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INFORMATION COMMUNICATION AND TECHNOLOGY (ICT): AN ASSET OR ACCESS

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ABSTRACT

This study addresses the role of Information and Communication Technology (ICT) in development and enhancing the economic growth in countries where the deployment has been seriously undertaken as a key factor for growth. The study has gone ahead to showcase the various areas ICT can be used, literature and findings also give credence that ICT development has an optimistic advancement on economic growth in the countries wherein a good deployment was noticed and its use noticed within a wide period of time. ICT is seen to be playing major roles in areas such as in innovation, raising productivity and increasing economic development and therefore affects all economic sectors; it serves as both access and asset, it has been promoting progress and as well being access to economic development. The intention of this study is to approximate and determine the impact of ICT on economic development, as an asset and seeing how far it has been an access to economic development in countries where it has been deployed for a considerable interlude of time. This study based on its findings, recommends increasing awareness of ICT and its role in improving activities and services in all fields of human endeavour. It also recommends improving and adopting ICT as a compulsory aid for processing in different institutions and organizations in order to achieve its potential as an asset as well as an access.

KEYWORDS: Information Communication and Technology, ICT, Network, ATM

INTRODUCTION

Information and Communication Technology (ICT), as wide as it is, comprises all electronic based system / apparatus or unified system (subsystem) of apparatus that includes all forms of equipment used to carry out the following processes of create, store, manipulate/process, manage, move/transmit, receive, interchange, display, switch, transmit or receive information in its various forms. By this definition GSM and old but still useful tools, such as radio, landline telephones, and television broadcast would all be included as ICT equipments. Other components like the internet, internet of things, metaverse, virtual reality and social media are also part of ICT; cloud computing services, video conferencing and collaboration tools, unified communications systems and mobile communication networks are also ICT tools. Emerging, work-in-progress and developing technologies like 5G, 6G and more, Web3, and quantum computing are also part of the ICT family.

The Internet has quickly developed into a leading method to contact customers and share information. Connecting a database to a Web site is a powerful method of providing up-to-date information and enabling customers to find exactly the information they need.

(Chandrasekhar, Kumar and Karnik, 2004) maintain that, “countries that succeed in exploiting the strength of ICT can look forward to greatly extended economic growth; such countries will also achieve improved human welfare dramatically and go ahead to have better forms of elected governance”:

Although most components of ICT were originally conceived of and designed as a research and education network, usage patterns have radically changed. ICT has become a home for private and commercial communication, and at this writing it is still expanding into important areas of commerce, medicine, and public service. Increased reliance on the ICT is expected over the next five years, along with increased attention to its insecurity.

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REVIEW OF LITERATURE

The development of ICT tool as well as its use as an important infrastructure has a significant impact on economic growth, especially in regions where information dissemination, contact to information, knowledge, study and advances are seen as major movers of financial progress (Jorgenson and Vu, 2016). Their research support the fact that use of ICT will lower the cost of production, will lead to higher productivity, higher sales and maximum benefit if ICT is widely deployed in business processes. In their earlier study in 2005, they found out that the role of ICT in shaping the world GDP had increased twice its size as it noted that of world average GDP growth of 3.45 per cent, ICT was accounting for 0.53 per cent of that. They also opined that the developing nations felt better, with ICT in the G7 countries accounting for 0.69 per cent to a GDP growth of 2.56 per cent for the period of 1995–2003. ICT has reduced and drastically brought down what it takes to do businesses; take for example in the banking industry, the cost of online banking is far cheaper when compared to that of teller system. The average cost of online dealings was $0.10 compared to $2.10 for a teller, as was brought forward by Polatoglu and Ekin (2001) in a survey conducted in the Turkish banking industry.

ICT has been found out to be beneficial to the economies of nations at the macro and micro levels. Its contribution to productivity, effective innovation, and the efficiency of financial markets are all considered as benefits at the macro level of the economy while at the micro level ICT manifests itself in the quick access to information, because knowledge and social networks speed up communication, makes the way for new markets, reduces production and capital costs, and promotes business sustainability. It is important to consider the fact that economic growth of a nation will largely depend on the level of national economic development and ratio of persons with ICT skills; the implication of this is that ICT development can bring greater economic benefits to the developed than developing or transition economies. The developed nations have better economic plan and so are more likely to have more ICT skilled manpower than undeveloped and developing nations (Remeikiene et al, 2021). No wonder a study by (Adeleye and Eboagu, 2019) suggested better education system for efficient preparation of citizens for the information age in the efficient use of ICT for better and greater usage of Internet-enabled services, including e-commerce and e-government. According to them the outcome of their study showed that the level of Internet access will statistically, significantly and positively affects GDP per capita as an indicator of economic growth. According to this, it can be concluded that promotion of Internet diffusion in transition countries is one of the most important and most urgent task for policymakers in these countries.

Enlarging the entire ICT sector leads to a decrease in income inequality; it also leads to social development. That was the findings of a study by Cioaca et al. (2020) in some EU countries. The study found out that the level of the Internet access significantly and positively affects GDP per capita, thus representing economic growth.

What is ICT?

We may not have one single, universal definition of ICT because the technologies, devices and even ideas related to ICT are constantly developing; even the various components/tools that constitute ICT may not be definite, it will continue to increase in the coming years.

However, information and communication technologies (ICT) is defined as a diverse set of technological tools and resources used to transmit, store, create, share or exchange information. The communication technologies that make up ICT are the internet, computers, social networking, software, middleware, video-conferencing, wireless networks, cell phones, other media applications and services, computers, Laptops, digital Audio and Video devices, digital camera, scanner, LCD, digital photocopy machine, DVD player and multimedia projector. In short, another way of generalizing ICT is to say that any technology, infrastructure, component, or device that enables communications, data sharing, and or global connectivity between humans and between machines and humans is regarded as being in the ICT family.

The exploit of ICT leads to a technologically literate, critically thinking work force, which is prepared to participate fully in the global economy of the 21st century.

Every economy the world over is either a knowledge-based one or is moving towards being one and information and communication technologies (ICT) are the main driving force. It then behooves on every nation to note that provision, full utilization and adoption of ICT facilities is, therefore, a sine qua non to attaining a knowledge economy.

In terms of considering ICT as an asset, the development is associated with and it also complements the development of industry, trade, education, housing, farming, health and financial institutions. It plays complementary role in most fields of human endeavour, and it this type of role that makes it appropriate to link ICT planning to a national economic and social planning. Information and Communication Technologies (ICT) is also important in economics; it enables broad-based social and economic development, including poverty reduction, improved health services, expanded education opportunities, and access to government services. Another key advantage of ICT on people is the improved right of entry to services, and information that has come in the form of progress by means of the application of the Internet.

ICT brings about quick access to cheaper affordable and improved ways of communication in the form of instantaneous Messaging, and Voice over Internet Protocol (VoIP). ICTs provide an opportunity for nations to address the digital divide and diminish poverty while encouraging economic growth. Developed and some developing nations have seen the materialization of a vibrant ICT division that significantly contributes towards national gross domestic product (GDP), this is more in the developing nations. There was greater number of ICT tools in Nigeria, for example, from 1999 to 2010 as a result of introduction of GSM.

As an access, Information and communications technology (or technologies) ICT, is comprised of the infrastructure and components that enable modern computing. Another importance of ICT is that it could serve as an access through which humans can help themselves improve their abilities in numerous areas, including business; education; medicine; real-world problem-solving; and even leisure activities related to sports, music, and movies. Put another way, among the goals of ICT technologies, tools and systems is to improve the way humans create, process and share data or information with each other.

From the fore going, it is very obvious that ICT is valuable (an access), it is an access to the digital age and cannot be ignored if a nation is to join the league of countries that will compete and be successful in the knowledge based economies we are seeing the world over.

ICT AS A LEADING ASSET

With ICT, almost all tasks are possible. You can easily reach your peak via ICT. There is a common saying that, “Information is power” you are limited to the amount of information within your reach. All the information you needed to boast your earnings, grow your business and increase your potentials is within the net, and your access is easy.

The Internet, which is a component of ICT, is now a powerful force for good: within 20 years it has expanded from almost nothing to a key component of critical national infrastructure and a driver of innovation and economic growth. It facilitates the spread of information, news and way of life. It is a foundation on which stands communications and social networks across the world. It will be difficult to think about a world without the internet facilities.

In our present day, Information and Communication Technology (ICT) has become an important asset for service organizations to deliver ground-breaking services and achieve sustainable competitive advantage. The importance of ICT based innovation in productivity improvements and competitiveness is huge.

ICT has brought a huge advantage to organizations as the time constraint, and distance barrier to accessing relevant information is eliminated. It has highly brought people together, hence it improves coordination of activities within organizational boundaries; it has become a significant access in the last few decades and will continue to do so in the next couple of decades.

ICT makes the labour markets more novel, inclusive, global and accessible. This multifaceted, but singular act of ICT, when lacking in markets results in many obscure and un-transparent activities. This trend is made possible because of the following three factors: greater connectivity, the ability to telecommute and outsource work, and globalization of skills.

The technological changes brought about by ICT have changed the geographical location of industries and productivity differentials across the totality of the entire world.

ICT AS A LEADING ACCESS

ICT is today becoming very important access to health, education, transportation, trade and commerce, just name it. Without ICT today, it will be very hard to make contacts between persons across the globe. ICT is regarded today as the trunk line between the nations of the world.

Transportation is one area where ICT has been very useful as a medium of establishing contact between people and of exchanging goods. In the air, at sea or on land ICT facilities have facilitated and enhanced transportation greatly.

In the area of Education, training and re-training has been made easy by use of ICT. A number of educational institutions are not only able to run courses concurrently, but lectures can also be received, simultaneously as they are delivered, in different lecture rooms that are located in places thousands of kilometers from the actual point of delivery through the use of very sophisticated ICT devices. ICT can be a teaching aid, used as a means of passing learning instructions to learners without distance as a barrier. It can also be integrated in the learning process so that learning takes place through the learner’s interaction with ICT facilities. The Internet has also become a universal and virtual library, where books, journals, articles and other materials can be sourced from any part of the globe easily; it could be done from anywhere of one’s choice.

All over the world, Universities, Polytechnics and Secondary Schools, Students and Lecturers, are afforded the benefits of constant and easy access to updated information on different subjects via the internet. Books that were hitherto unavailable to people before now due to the barrier of distance, are now readily available online. All that is needed is a modem and subscription and any desired information is downloadable.

Trade and Commerce is another major area where the introduction of ICT had made tremendous impact globally. So many businesses are done through the aid of the internet, telephones, etc. You find so many easy contacts are done through the use of ICT devices as internet, GSM, E-mail; these contacts have taken the places of journeys people make in the day-to-day running of businesses.

ICT makes markets easily accessible; it leads markets to the global scene where goods and services can easily be exchanged. ICI is the major medium on which globalization thrives, as there is no way globalization will function without ICT. ICT is the major driving force of globalization. It brings about the interconnectivity of countries; without the interconnectivity, then there is no globalization. Measuring the components that give rise to the phenomenon called globalization will reveal that ICT contributes in no small measure – its factor outweighs any other component. There is increasing awareness of the fact that ICT strongly determine the way our economies and societies keep pace with, and possibly benefit from, the globalization process. It has become noticeable that the diffusion of ICT across developing and developed economies appears to be a major lever for improving both productivity levels and competitiveness; ICT also seems to be the avenue through which we achieve re-organization of production methods and the emergence of new activities.

HINDRANCES AND ISSUES WITH ICT

To declare that ICT is good without saying the negative aspect of it would be like giving a conclusion about a coin from viewing one side.

Though the word ICT has been known to be useful in trade, business, transportation etc, its negative effect has always been there from the very beginning.

In the developing nations, for example, power has been a major hindrance to the application of ICT.

Security in cases of online activities is a major drawback in the trust people put in ICT devices. Since trust is a major boost to usage of any gadget, it becomes an interesting subject when the interest of people towards ICT is talked about. There have been so many trust issues when it comes to use of ICT, more especially the internet.

Cyber Security challenges arising from frequent hacking of ATM and bank accounts poses significant challenge to ICT development as potential users of ICT powered devices and services shy away. This situation is more worrisome in the developing nations where these technologies are new to the people. In considering the effect of cyber security to an organization, we shall be seeing it in two folds, direct and indirect. The direct effect include drop in stocks and prices of goods, while the indirect effect include but not limited to loss of customers, theft of credit card numbers, damage to brand, loss of benevolence and litigation. At the end of an attack organizations often spent more money and effort containing the public relations problem than fixing the security problem itself. Most of the incidents of cyber security are not made public despite the fact that there are laws commanding corporate bodies not to do so; they rather hide them and secure their customers. Losses due to cyber crime are becoming too difficult to quantify as many organizations do not want to make such information public for fear of losing their clients, but the International Monetary Fund quoted the amount lost to cybercrimes to be in the neighbourhood of between one hundred to two hundred and fifty billion dollars, according to Lagarde (2012) in his study. Due to the result of increase in the amount data shunned out annually, the figure should be in the increase annually. Most cyber attacks are targeted at disrupting and inflicting havoc such as potential misuse of financial data, tracking down potential targets, track and detain targeted person to use as bargain, data poisoning, identity theft, data alteration and manipulation, data theft, and intellectual property theft; operators of AI technology should understand that as AI is significant in what they use it for, so it is in the hands of crocks who may be prying on the huge volume of data for future attacks that no one is aware of (since these aggressors in our presumed cyberspace may be playing a game); this is possible considering the power in the technology which can enable it wring out useful insights out of apparently unrelated sources of data.

The Internet is now increasingly the playground of criminals. Wherein a decade ago the public perceived the e-criminal to be a lonely hacker searching for attention, in today's society the "bad guys" belong to organized crime groups, they are highly skillful, specialized, and focused on profit. They want to stay invisible, and so far they have largely succeeded. While the incidence and cost of e-crime are known to be huge, no accurate data exist; this is the worrisome side of the problem.

Underpinning the accomplishment of the Internet is the confidence of hundreds of millions of individual users across the globe. But there is a rising perception, fuelled by media reports, which shows the Internet as an insecure and unsafe venture. Putting this saying against the rate of change and innovation, and the intricacy of maintaining pace with the newest technology, the risk to public confidence is clear

Other hindrances include legal, regulatory, institutional challenges and Piracy; piracy being the worst of them all.

ICT AS AN ANCHOR IN DEVELOPMENT

Computer Networking has taken over localized computing the world over and has allowed for resources and information sharing. The interconnection of Networks via the internet has changed and brought about greater efficiency and better information sharing and management. It is not today an impossible thing to say that ICT is anchoring all processes, be it in industry, business, and trade all over the world. According to (ITU, 2013, Osaze Omoragbon, 2012)

It is so obvious that ICTs is driving the new global economy. People, businesses and communities with ready access to information technologies are better equipped to participate actively in the global economy. In the world today, there is virtually nothing you do without having to link it to one form of ICT or the other. The importance of ICT globally is depicted in the figure below, showing how global expenditure on ICT has been on the increase from 2007 to 2010.

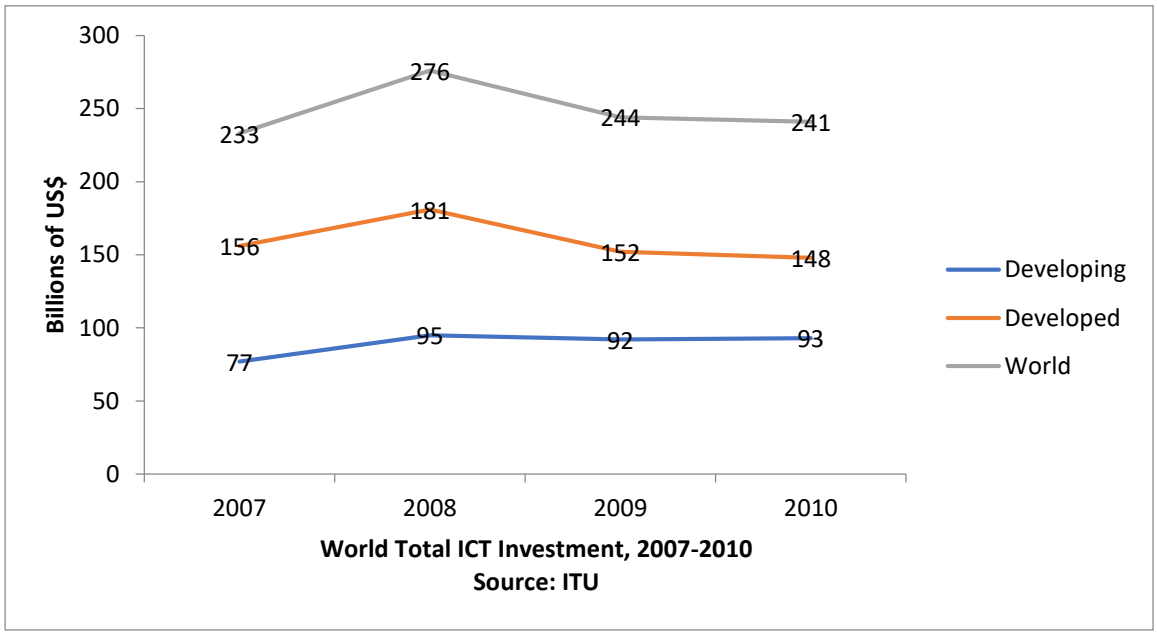

Figure 1: World Total Investment, 2007-2010 (Source: ITU)

ICT spending globally in 2011 was over $1.6 trillion while global value of ICT opportunities is estimated at over $200 trillion. The worldwide information technology (IT) expenditure on devices, including PCs, tablets, mobile phones, printers, as well as data centre systems, software, and communications services came to 4.7 trillion U.S. dollars in 2023. By 2024, IT spending is expected to increase to a staggering five trillion dollars globally. The spending from 2012 to 2024 is depicted in figure 2.

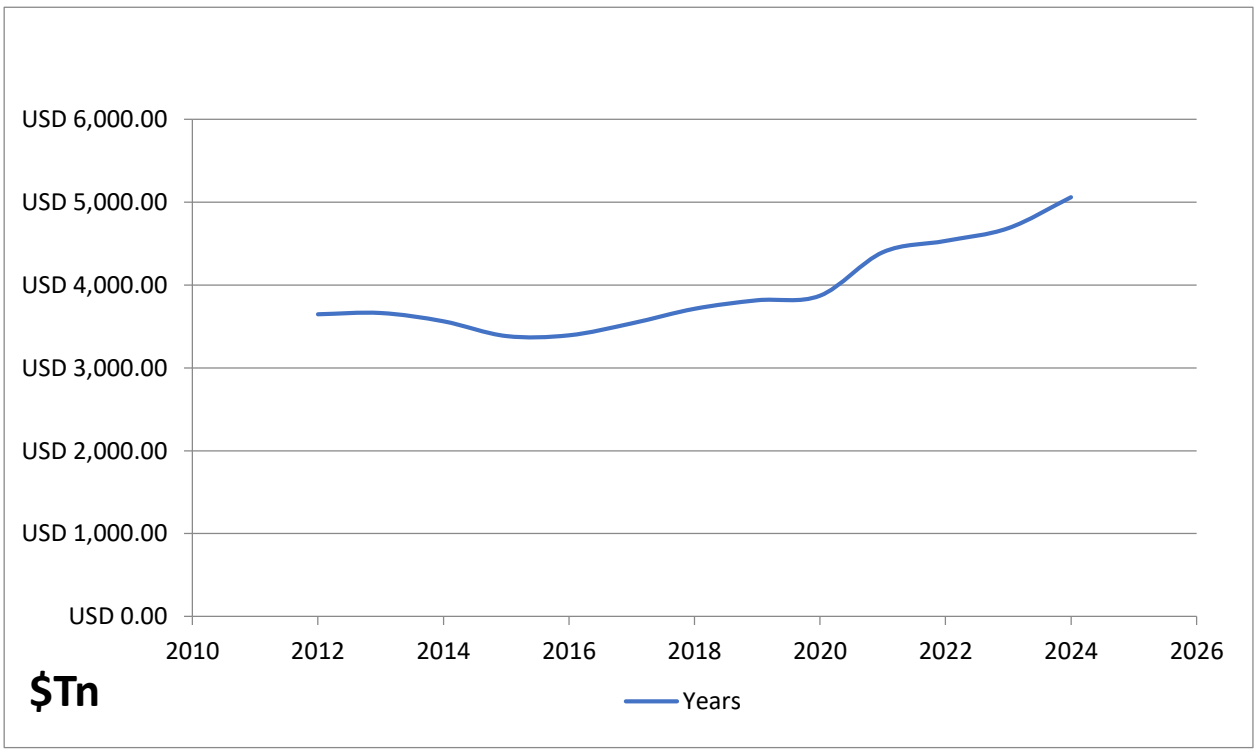

Figure 2: ICT Spending from 2012 to 2024, Source: https://www.statista.com/statistics/268938/global-it-spending-by-segment/

CONCLUSION AND RECOMMENDATION

From the foregoing it is quite easy to see that ICT is both an asset as well as an access. What seemed to be difficult before now has become so possible, simply because ICT changed everything for better. It has been observed that Internet penetration is the most significant economic boost to economic progress of any nation. I decided to advice any nation that wants to make great progress in economic advances in trade and commerce to invest more on internet facilities; in short, provision of internet should be one of the top most important things in the development strategies in developing and undeveloped countries. Government of these countries should encourage the Internet penetration and support usage of internet in everyday life and business, as a first and most important step towards information age. The duty of government is to make provision for increased usage of ICT, especially the Internet; it can boost economic growth through encouraging the technology penetration and innovation, application of e-government and e-commerce, beautifying decision-making in firms, households and economy as a whole, increasing demand, lowering the production costs, transforming the structure of economy and foreign trade. Studies have shown that ICT could be useful in fostering the convergence of economies of developing nations; it can be assumed that ICT usage will lead to the economic, technological, and organizational practices and standards of developing states; contributing to balanced regional development of the nations and improving their competitive position on the world market.

I suggest that considering the ongoing spread of ICT all over the world and its continued importance for growth, government as policy makers should foster an environment that helps firms utilize the advantages of ICT. Every government that wants the economic progress for its economy can do more by supporting the diffusion of these ICT technologies. They can achieve this through policies, reforms and monitoring the constant, periodic progress achieved.

Finally, ICT as both asset and access can reduce the poverty among citizens and improve their health and environmental conditions in both developed and developing countries. Here it is an asset that reduces or removes poverty while as an access; it becomes a means of improved healthcare.

We therefore, recommend increasing awareness of ICT and its role in improving activities and services in all fields of human endeavour. Another recommendation is the adoption of ICT as a compulsory aid for processes in different institutions and organizations in order to achieve its potential as an asset as well as an access.

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