
ICT in post Covid-19: exploring the new normal for achievement of sustainable development goals in Nigeria

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Abstract: The impact of the Corona Virus pandemic on the socio-economic and all spheres of endeavour in the society is difficult to quantify. Thus, with the new realities resulting in the distortion of the way things are done no doubt throw up new challenges on how to leave the new normal as a result of the emergence of COVID-19 pandemic. High adoption ICT emanated as a key means of bridging the gap of challenges caused by the pandemic and responding to the new reality of the everyday life. ICT, with its reach, richness and performances holds great promises in times like this if Nigeria can achieve Sustainable Development Goals (SDGs) as a nation. As a descriptive and qualitative study, the paper attempts to unravel the utility of ICT as a precursor to sustainable development in all sectors of the economy which have been threatened by the COVID-19 pandemic. It posits that the use of ICT involves its own set of challenges, especially concerning awareness, availability, accessibility and affordability of data-bundle among others. Therefore, the paper recommends that the governments should ensure that the use of ICT is fair and proportional not only during the times of pandemic, but also in the post-COVID-19 era as it holds the key to the actualization Sustainable Development Goals in Nigeria and the world at large.

Keywords: COVID-19, Economy, ICT, Pandemic, Sustainable Development, Sustainable, Development Goals

1. Introduction

The COVID-19 pandemic, the Sustainable Development Goals (SDGs), and the Paris Agreement on Climate Change challenged the revolutionizations of any nation state that will require complementary actions by governments, civil society, science and technology. However, critical stakeholders have been found wanting in the acknowledgement of the operationalization of the 17 SDGs. In the submission of Sachs et al (2019:804), six SDGs transformations have been recognised as “modular building-blocks of SDG achievement: education, gender and inequality; health, well-being and demography; energy decarbonization and sustainable industry; sustainable food, land, water and oceans; sustainable cities and communities; and digital revolution for sustainable development.”

From the foregoing therefore, the COVID-19 pandemic that first surfaced in China represented a combined global economic, social and health crisis more acute than any such disturbing and challenging situation that this century has witnessed. It left no part of the world untouched and has caused and still causing massive loss of life and socio-economic damage. It created a “new world order” by reshaping, resituating and restructuring public and private administration. Most countries today have realized rapid and sudden changes in their internal and external environment, as a result of political, economic, technological, cultural, or biological reasons which result in unforeseen crises that may threaten their structure, growth, and continuity of their activities owing to the Corona Virus pandemic. In short, non-COVID-19 protocol compliance sectors or organizations of the economy have gone into extinction.

Following these developments and with the slow in the pace of development witness across the globe as a result of the pandemic, the place of ICT in fast-tracking the achievement of Sustainable Development (SD) in Community Development (CD) and Sustainable Development Goals (SDGs) becomes an inevitable alternative in the present circumstance. This is owing to the fact that sustainable development is remains the major hydra-headed bottle-neck facing developing countries like Nigeria today. Hence, the “science to provide the knowledge required for designing, implementing and monitoring the SDG transformations” is ICT (Sachs et al, 2019:804). Thus, ICT apparatus which includes radio and television, as well as newer digital technologies such as computers and the internet have been touted as potentially powerfully enabling tools for educational change and sustainable development. Therefore, when utilized appropriately, different ICTs are said to help expand access to sustainable development. Strengthen the relevance of ICT in education; organization (both private and public sectors) will lead to the success of achieving goals and objectives for self-reliance. ICTs stand for Information and Communication Technology which can be defined as a “device set of technological tools and resources used to communicate, and to create, disseminate, store, and manage information” These devices include computers, the internet, broadcasting technologies (radio and television), and telephony (Blurton, 2011).

The modern globalized economy has increasingly unclear borders, and sometimes unpredictable events can occur in any process or location, affecting all countries without exception, regardless of their size or legal form, or the nature of their work or capabilities. This has been clearly demonstrated in the COVID-19 pandemic crisis that the world has faced and currently facing. So, continuous effective and proper management of the crisis is the only way to minimize negative effects on the all states. In light of the slow development the world is witnessing as a result of the corona virus pandemic and an attempt to mitigate the negative effects of the unprecedented corona crisis, this paper attempts to examine the utility of Information Communication Technology (ICT) in changing the narrative towards achieving Sustainable Development Goals in Nigeria and the world at large.

2. Object and subject of research

ICT is one of the tools that used in promoting sustainability development in both developed and developing countries. Nevertheless, there are some challenges facing the integration of ICT effectively. Some of the challenges as outlined below according to Saidu, Tukur and Adamu (2014) are,

- i. **Lack of Maintenance Culture:** ICT facilitate needs regular maintenance in other to sustain it maximum life span: But unfortunately, most of the developing countries neglect maintenance culture and this seriously affects ICT equipment.
- ii. **Lack of Time and Resources:** Staff lacking the time to deal with the challenges of sustaining ICT facilities, which is time-consuming. IT departments already face increasing demands from their institutions, without a commensurate increase in staff. Many of the programming changes required to implement sustainable ICT require considerable technical skill to implement. This constraint will become less pressing as staff becomes more familiar with the issues.

iii. **Budgetary Constraints:** Many government parastatals and tertiary institutions feel they are under-funded, and lack of capital budget means there is no enough money to spend on sustaining ICT facilities and activities. Most capital budget for ICT has to be spent on activities that contribute to immediate goals. Universities and colleges are further disadvantaged because they misused priority in their dealings. Savings from energy efficiency measures will result in lower operational costs, but normal budgeting systems make it difficult to transfer money saved from operational costs to a capital budget.

iv. **Lack Information and Guidance:** Following the fact the issue of SDGs and ICT are relatively new, many people, particularly teaching and research staff, do not know where they can find relevant information and guidance. It is particularly confusing fact that a number of vendors claim that their products are “green.” A common problem is that much of the ICT equipment used in the institution is not owned by the IT Department, so it is hard to carry out an audit of what is owned by whom, and how energy-efficient it is. The situation is exacerbated by the lack of standardized metrics to assess the energy efficiency of ICT equipment.

v. A good understanding of the energy consumption association with specific computer tasks is a prerequisite for better management, but without this kind of information it is difficult to set targets for, and therefore to measure the success of sustainable ICT projects.

vi. **Infrastructure-related Challenges:** Before any ICT-based programme is launched, policymakers and planners must carefully consider the following: -

a. Appropriate rooms or buildings should be available to house the technology. Proper buildings extensive retrofitting to ensure proper electrical wiring, heating/ cooling and ventilation, and safety and security are highly needed.

b. Another basic requirement is the availability of electricity and telephony. In developing countries large areas are still without a reliable supply of electricity and the nearest telephones are miles away.

3. Target of research

It is worthy to note that in other to ensure sustainable development through the use of Information and Communication Technology (ICT), the following becomes inevitable,

a. Awareness: People must know what can be done with ICT, they must also be open to using ICT

b. Availability: ICT must be offered within reasonable proximity, with appropriate hardware/software.

c. Accessibility: Relates to the ability to use the ICT (spanning literacy, e-literacy, language, interface, etc.).

d. Affordability: All ICT usage together should ideally, be only a few percent of one’s income.

From the forgoing, Information and Communication Technology (ICT) despite the challenges and barriers is eminently relevant and can provide useful if not path-breaking options and matrices for sustainable development in post COVID-19 Nigeria.

4. Literature analysis

The Information and Communication Technology (ICT)

The concept of **Information and Communication Technology (ICT)** is an off-shoot of Information Technology (IT) which Tukur, Bebeji & SULEIMAN (2021) connoted as “weapon of development.” They maintained that **it** is usually a more general term that stresses the role of unified communications and the integration of telecommunications (telephone lines and wireless signals), computers, middleware as well as the necessary software, storage-and audio-visual systems, which enable users to create access, store, transmits, and manipulates information.

In a succinct term, ICT is a technology such as computers, software, peripherals and internet connections, infrastructures required to support information processing and communication functions (UNDP, 2000). It is defined as “a broad-based technology (including its methods, management and application) that supports the creation, storage, manipulation and communication of information.” Information technology means a set of tools that helps you work with information and perform tasks related to information processing” (Nworgu 2007). Sesan (2001) conceptualizes it as the convergence of micro-electronics computing and telecommunications which has become global phenomenon of great importance and concern in all spheres of human endeavour, spanning across education, governance, business, market share, labour, productivity, trade, commerce and others.

Attama and Owolabi (2008) identified the following as primary ICT resources,

i. **Computers:** Computers are no longer just mathematical tools but essential management resources. As we all may know, different operations can be handled more efficiently using Computers. With the computer, such activities as information generation, processing, analyzing, storage and communication for sustainable development could be executed easily. The greatest assets of the computer are speed, cost-effectiveness and optimal utilization of available resources. Some other computer accessories worthy of mentioning are CD.ROM, diskettes, flash drive, etc.

ii. **The Internet:** This has proven to be the most valuable vehicle for accelerated information flow. According to Ogbomo (2004), it is a network of computers that communicate with each other, often over telephone lines. The potentials of the internet lie in the provision of global platform for information sharing among organizations and individuals. Information sharing creates awareness, ensures continuous use of products and services, prov

iii. **ides feedback and support for organization.** The contention here is that any organization or government that has current and useful information is empowered to enhance productivity and good governance.

iv. **Electronic Mail (E-mail):** This is the most widely used resource of the Internet. It is provided for sending and receiving mails (messages) through electronic devices. Intra and inter organizational communication has been made faster and cheaper. E-mail has become the life-wire for many business and organizational communication.

v. **World Wide Web (WWW):** World Wide Web is also an Internet-based resource. It is a utility based on hypertexts (Hypertexts simply documents through keywords in document or page). A visit to a website helps individuals or organizations to locate products, information, pursue political or social agenda and transact business (Chilvetalu, 2003).

Sustainable Development and Sustainable Development Goals

According to Hák, Janoušková, Moldan (2019:565), Sustainable Development (SD) as a concept was borne out of the environmental context and concerns as witnessed by the first appearance of the term in the “World Charter for Nature.” The challenges were tackled in an expanded “40 Chapters of Agenda-21” of the “Earth Summit” in 1992 (UN, 1992; WCED, 1987). The basis for “attempt to reconcile the two seemingly contrasting paradigms: lasting economic growth and an efficient protection of environment and natural resources what was forcefully exposed in *The Limits to Growth*” (Hák et al, 2019:565).

Though sustainable development is one of the most discussed concepts in contemporary development debate a clear-cut conceptualization remain particularly problematic. It is obvious that developing regions are hungry for development that subsists. Therefore, Soubbotina (2004:127) cited by PAUL and Ogwu (2012) validated that the governments of developing countries are the most important actors in the development process. This made its earliest connotation or usage to be restricted to ecological dimensions, with emphasis on the physical environment and regions. Thus, the United Nations Department of Social and Economic Affairs (1987) Report christened the Brundtland Report that defines sustainable development as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” It is clear in the Brundtlands conceptualization of sustainable development that the core issue for consideration in sustainable

development is the **persistence and continuity** of development. It underscores the need to factor in, the wellbeing of succeeding generations in the development plans. It also lays very strong burdens on the equitable management and judicious use of resources in a bid to achieve the goals of development. Implicit in this view therefore is the fact that policy, institutions, stakeholder partnerships and action as **important vehicles** for mobilizing and sharing information for the realization of SD and SDGs alike (Oliveira-Duarte, 2021; Bautista-Puig and Sanz-Casado, 2021). Such policies are made with posterity adequately factored in. Hence, Ndubisi (2003) while considering conditions for sustainable development focuses on institutions of government, and contends that the government of the day must necessarily come up with policies and legislations that address the issue of poverty today and not forgetting the future. The consummate goal of sustainable development therefore "... is the lasting improvement in the quality of life and not just short-term improvements that disappear rapidly at the end of the project circle" (Ulluiwishewa, 1993:20). To pursue sustainable development is to "ensure socially responsible economic development while protecting the resources base for the benefit of future generations". The target is to achieve these higher standards of living and then to seek to maintain them into the future, for the living as well as for unborn generations through technological development.

In another development, the United Nations Rio+20 summit in Brazil in 2012 committed governments to create a set of 17 Sustainable Development Goals (SDGs) and 169 associated targets to be achieved by 2030 were the follow-up to the Millennium Development Goals (MDGs) after their 2015 deadline. The goal centre on No to Poverty; Zero Hunger; Good Health and Well-Being; Quality Education; Gender Equality; Clean Water and Sanitation; Affordable and Clean Energy; Decent Work and Economic Growth; Industry, Innovation, and Infrastructure; Reduced Inequalities; Sustainable Cities and Communities; Responsible Consumption and Production; Climate Action; Life Below Water; Life on Land; Peace, Justice, and Strong Institutions; and Partnership for the Goals. The SDGs propelling forces are not far-fetched from "reducing poverty and hunger, improving health and well-being and creating sustainable production and consumption patterns" (Griggs, 2013). For instance, a goal of improving lives and livelihoods, would results in the promotion of sustainable access to food, water and energy while shielding biodiversity and ecosystem services.

Corona Virus

The Corona Virus disease is said to belong to the family of Ribonucleic Acide (RNA) viruses. The name "Corona Virus" came about because the virus particle exhibits a characteristic of 'corona' (crown) of spike protein around its lipid environment. According to the WHO (2020), the coronavirus COVID-19 pandemic is the defining global health crisis of our time and the greatest challenge we have faced since World War Two. Since its emergence in Asia late last year, the virus has spread to every continent except Antarctica. The deadly virus is said to cause illness ranging from the common cold to more severe diseases such as acute respiratory syndrome.

It was in late December 2019 that the World Health Organization (WHO) first reports an unknown pneumonia-like viral infection (now dubbed as the novel Coronavirus) that emerged in Wuhan city, Hubei Province of China (WHO, 2020b). After the report, the virus infection quickly spread to the other parts of China, and abroad. By the 20th January, 2020, WHO reported a total confirmed case of 282 from several countries including China (278 cases), Thailand (2 cases), Japan (1 case) and the Republic of Korea (1 case) (WHO, 2020b) and subsequently a new report indicated a total of 581 from China and in several countries around the continent (WHO, 2020c) confirming increasing surge in global infection and fatalities (Spinelli and Pellino, 2020). By the 30th January 2020, WHO declared a global health emergency (WHO, 2020a) when the number of infections arose rapidly from China to more than 20 countries globally. It is because of the wide spread and the prevalent nature of the disease across the world that the World Health Organisation (WHO) has come to refer to the COVID-19 event as pandemic.

As at the time of this write-up, there is over 44,145,186 (forty-four million, one hundred and four five thousand and one hundred and eighty-six thousand) reported cases of COVID-19 globally and over 1,169,666 (one million one hundred and sixty-nine thousand six hundred and sixty-six hundred

Confirmed deaths. Nigeria alone has over 62,111 (sixty-two thousand one hundred and eleven) confirmed cases of COVID-19 and over 1,132 (one thousand one hundred and thirty-two) death (See www.worldometers.info/coronavirus/). Thus, the unfolding challenges of the COVID-19 crisis, led to the intense disruption in global supply chains, many businesses affected, scores of people lose their jobs, the global economy has contracted in the first quarter and second quarter, and stock markets plummeted. These outcomes have intensified global response to control the spread of the virus. For instance, several governments introduced a state-of-public emergency – leading to a complete shutdown of the economies of various countries. To curb the spread of the virus, many governments around the world instructed citizens to observe social distancing, wearing of face mask, maintain personal hygiene such as regular hand washing, avoiding open coughing, hugging and handshakes (Cojoianu, Haney and Meiring, 2020; Gostin, 2004; Nicola *et al.*, 2020).

In Nigeria, the government-imposed series of state-of-the-public emergency directing the closure of all schools, marketplaces, places of worship and borders and restricting movement and social events and also international air travels. These practices bring new challenges to lifestyles and social interaction. Such concerted and sustained efforts on the part of governments are required to effectively advised and engage the citizens about its response plans, containment strategies, and recovery are fundamental to government-citizen engagement in the course of COVID-19 responses ((Lamin and Malang, 2020). However, our main concern in this paper is on how the government can leverages ICT to achieve sustainable development in post COVID-19 Nigeria.

5. Research methods

The research is a qualitative type which explored secondary data for discussion. The data were obtained from research data bases like Google Scholar, Scopus, ResearchGate, academia.edu, etc. The adoption of this approach is based on how the usage of ICT in post COVID-19 can assist the actualization of SD and SDGs in Nigeria because of reality which its construction is socially done by the human beings that are subject to change and difficult to understand (Rahman, 2017). In addition, the suitability of the method is imperative due to its concerned with multi-dimensional perspectives that defines it as “an umbrella term covering an array of interpretive techniques which seek to describe, decode, translate, and otherwise come to terms with the meaning, not the frequency, of certain more or less naturally occurring phenomena in the social world” (Van Maanen, 1979:520).

6. Research Discussion

An Interrogation of the Utility of ICT in Achieving Sustainable Development in Post COVID-19

Information and Communications Technology (ICT) has emerged as one of the key players that that fought the COVID-19 situation in Nigeria and across the globe. The unprecedented crisis due to COVID-19 has accelerated the process of digitalization of many services and businesses including healthcare services, education, online delivery of goods and services, online payments, and “work from home,” virtual meetings, etc. Digital technologies are also played a key role in keeping the societies functional in the time of lockdowns and quarantines and the need to leverage on that must be sustained in a face of any spike. The COVID-19 pandemic has compelled everyone to take a digital approach to being an employee, friend, or family member.

The latest ICT tools offered a plethora of solutions to every aspect of the response to the pandemic, particularly identification, isolation, contact tracing, and treatment. Mobile and web technology was helpful in spreading awareness about COVID-19, facilitating contact tracing, notifying individuals who have come in close proximity to suspected carriers, tracking COVID-19 suspects in quarantine, real time tracking of crowds, remote monitoring of COVID-19 patients and more. Drones were used for enforcing strict quarantine and social distancing and for disinfection purposes. Robots helped in the treatment of COVID-19 patients and sanitizing COVID-19 wards.

Telemedicine has provided solutions for e-health check-ups. Big data and Artificial Intelligence were used for Research & Development (R&D) purposes during the ravaging pandemic particularly in the developed countries like USA, Britain, Germany, Russia, France etc.

Given the myriad of information and communications challenges which were presented by the pandemic, ICT is particularly situated to offer solutions to the problems that emerged over the course of these catastrophic events. Before a novel pathogen was identified, ICT-based techniques such as Search Result Correlation and Mapping can flag the emergence of potentially deadly diseases before more traditional methods could alert disease control specialists to their presence, offering hope for immediate containment and near-total avoidance of an outbreak. Mobile technology aided the efforts of containment by tracking and notifying individuals who have come in close proximity to suspected carriers, as Singapore carried out, and GPS tracking was used to enforce the quarantine of these individuals, as South Korea has successfully modelled. Moreover, throughout the treatment process, cognitive computing techniques was applied to identify promising experimental treatments, risk factors and comorbidities in a way which helped the society protect those who are most at risk. As outbreak progressed to the point where containment was abandoned in favour of mitigation, ICT likewise played a key role by providing means for e-health check-ups which relieved the pressure felt by overburdened hospitals and medical personnel.

Adequate communications infrastructure also facilitated interpersonal connections at a stage when much of the population were forced into isolation. This not only helped to alleviate the personal stress which negatively impacted mental health during such times, but also served as a decentralized diagnostic network that flagged potential new cases which otherwise were placed in contact with the relevant medical personnel.

Finally, technology facilitated economic resiliency by allowing employees, ICTs and Public Health in the context of COVID-19 in some sectors to work from home, facilitating direct payments to workers in more vulnerable industries to stave off mass unemployment, and helping deliver essential services while minimizing the required labour presence (Bajpai, Biberman and Ye 2020). In post COVID-19, countries must up their game by ensuring that successes recorded are not lost.

7. Prospects for further Research & Development

It is observed that after the emergence of COVID-19 pandemic in Nigeria, there was dramatic change in the way businesses of both public and private sectors including religious and spiritual activities are being conducted. We therefore wondered how the rural dwellers that constituted the largest population of Nigeria and who lacked basic ICT instrumentalities and network coverage are coping. Therefore, further research is required on the “Poverty of ICT Coverage in Nigeria Rural Sector: Challenges of Public and Business Administration in Post COVID-19.”

8. Conclusions

The huge impact of the ICT on the global economic index during the peak of the corona virus pandemic is a testament to the fact that ICT has come to stay not only as a viable and sustainable development model, but also as a better alternative to cushioning the impact of the pandemic. ICT therefore hold the key to turn around Nigeria's economic fortunes and reduce poverty if properly harnessed. With increasing globalization, ICT has become indispensable at all levels of social, economic, political and cultural lives of most people in many parts of the world. We therefore recommend that:

- i. Nigerian policy makers, development partners as well as stakeholders should sustain the gains and explore further ways of deploying ICT to every sector of the national economy, and
- ii. The necessity of engendering sustainable development, reducing poverty and improving the living standard of the people in the face of the global pandemic that is yet to go away is the best option in living with the new normal.

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