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ROLE OF ICT IN SOCIO - ECONOMIC TRANSFORMATION IN EDUCATIONAL SYSTEM

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ABSTRACT

Information and Communications Technology (ICT) has been regarded as the source for the social economic development of any educational system and has remained the reagent of growth for developed countries. Almost all educational sectors could be initiated and delivered through ICT and since these tools are efficient and reliable, they are today functioning as catalyst of good governance in most institutions. This paper gives the exposition at some ICT strategies that could help the educational system consolidate on good administration, teaching and learning and realize her vision of becoming one of the top 20 global economies in the world by 2020. This paper also explains the concept of ICT and its positive impact on Educational system and employment in education. ICT in Educational system is seen to be enhanced through recommendations that visible challenges be addressed. Social change theory was used as a scientific basis for this paper. Social change theory argues for a change and progress as no society is static. Technology is seen as one of the necessities of social change to produce latest forms of life where excellence is inevitable. The paper concludes that ICT is the only avenue of changing Education sectors both administratively and empowering the graduated students. It is recommended that there should be an institutional framework for ICT, reflecting in all spheres of Educational system. Good ICT laboratory with sufficient facilities, A desktop research approach was used to evaluate some technical details on the ICT tools in achieving good administration in socio-economic development in Educational system. In conclusion, appropriate policy suggestions were suggested for efficient use of ICT in promoting good governance in Educational system.

KEYWORDS

Information and Communication Technology (ICT), Socio-Economic development, Educational system, Administration, Education, Employment Opportunities, Business and Security.



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INTRODUCTION

Information and Communication Technology (ICT) has undoubtedly been given global recognition as a mechanism by which human affairs are conducted effectively and efficiently. It is seen as a channel created to reduce the sufferings and stress on people, in an attempt to respond to societal problems (Williams, 2011). Political, Social, Economic or Religious activities in the 21st century are measured in terms of success only in relation to ICT. An activity founded on a framework other than Information and Communication Technology (ICT) is considered a venture with little or no results as the outcomes will certainly be inadequate in relation to expectations. Indisputably, Information and Communication Technology (ICT) is a technological revolution brought about by some provoking initiatives and innovations for needed adjustment or modifications in human operations in responding to contending social issues. Many scholars posit that the emerging contending social forces occasioned by teeming population has rendered manual method of conducting human affairs inadequate and less achieving (Uyanah, 2018). However, several countries such as India, Taiwan, Singapore, China, Korea, Malaysia, Ireland, Israel and Finland have recorded success stories of fast growing exports of ICT services (Emeka, 2011). Again, several Nations of the world are certain on the gains of ICT and have initiated National ICT policies and strategies towards national growth. No gain saying, many countries now treat ICT mainly as a sector or industry.

Convincingly, ICT has proven in the past few decades to be capable of addressing human problems in the area of Politics, Administration, Security, Education, Business and Employment opportunities amongst others. This is the fulcrum of this paper with Nigeria in focus.

Information and Communication Technology (ICT) is a term employed worldwide including but not restricted to both the hardware and software of computers, communications gadgets like mobile phones as well as SMS applications, e-voting mechanisms, internet appliances and sensors proficient in citizens biometric data (Ed UNDF 2021) ICT is of different stages consisting of Facebook, Instagram, twitter, WhatsApp, Zoom, YouTube and internet etc. which help in facilitating most effective and efficient dealings across the globe. It is recorded of recent that ICT has geared up productivity in critical sectors of global economy and has impacted positively on many lives that depend on it for survival. Prominent achievements are said to have been recorded in the deepening of democracy in several countries through ICT. Business security and education sectors are pointed to have as well received noticeable impacts from ICT. This paper is crux on critical appraisal of ICT role in the development of aforementioned sectors in Nigeria towards overall national growth.

Impact of ICT on some critical sectors in Nigeria Information and Communication Technology (ICT) has impacted positively on some critical sectors of Nigerian economy. This it does through its capacity to boost productivity and potentials to meet emerging global challenges as seen below. Impact of ICT on Politics in Nigeria The role of ICT in politics is manifested in Election Administration all over the world. Election is a critical component of democracy and the only acceptable channel of leadership recruitment and selection for democratically recognised government (Ateyero, 2018). Given this quantum of importance, elections are expected to be free, fair, credible and transparent in all ramifications, so as to reflect the 'will' of the people. The importance of election transparency is key, for reasons that the outcome of every election determines the quality of leadership provided for the country. The quality of leadership in turn determines the nature of governance. Consequently, Good governance where the yearnings and aspirations of the masses are met through provision of needed infrastructures; is dependent on election processes. (Ayeni, 2018). This is because credible leaders with good and right sense of accountability are elected by the electorates when the process is transparent, while bad leaders with selfish interests are elected through rigging and faulty electoral process. When right choices are made through transparent process, development of the nation becomes inevitable as needed infrastructures are provided for the good of all.

Arising from the foregoing, Nigerian Electoral Management body (INEC) has over the years intensified efforts in achieving transparent process for credible elections in Nigeria. This is evidenced in a paradigm shift from Manual Voter's Register to technologically advanced mechanisms such as biometric register, (Electronic Voter Register), Automated Fingerprint System (AFIS), Smart Card Reader (SCR) and e-collation support platform (e-CSP). These ICT platforms are over the years adopted as sure-way to institute electoral

transparency by many developed countries of the world like USA, and recently developing countries such as Zimbabwe, Somaliland, Togo and Mali etc.(Piccolino, 2015). Notably, the aforementioned ICT channels have made significant improvement on Nigerian electoral process that evidently remove a sitting president (Goodluck Ebele Jonathan) in 2015 and enthrone the then opposition APC when president Muhammadu Buhari was declared Winner by Atahiru Jiga, INEC chairman then.

Indisputably, the identification, accreditation and subsequent e-collation system are the function of ICT to make rigging and manipulation of results difficult for our greedy politicians. Though politicians tried the much they could to abuse these channels and have their ways; tremendous improvements are made in our electoral process. Manifesting, inflation of figures, multiple voting, impersonation etc. are the outstanding features that have been strengthened in the process of Nigerian elections towards choosing good leaders that will engineer development of the country. This is why our National Assembly Members who are greedy and are afraid of ICT Transparency in the electoral process, voted against e-collation support system (e-csp) which would have certainly enable electorates to vote them out in 2023. Notably, many politicians now use social media for publicity of their aspirations and campaigns. ICT in this sense, can permit electoral activities including voting in critical times as lockdown during covid-19. With enabling legislation, people can exercise their franchise through ICT(online voting) without necessarily moving from one point to another.

Therefore, ICT role in electoral process among other gains include:

- i. Reducing incidence of double registration.
- ii. Checking incidence of multiple voting.
- iii. Checks figure alteration or manipulation.
- iv. Ensures efficiency in electoral activities.
- v. Enhance effectiveness of electoral processes.

Impact of ICT on public administration in Nigeria

The provision of standard and adequate public services remain a task of difficulty if not impossibility to third world countries like Nigeria (Uyanah, Unanam and Okon, 2021). This is manifested in the unsatisfactory services received by the public as rendered by government officials or public servants. This is not because government is not making efforts to better services rendered to the public, but the efforts are not appropriately channeled by those in charge of various responsibilities who have failed in the effective and efficient discharge of their duties. Business of government is lamentably treated as “no man’s business” and often handled with laxity. Also, government resources are seen as opportunity to enrich private pockets other than executing government projects and policies. This has direct effect on the growth and development of Nigerian economy, as government resources are constantly suffocated by the privilege few at the detriment of our development (Bello & Aderbigbe 2014).

However, poor performance of the public sector has been largely attributed to lack of sound financial administration which has negative effect on both economic and social development (Bello et al 2014). It has become imperative for Nigeria, like other development driven entities to institute a mechanism that guarantees accountability in public sector to enhance financial discipline towards required development (Finedo, 2016). ICT platforms have been initiated to be the solution to financial recklessness in the Nigerian public sector, especially in the areas of revenue generation, appropriation and payment of salaries.

Accordingly, single Treasury Account (TSA) for central collection of public revenues and Integrated Payroll Personnel Information System (IPPIS) for payment of salaries to civil servants are trending ICT platforms in practice to check the excesses of financial irregularities in Nigerian Public Sector. Asoqua (2013) noted that the implementations of these digitalized government operations would enable public servants in Nigeria to render efficient services at all levels, ensures high productivity, gingers economic growth, fosters national development and leads to the attainment of our progressive vision. Many officials can conveniently

perform most of their duties from home or when they travel. This is made possible by social media contact with their subordinates while out of office. Documents are now scanned and sent online from one office to another for efficiency and effectiveness. ICT helped in this direction during covid-19 and remains very appropriate in times as this in future. Demonstrably, efforts are made by various units of public sector to register commending remittance to TSA for records of hard work and productivity. In the other hand, IPPIS has ensured elimination of wastages in government Payroll. Administratively therefore, ICT has

- i. TSA has enhanced productivity in ministries, departments and parastatals in the Nigerian Public Sector. This is because many units are working very hard to prove their viability by what they bring into government coffers.
- ii. IPPIS has helped in the identification and elimination of ghost workers in the Nigerian public sector.
- iii. IPPIS has ensured reduction in wage bill of government through elimination of ghost workers.
- iv. IPPIS has instituted effective, efficient and timely payment of salaries. However, money recovered from fraudulent activities could be used in engaging other Nigerians for survival, which is also an aspect of development.

Impact of ICT on Security in Nigeria

It is no longer news that the war against insecurity in Nigeria is over time greeted with failure. Terrorism and crime are on the increase as our security agencies seem to be losing the battle of stemming the tides (Isizoh, 2012). Boko Haram, Kidnapping, Robbery and banditry have taken the lives of so many Nigerians who are both security agents and civilians. Many States in the country are beginning to resort to ICT as a medium to check insecurity as it is done in many developed climes. For instance, Governor Dickson Administration in Bayelsa State signed a memorandum of understanding (Mou) with Hagwei Chinese Company to install CCTV (Closed Circuit Television) in the whole of the state capital Yenegoa. This has helped to keep surveillance on the state capital and crime is reported to have reduced. Governor Ambode Akinwunmi of Lagos state did same in some key areas of the state and theft and crime activities were reduced. Car trackers, demobilizers, timers etc. have made stealing of cars to be reduced. Remote sensing and the use of Global Positioning System (GPS) are all ICT channels that fuel national development and growth. Most commending is the CCTV on the banking security architecture, especially in the use of Automated Teller Machines (ATM) and tracking mechanism for online theft (Isizoh, 2012).

Impact of ICT on Education in Nigeria

Education is one of the most crucial aspects of human existence. People are said to become refined and sophisticated for greater tasks through education. It is seen to be a way of acquiring needed skills and knowledge for expected performance as an individual. Education is therefore, considered as a key index of national development through human capacity. Many scholars have agreed to the fact that formal or informal education improves productivity, health and reduces negative features of life such as Child Labour (Uyanah, Uweh and Okon, 2021). It has the strength and prospects to produce an excellent Human Capital for economic growth of a nation. Uyanah etal(2021) sees education as a powerful weapon for the development of man and the society at large. Given this importance, many countries of the world have improved on their education sector through ICT. This is reflected in digitalizing academic activities and administration for effective and efficient outcomes. E-learning is introduced and has helped in ensuring that many have access to academic information through internet services.

- i. E-learning helped children to learn while at home during the lockdown occasioned by covid-19 pandemic. Many academic conferences are held in recent times and papers presented through zoom at minimal costs. Moreso, People run online studies and get certified upon graduation. This serves best in difficult times such as covid-19 where movements are restricted.
- ii. ICT helps students to browse materials from internet for efficient study.
- iii. Students also carry out registration of courses online, as against the traditional analogy method of struggling for registration that was cumbersome.

- iv. Financial transactions in academic institutions are now more effective and efficient as online payments have reduced a lot of financial irregularities experienced in the past.

Impact of ICT on Employment in Nigeria

ICT has created employment opportunities for many jobless youths. This is achieved through new ideas in technology via the education system, training facilities and affordable access to computers. Many youths are showing their creativity in software applications, bio-engineering, digital media and mobile applications. It is a fact that many Nigerians now have small offices with laptops to render ICT services for survival. Many youths are found by the road sides with laptops and umbrellas for shelter to render internet and online services to clients. Many are found on campuses across the country to render computer and internet services to students and staff alike. This has become source of income to thousands of citizens among whom many have used this to sponsor themselves, children or relatives to school. Impact of ICT on Business Services in Nigeria. The invention of ICT Has made many businesses to go more successful than ever. E-business models are initiated for robust and viable relationships between service providers and clients. The popular e-commerce models created by Technology friendly young population are Business to Business (B2B) Business to Customer (B2C) and customer to customer (C2C) models. This is to ensure efficient and effective service delivery for optimal satisfaction. Very notable is the fact that online advertisements and sells are also made possible through ICT. This has tremendous potentials for national growth. Online advertisement and sells were very helpful in the period of covid-19 Lockdown which could have shut the economy completely. But with online transactions and sells, the Nigerian economy was not completely shutdown (NBS, 2017).

ICT Tools for Socio-Economic Development

A computer network is one of the tools and this is a connection of two or more computers through a cable or wireless connection. Computer network enable computer users to share hardware, resources and information. Aside sharing information, the computer network enables users to share internet access. Computer network is very important for every business, no matter how small a business may be. Computer network helps in sharing resources. With computer network, so many computers can share one printer, scanner and some other hardware, which might be expensive for a company to acquire for every computer user.

In addition to this, Computer network gives users the opportunity to use remote programs and remote databases either of the same organization or from other enterprises or public sources. The importance of having a computer networks are really numerous. Thus, it is a necessity for every organization or company. It makes effective communication possible and helps to eliminate unnecessary waste of time and duplication or resources.

- cost reduction by sharing hard- and software resources
- high reliability by having multiple sources of supply
- cost reduction by downsizing to microcomputer-based networks instead of using mainframes

greater flexibility because of possibility to connect devices from various vendors

| Application | Use |
|---|---|
| Standard Office Applications - Main Examples | |
| <i>Word processing</i> | E.g. Microsoft Word: Write letters, reports etc |
| <i>Spreadsheets</i> | E.g. Microsoft Excel; Analyse financial information; calculations; create forecasting models etc |
| <i>Database software</i> | E.g. Oracle, Microsoft SQL Server, Access; Managing data in many forms, from basic lists (e.g. customer contacts through to complex material (e.g. catalogue) |
| <i>Presentation software</i> | E.g. Microsoft PowerPoint; make presentations, either directly using a computer screen or data projector. Publish in digital format via email or over the Internet |
| <i>Desktop publishing</i> | E.g. Adobe Indesign, Quark Express, Microsoft Publisher; produce newsletters, magazines and other complex documents. |
| <i>Graphics software</i> | E.g. Adobe Photoshop and Illustrator; Macromedia Freehand and Fireworks; create and edit images such as logos, drawings or pictures for use in DTP, web sites or other publications |

| Specialist Applications | |
|--|---|
| <i>Accounting package</i> | E.g. Sage, Oracle; Manage an organisation's accounts including revenues/sales, purchases, bank accounts etc. A wide range of systems is available ranging from basic packages suitable for small businesses through to sophisticated ones aimed at multinational companies. |
| <i>Computer Aided Design</i> | Computer Aided Design (CAD) is the use of computers to assist the design process. Specialised CAD programs exist for many types of design: architectural, engineering, electronics, roadways |
| <i>Customer Relations Management (CRM)</i> | Software that allows businesses to better understand their customers by collecting and analysing data on them such as their product preferences, buying habits etc. Often linked to software applications that run call centres and loyalty cards for example. |

POLICY RECOMMENDATION

Sustainable development is probably the most daunting challenge that humanity has ever faced, and achieving it requires that the fundamental issues be addressed immediately at local, regional and global levels. At all scales, the role of science and technology is crucial; scientific knowledge and appropriate technologies are central to resolving the economic, social and environmental problems that make current development paths unsustainable. Bridging the development gap between the North and the South, and alleviating poverty to provide a more equitable and sustainable future for all, requires novel integrated approaches that fully incorporate existing and new scientific knowledge.

The Science and Technology (S&T) ministry of Nigeria can make a leading contribution to sustainable development by implementing necessary changes and developing appropriate partnerships. These changes include:

Policy on Relevant Science Research Development

A much greater share of research must integrate problem-oriented and interdisciplinary research that addresses the social, economic, and environmental pillars of sustainable development. Good science is essential for good governance. Without proactive policies ICT actually widens the gap between the digital haves and the digital have-nots". Globally the contradictions are even deeper.

The great paradox is that with the amazing growth in computing and telecommunications – wireless technologies, mobile telephony, web services -the divide is still widening between the digital “haves” and the digital “have-nots”. Poverty, lack of leadership and commitment, underdevelopment and the imbalance in the global economic structure result in unevenness in the exploitation and deployment of technologies.

In the absence of well thought through policies, the prevailing situation widens the global digital divide between developed and developing countries. Countries with better access to ICT and who apply ICT in a widespread, inclusive manner are able to seize the advantages of good governance and development. On the other hand those with inadequate ICT resources end up being the victims of globalization.

Broad-Based, Participatory Approaches

Traditional divides between the natural, social, economic, and engineering sciences and other major stakeholders must be bridged. Research agendas must be defined through broad based, participatory approaches involving those in need of scientific information. The S&T community has the responsibility to improve cooperation with other parts of civil society, the private sector, governments, and intergovernmental bodies. ICTs should be exploited to participate meaningfully in the global digital enabled economy. Today information and knowledge are critical for social and economic growth. In particular ICT advances enable Nigeria to drive inclusive national development and growth by tapping into the benefits derivable from the exploitation and deployment of ICTs.

Investment in ICT

Nigeria need to develop national ICT policies involving public, private and social sectors aimed at developing knowledge based economies in order to overcome the challenges of economic growth and good governance and ensure that their peoples derive real social, economic and educational benefits from investments in ICT. ICT enables utilization of information in the workplace, in the provision of public services and in the performance of the private sector. Information, knowledge and opportunity epitomize the digital era. This is the age of information. The benefits have made ICT an essential requirement for survival and progress.

Investment in Human Capital/Public Goods

Nigeria still needs to improve further on its ICT services and telecommunications systems. Mobile telephony holds some promise for increasing access for marginalized sectors of the population and there has been an exponential growth in mobile subscriptions and all Nigerian states now have some form of mobile coverage, however, there are still millions of Nigerians with limited or no access to ICT services due to lack of network infrastructure. ICT infrastructure cannot work without a regular source of electrical power. More effort should be devoted to improving the country’s epileptic power supply. The nation still needs to commit more resources into the development of its Human Capital, address the internal digital divide between the literate and illiterate

citizens, while the nation's websites set up by government and private agencies should be integrated and reviewed to make them e-service.

Effective and Strategic Deployment of ICT

Effective and strategic deployment, development and exploitation of ICTs will lead to the development of a knowledge-based economy which in turn leads to development. ICT drives development in all sectors by addressing needs that include poverty eradication, improved healthcare, wealth creation, job creation and education. As a matter of fact growth and development cannot be sustained in today's knowledge society without the effective utilization of ICTs in all sectors.

E-government for all

E-government should reach all the people who need government services regardless of their location, age, status, language, or access to the Internet. The e-government global survey is a means by which governments can assess their level of preparedness for the provision of services to their citizens using modern ICT and telecommunication techniques. This can be achieved by the provision of adequate ICT infrastructure, improving online services and citizens' access to these services and dedicating itself to improving the country's literacy level.

Public and Private Cooperation/Partnership

The truth is that though ICTs provide efficiency gains, increased productivity and the opening up of new opportunities, national, overall gains are not automatic. For example, who makes the investments – the public or private sector? How will partnerships between the public and private sectors work? Without coordination and consistency in ICT and related activities, ICT may not make the required national impact. No country can survive without investing in ICT but strategic thinking and intervention are required. Otherwise how does Nigeria achieve its goals of social inclusion, rapid growth, wealth creation and overall prosperity? What are the roles of the public, private and social sectors? Inclusive multi stakeholder strategies and policies are a necessity to ensure countries benefit from ICT's phenomenal potential. Public and private cooperation is essential to enhance global competitiveness, drive local content development and enable full participation by Nigerians in the information age.

Program recommendations are focused on ensuring Nigeria becomes an information and knowledge society that enables Nigeria and its citizens to benefit in a sustainable, widespread and inclusive manner through the development of the private sector.

Merits of ICT in the Economy of Nigeria

The merits of ICT cannot be overemphasized.

Information and Communication Technology (ICT) is a phenomenon that fits into the globalization project of empowering gender and sustainable poverty alleviation in a nation's economy. Poverty amidst plenty is the greatest challenge facing Nigeria. Men and women in poverty use diverse coping mechanisms conditioned by their access to various support systems. A brief x-ray into the advantages of ICT in improving Nigerian economy is outlined below.

Electronic Governance

The questions that usually come to mind are: what is the role of Information Communication Technology in governance? Is government doing enough to empower her people through ICT? In Nigeria, many government agencies are now using websites to provide information on the activities of government.

Today people of Nigeria can go to the internet and get any information they want. Jobs, contracts, and government activities are posted to websites for public knowledge. This has greatly improved productivity, thereby making the economy of Nigeria high. Nigerians can now ask questions about public issues and make their views known to government. Stone age tools and concepts cannot empower the people.

E-Health and Telemedicine

E-health is a relatively new term in health-care practices and one of the most rapidly growing areas in ICT today. Telemedicine involves the use of medical information transferred from one site to another through

electronic communications to improve patient's health care including diagnosis and treatment. With the introduction of e-health and telemedicine in Nigeria, death-rate has reduced drastically in the country.

Wealth Creation

Through ICT, Small and Medium Enterprises Development Agency of Nigeria (SMEDAN) which was established by the SMEDAN Act of 2003 to promote the development of Micro, Small and Medium Enterprises (MSME) sector of the Nigerian economy can soar to greater heights. These can be achieved by developing IT based systems and infrastructures that will aid enterprises in maximizing profit with less capital investment and high quality product [5].

Using ICT to fight poverty

Poverty can be reduced to minimum if and only if ICT is inculcated in a nation's economy.

The use of ICT in combating crime and terrorism cannot be undermined. Under the leadership of Governor Sirriake Dickson of Bayelsa State, Nigeria, the state has signed a Memorandum of Understanding (MOU) with Huawei Chinese Company to install CCTV (Closed Circuit Television) in the whole of the State capital, Yenegoa. This will help to keep surveillance on the State capital. It will also go a long way in reducing crime in the state. Car trackers, demobilizers, timers, etc also made vehicle theft a thing of the past. Remote sensing and the use of Global Positioning Systems (GPS) have helped in tracking heavy duty vehicles and locating specific positions on the earth surface, foiling of terrorism and ensuring safe delivery of goods and properties.

These and more are few gains of ICT in the Nigerian economic growth and development.

Challenges

1. The compromising nature of our Electoral Management Body (EMB) is a militating factor against the success of ICT in politics.
2. Corruption in the Nigerian public service is so cancerous that even with ICT, fraud still exists.
3. Security gadgets are lacking even in the federal capital territory, not to talk of other parts of the country.
4. Even with ICT, the quality of education and students performance are still low, due to lack of political will by our leaders to provide needed e-learning facilities in the educational sector.
5. ICT is not given institutional framework in Nigeria because, many see it as a sophisticated channel for manipulation and fraudulent practices. This is due to mostly online financial theft driven by the popular "Yahoo boys" who can hack and manipulate any ICT platform. Instead of using it as means of income and genuine business, hackers have made it a criminal avenue for making money.

Conclusion It is concluded from the discussions of this paper that; Nigeria needs ICT for economic viability, social security, political stability, Administrative efficiency and educational performance. Therefore, the integration of ICT as a key component in the operations of politics, Administration, Security, Education and businesses is very inevitable in the pursuit of growth and development in Nigeria.

Recommendations

- i. ICT should be given an institutional framework in our electoral provisions, so as to adopt e-voting for credibility, transparency and integrity of our electoral outcomes with Accountable leaders to pursue development.
- ii. The practice of ICT should be deepened in the Nigerian public sector towards prudent use of government resources for national development.
- iii. More ICT security Gadgets be employed and positioned strategically across the country to curb crime.
- iv. All required e-learning facilities be provided in learning institutions for human capacity building which has direct bearing on national development.
- v. Hackers tracking mechanism should be installed by banks to monitor and report activities of hackers to security agents for prosecution, so as to allow free flow of online banking activities and business transactions.

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