to develop our economy. It is a critical option to develop 'food for the future' if Nigeria must be able to feed its teeming population since development of ICT will create jobs opportunities for millions of our youths and open our economy further to the outside world. We must train our youths massively in software development in all areas of human endeavour for real life applications. Nigeria must have a good human capacity development in the ICT sector to help create jobs instead of the youths waiting for white collar jobs after graduating from universities. We can export customized software at low costs to other African countries thereby generating more revenues to improve our GDP annually.

6. CONCLUSION

This paper discussed the role ICT plays in national development using India as a case study. The paper shows clearly how ICT has been used to drive and developed India's economy in the last three decades or so and what lessons Nigeria can learn from this in order to develop her ICT sector and stop relying on Oil and gas, which is the major source of our nation's economy. To this end, Nigeria must invest heavily in ICT. Doing this is one of the surest ways to develop our economy. It is a critical option to develop 'food for the future' if Nigeria must be able to feed its teeming population since development of ICT will create jobs opportunities for millions of our youths and open our economy further to the outside world. We must train our youths massively in software development in all areas of human endeavour for real life applications. Nigeria must have a good human capacity development in the ICT sector to help create jobs instead of the youths waiting for white collar jobs after graduating from universities. We can export customized software at low costs to other African countries thereby generating more revenues to improve our GDP annually. For Nigeria to succeed in the area of ICT and other areas outlined earlier, the country must collaborate with other nations that are developing or have developed in these areas most especially Indian and China. This will directly and indirectly fast-track the economic development of ICT and other sectors of the economy. With globalization and decentralized world, Nigeria cannot afford to keep closed and secluded economy. For the country to succeed in its economic policies and agenda there is need for interactions between Nigeria and other world's economic powers. Nigeria economy must also be efficient and competitive if Nigeria must succeed among committee of nations. ICT development is one major way to achieve this.

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