Fourth Industrial Revolution Technologies and Public Service Delivery in the Post Covid-19 Era

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Abstract

The COVID-19 pandemic's unfathomable disruption of public service delivery has forced a paradigm shift toward more efficient methods of enhancing public service delivery. As the cornerstone to the future survival and promotion of service delivery in the post-COVID-19 age, many countries have started to concentrate on fourth industrial revolution technologies. We compare and contrast how these new revolutionary technologies are being used in between developed and developing countries' public sectors, as well as how these actions affect the provision of services. The study considers how prepared the public sectors in developing nations are to access innovative technologies in relation to the cost of facilities, the need for human capital, and the obstacles presented by 4IR. Our results reveal that, there is a link between incorporating new technology into public sector operations and improved production, management, and governance procedures in industrialized nations. These modern technologies don't have much significant impact in developing nations. Additionally, even though negative impact of 4irs in developing countries might be reduced in the long run, it has a great likelihood of disengaging the employees. This report offers policymakers advice on how to adopt new technology, rebuild their infrastructure, and build up their workforce capacities

Keywords: **Fourth Industrial Revolution, Public Service Delivery, COVID 19, and Challenges**

Introduction

The COVID-19 pandemic's unfathomable disruption of public service delivery has shown the inadequateness of earlier industrial revolution technologies to contain the calamity and stabilize public service delivery vulnerability. The coronavirus disease (COVID 19) has swiftly cuts across 219 countries and territories with unprecedented consequences on public service delivery, although to varying degrees. In the public sector, nothing happens in a vacuum. Therefore, depending on the state of the environment, the environment in the public sector has a direct or indirect impact on productivity, either positively or negatively. The climate in which the

public sector functions has a significant impact on its capacity to accomplish country's objectives. This implies that the environment in which public service operates cannot be separated from or is superior to it, and as a result, its environment constantly influences its operations either favorably or unfavorably (Osawe, 2015).

World Health Organization labeled COVID-19 a worldwide emerging on January 30, 2020 as a result of its rapid global spread and the numerous effects it had on the socioeconomic growth of the planet. With more than 150 million confirmed cases and three million fatalities across approximately 200 nations, Covid-19 is still spreading throughout the world (BBC, 2021). Because of the extraordinary death toll brought on by this new coronavirus (COVID 19), the government was obliged to enact social exclusion, lockdowns, travel bans, and several other controls to stop the virus' spread. For the medical and healthcare community, The use of personal protective equipment (PPE), such as facemasks and gloves, by the medical and healthcare community is required to prevent the transmission of the coronavirus COVID-19 (Zeashan, Afifa, and Chang, 2020)..

Unfortunately, there weren't enough of these safety equipments, which put many medical professionals' lives in danger. As a result, both public and private sector operations had to shut down, which resulted to the bankruptcy of numerous businesses, decreased service quality, and an increase in poverty in many developing nations. Obviously, many hospitals and schools that provide essential social service delivery were closed, worsening the condition of humanity. Explicitly, in a way to curtail the spread of this novel virus COVID 19), federal government suspended operations of some hospitals. In affirmation of this scenario, the managing director of Saint Nicholas hospital stated thus: “the safety of each member of our staff and each of our patients is of the utmost importance to us because of the shocking death toll the new coronavirus (COVID 19) has caused. Consequently, we are following Health Facility Monitoring and Accreditation Agency order to cease our services for a period of two weeks.

Obviously, Since the COVID-19 outbreaks, some HCWs have contracted the disease at work and have spread it to their families; sadly, some have also passed away. Some teaching hospitals in the state refuse to accept coronavirus-related patients, and some close their doors as the number of affected healthcare personnel rises. Regardless of the impacts of this contagious

disease on the public health sector, the education sector is particularly heavily impacted. Over the years, Nigeria's education system has experienced several difficulties, which the government and foreign groups have tried to overcome. However, the closure of schools as a pragmatic measure to halt the spread of the virus has worsened educational systems around the world.

Unexpectedly, Nigeria and nearly all the other developing countries were ensnared in it once more in the last quarter of 2020, following a slight reduction in the number of new COVID-19 instances in the third quarter of the year. The second tendency changed during the month of October, with many nations either seeing their second wave of the pandemic or their first significant increase in the number of new COVID-19 cases. The COVID-19 pandemic's second wave in Nigeria spreads more quickly and causes unimaginable suffering for the population. There are signs that the COVID-19 pandemic is currently experiencing a third phase of progressive global case growth. Obviously, COVID-19 dealt with service delivery in Africa indirectly, which led to the collapse of socioeconomic growth.

As the pandemic continues to evolve across Africa, many states are moving towards accelerating technologies in the operation of their public sectors as a means to overcome its suppression on service delivery. All through history, man has been dependent on technology, although each era witnessed variant technology mainly on its functions. It is beyond doubt that following the persistent global pandemic, many countries are moving away from conservative and analogue technologies to more ultramodern ones to enhance public service delivery amidst the ravages of COVID 19. This raised the stakes of stakeholders to embrace fourth industrial revolution automation technologies as an option at a time like this. The term "industrial revolution" means the process of change from agrarian and handicraft economies to ones dominated by industrial and mechanized production. The first industrial revolution started from 1760 to 1840. According to Klaus (2016), the First Industrial Revolution mechanized production using water and steam power, but the Second Industrial Revolution created mass production using electricity.

The Third Industrial Revolution automated production through the use of electronics and information technology as a result of technological progress According to technical developments, the Fourth Industrial Revolution has taken over media headlines and is now a popular topic for conferences and seminars as a practical way to increase effectiveness and efficiency in the

workplace amidst the effects of COVID 19. The fourth industrial revolution offers something new in comparison to the first three. Compared to the previous three industrial revolutions, the fourth one brings something fresh. The World Economic Forum (2016) claims that there is no precedence in history for the speed of current scientific advancements, thus, the fourth industrial revolution is developing exponentially rather than linearly when compared to prior ones. It is a merger of technologies that causes the distinctions between the physical, digital, and biological domains to become hazy. In contrast to previous industrial revolutions, where machines were inert, the fourth industrial revolution (4IR) stands out for the integration of the physical, digital, and biological domains **(**Schwab, 2017).

Consequently, it has sparked a discussion about whether automation technologies from the fourth industrial revolution are effective in promoting effectiveness and efficiency in the delivery of public services in the COVID-19 period among academics and stakeholders. If yes, it is still up for debate whether or not poor nations like Nigeria are prepared to take advantage of the opportunities presented by these cutting-edge technologies and whether they have the capacity to manage the difficulties posed by the 4ir as it develops. In light of this, this study evaluated the effectiveness of 4IR tools in expediting service delivery while considering the readiness of the nation to do so and its potential harm to Nigeria's growth.

Review of Literature

Technology Revolution and Corona virus pandemic

The World Economic Forum (2016) states that during the three previous industrial revolutions, mass manufacturing moved from being manual to being automated. The realm of cyber systems, which is disrupting industry quicker than ever before, represents the fourth cycle that we are now in. Proto-industrialization was followed by the first industrial revolution. It began around the close of the 18th century and persisted until the start of the 19th. Mechanization brought perhaps the biggest changes in the sectors. Agriculture's beginning replacement by industry as the foundation of the society economy was mechanization. People at the time saw the enormous

amount of coal being extracted and the steam engine's crucial development. This was the reason for the creation of a new type of energy that later on helped speed up the manufacturing of railroads, thus accelerating the economy.

Nearly a century later, the second Industrial Revolution is taking place around the world. Massive technological breakthroughs in the industrial sector at the end of the 19th century served as the catalyst for the development of a new energy source. The internal combustion engine was developed as a result of this revolution, and it began to realize its full potential. The growth of the need for steel, chemical synthesis, and communication technologies like the telegraph and telephone were other significant aspects of the second industrial revolution.

The Second Industrial Revolution is still regarded as the most significant one because of the development of the vehicle and the airplane at the beginning of the 20th century. Another century has passed and we bear witness to the Third Industrial Revolution. The third revolution brought forth the rise of electronics, telecommunications, and, of course, computers. Through these new technologies, the third industrial revolution opened the doors to space expeditions, research, and biotechnology. In the world of industry**,** two major inventions, Programmable Logic Controllers (PLCs) and robots, helped give rise to an era of high-level automation. The coronavirus pandemic and its consequences have prompted many countries to accelerate industrial automation technologies as a preventative measure for containing the pandemic and reviving the devastated public sector operations. The World Economic Forum's founder and executive chairman, Klaus Schwab, coined the term "4IR" to describe a technological convergence that is blurring the boundaries between the physical, digital, and biological spheres. This development is characterized by an unprecedented "velocity, scope, and system impact." The Fourth Industrial Revolution (4IR) is defined by qualitatively and quantitatively distinctive technologies and capabilities that have the potential to fundamentally alter practically every sector of the economy and every nation.

Many of these developing countries were finding difficult to adopt due to The Fourth Industrial Revolution or 4IR—is the new phase in the digitization of the manufacturing sector, driven by disruptive trends including the rise of data and connectivity, analytics, human-machine interaction, and improvements in robotics. The fourth era technologies integrates hardware,

software, and biology. It enhances advances in communication and connectivity. It ushers breakthroughs in emerging technologies in fields such as robotics, artificial intelligence, nanotechnology, quantum computing, biotechnology, the internet of things, the industrial internet of things, decentralized consensus, fifth-generation wireless technologies, 3D printing, and fully autonomous vehicles.

Theoretical Framework

Technology Acceptance Model

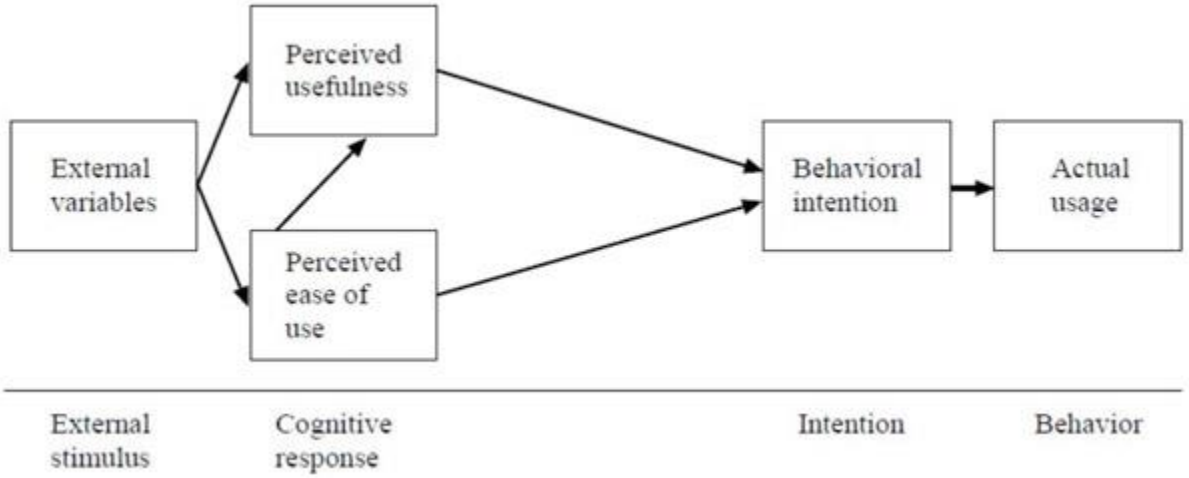
Davis first presented the technology acceptance model (TAM) in 1986. One of the most popular models to describe user acceptance behavior is this one. Technology adoption studies in diverse contexts are built on the Technology Acceptance Model (TAM). TAM is a popular theoretical framework for analyzing how a user will react to and use new technology, as well as its many components. The point at which people really utilize a system is the end-user. An element that influences people's decision to use technology is their behavioral intention. The attitude (A), or general opinion of the technology, has an impact on the behavioral intention (BI).

When a study concentrates on the potential adoption of a new technology, TAM is helpful. By creating a framework for deriving behavioral intentions and actual behavior of users for new technology adoption, TAM exemplifies a trailblazing research endeavor. The model suggests that when users are presented with new technology, a number of factors, including: Perceived usefulness (PU) - Fred Davis defined this as "the degree to which a person believes that using a particular system would enhance their job performance" - influence their decision about how and when to use the technology. It refers to a person's perception of the technology's utility for their intended use.

Perceived ease-of-use (PEOU) is described by Davis as "the extent to which a person perceives that that utilizing a specific system would be effortless" (Davis, 1989). If the technology is simple to use, then the obstacles have been removed. No one is fond of something if it is difficult to use and has a confusing interface. The attitude of the user toward using technology is then determined by these two elements. The model goes on to state that the behavioral intention to use

will also be influenced by perceived usefulness. The behavior is influenced by the attitude, which in turn affects the level of acceptance. The following is a diagrammatic illustration of the model Davis proposed in 1989

Figure 1. Technology Acceptance Model



Sources: Davis and Venkatesh, 1996,

Using PEOU and PU as two independent variables and system usage as the dependent variable, Davis (1989) carried out multiple studies to confirm TAM. He discovered a strong correlation between PU and both self-reported current consumption and self-predicted future usage. PEOU and both past and present usage had a strong correlation. Overall, he discovered that PU and PEOU greatly outperformed one another in terms of their link with system usage.

Application of the Theory

Technology acceptance model gives insight on diverse level of adop ion of new technologies by different states. The level of acceptance is different so as the level of economic development. It unfolds two factors which determine approval and implementation of the technology in any state. Perceived usefulness and Perceived ease-of-use (PEOU) are the major determinant variable that prompt the acceptance or rejecting of the new technology. This theory totally expose the reasons developing countries are lagging behind in adoption of the due to

inadequate human capital, poor involvement in global trade and investment, Complex Institutional framework and adverse environment condition, conversely, developed countries have access to these new technology as a result of their perceived usefulness of this technology and easiness of the adoption which ii made possible by availability of technology and sustainability of environment.

Methodology

The research approach to this study is the documentary research design. It mainly entails the study of documentary materials. The research relied on secondary data from various published and unpublished materials relevant to the study, such as books, journals, magazines, conferences and seminar papers, and newspapers. Other sources of secondary data were reports, white papers of investigation panels, and other quantitative publications related to the problem of the study were all systematically analyzed.

Being non experimental research, the use of qualitative descriptive analysis is employed for the analysis of the generated data. Empirically, we used a qualitative and historical method that was critical and analytical, providing descriptive and historical details. The qualitative and historical method provided us with a clear perspective into our research problem by allowing us to understand the fourth industrial technologies, peculiarities of the 4IR, benefit it presents and challenges that obstructed its efficacy in developing country.

Developed Countries and Fourth Industrial Revolution Technologies

Fourth Industrial Revolution has made significant change developed countries such as china, japan, South Korean. This was possible through by the emergence of digital systems, networked communications, machine learning and large-scale data analysis. The increasing integration of these technologies into business and production processes promotes self-sustaining and more efficient in production. Some of the variables that are visible in the developed countries leading fourth industrial technologies includes:

- Technology and innovation.

- Human capital.
- Global trade and investment.
- Institutional framework.
- Sustainable production.
- Environment factor

Japan

The Japanese nation leads the list of economies in the production sector due in large part to its diversification. Japan's manufacturing sector is third in the world, and together with China and the United States they account for 50% of added manufacturing value. It is not a surprise, and it is that innovation comes from the public sector and from the private sector.

Even since 2016 the Japanese government launched the initiative called Society 5.0, with which it is sought that emerging technologies not only transform production, but also the whole of society. In the same ways, government and industries have come together in a project called Connected Industries. The main focus is to connect different sectors of the economy and create value by reaching people, technologies, and organizations and in general all the elements of the Internet of Things.

South Korea

Second in the leading countries of the Fourth Industrial Revolution remains in Asia, with South Korea taking the silver medal. Today, South Korea is known worldwide for its research and development processes that are the envy of all countries. With names like Samsung, Hyundai and LG, the country has managed to reach almost every corner of the world with its products. However, by the 60s, the country was made up of an agricultural economy. Poor and destroyed after decades of Japanese occupation North Korea today - almost 60 years later - has the sixth-largest manufacturing sector in the world as a result of its ability to embrace 4IR technologies.

Germany

Germany takes third place worldwide. As is well known, German manufacturing processes are characterized by their precision and high quality. The German country is the second at

European level in terms of exports, with the automotive sector representing 13.0% followed by medicines with 3.71%. Germany stands out for its robust education system and high digitization in the manufacturing process.

Suiza

Although not as famous as the other countries that make up the top 5 leading countries of the Fourth Industrial Revolution, Switzerland is also leading the paradigm shift that 4RI represents. In a 2018 Deloitte study; Swiss companies see the shift to Industry 4.0 as inevitable and essential. In the same way, they foresaw an increase in the country's competitiveness thanks to the lead they have taken in the digital transformation. The government, together with the country's companies, has launched the official initiative in which all the challenges and advantages that the move to digital has brought to the European country expand.

China

The last place on this list, but still far ahead of most of the world, is occupied by China. Since 2010, the Asian giant has surpassed the United States as the largest manufacturing sector in the world. Its added manufacturing value reaches 3 trillion (million million) in 2016, thus representing a quarter of total global production.

According to the Economic Forum, despite the fact that the productive sector is undoubtedly the most robust in the world, China can improve by adding complexity to its economy and diversifying its market structure. Far from being just a producer of low-cost items, China is today leader in facial recognition and artificial intelligence.

Prior to early 8o's china was economically and technologically. The preceding industrial had little or no impact in socio-economic and technological development of china. At the dawn of the 4IR era, china is better placed than in the past, and consequently it seized the opportunity offered by industrial revolution in pushing from less developed to developed country. China saw great transformation technologically, currently, china is addressed as a global leader. There's basically no technologies that you can see on the global landscape where China is not the leader or one of the leaders. The application of the fourth industrial revolution technologies has transformed China into one of the top ten leading economies in the world.

Specifically, china is now the second largest economy in the world. China seized the opportunities offered by an industrial transformation in has taken a leading role in technological innovation and

6. Benefits of Application of Different 4IR tools in Social Service Delivery

This descriptive cross-sectional survey found that many healthcare workers have a significant chance of acquiring the COVID-19 infection from patients, as well as unwittingly transferring it to other people, especially since many of them do not take necessary precautions (Osahon and Aihevba, 2020). Overtly, COVID 19's issues cannot be solved by continuing to dwelling in the preceding industrial revolution. In order to improve service delivery, it is necessary to mainstream new technologies in public sector operations. The advantages of 4IR are embedded in applying the new technologies such as artificial intelligence; cloud computing, robotics, 3D printing, the Internet of Things, and advanced wireless technologies in production processes and service delivery. These are fully evaluated hereunder:

Drones

An autonomous machine known as a drone is essential to the fight against the COVID-19 pandemic. Drones help authorities and citizens in a variety of ways to limit unauthorized movements of individuals during the lockdown and stop the spread of the coronavirus infection. Drones have been widely used to transport necessary goods more quickly and safely. Drones, for instance, have greatly improved Rwanda's medical supply system and saved countless lives (Aryn, 2017). Specifically, drones are used to gather test samples from isolated or remote places and carry them to the closest testing lab in order to lessen the burden on the healthcare system. With this method, the transit is expedited and the risk of virus propagation is further reduced. All of these jobs are possible with drone technology, and they can even be performed in remote areas without any human interaction.

Robotics

Robotics has excelled in numerous industries and can help in a variety of ways. Technology has demonstrated its potential in numerous areas, including the administration of medicine, surveillance, patient screening, and sanitation, among others. The employment of robotics in healthcare settings has led to effective COVID-19 escalation prevention. Robots are now more efficient at treating and diagnosing infections due to the simultaneous integration of machine learning algorithms and AI. Robots, for instance, are utilized for mass screening and data collection to analyze individual health reports. Autonomous robot systems have significantly aided medical personnel during pandemics like the coronavirus by doing repeated activities with little room for error.

Block chain

Covid-19's highly infectious nature means that there is a pressing need to find appropriate solutions, from speeding up the detection of virus carriers and halting the spread of the virus to developing a vaccine. Recently, block chain technology has become a crucial technology in the crucial field of epidemic management.

Applications based on the block chain might provide a dependable, transparent, and reasonably priced alternative to enable effective decision-making, which could hasten responses to such disasters. In the context of this pandemic, block chain technology has the potential to be essential in the global response to the coronavirus by tracking disease transmission, managing insurance payments, and ensuring the sustainability of supply chains for medical supplies and donor tracking systems.

Synthetic intelligence

Computers that "think" like humans are referred to as AI. They are able to digest data, make inferences, and discern intricate patterns. AI is used in a wide range of applications, including

everything from finding patterns in vast volumes of unstructured data to powering your phone's autocorrect.

Internet of Things

The Internet of Things, which is made up of billions of sensors that transfer information back and forth, will soon cause the physical and digital worlds to become even more intertwined as a result of greater technical advancements. It will produce new capacities in production, the use of gadgets across all industries, and new ways to serve customers

3D printing

By using 3D printing, manufacturing organizations may be able to make their own parts more quickly, more affordably, and with fewer tools than they might by using more traditional techniques. Designs can also be changed to provide a precise fit.

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Challenges of Developing Countries towards Embracing Fourth Industrial Revolution and Its Implications

Similar to this, 4IR automation technologies, despite the enormous opportunities they offer, are also seen as a threat because they have the ability to completely alter the nature of employment and the widening inequality gap. The one place where the Fourth Industrial Revolution will most likely cause disruption is the workplace. Because of the elimination of numerous job categories brought on by AI and more automation, the Fourth Industrial Revolution, like previous ones, will have a substantial impact on people's lives. At the same time, whole new job categories are emerging (Devon, 2020). It is evident that the downsides of automation technologies from the fourth industrial revolution are terrifying to society at large, especially in developing countries where technical development is still in its infancy and the proliferation of a low-skilled labor is rampant. Many developing nations lack the necessary skills for new technology, while many rich nations are prepared to meet the difficulties and have the instruments necessary to embrace the shift and seize the benefits. Clearly, this could worsen the exodus of low-skilled workers from developing nations, which also worsens economic differences and inequality between nations. Low absorptive capacity prevents many poor nations, like Nigeria, from taking use of accessible 4IR knowledge and technologies. They still lack access to both previous and new infrastructure. Infrastructure in science and technology, as well as the capacities and competences necessary to function on the technological frontier, are woefully lacking in Nigeria.

For instance, the closure of schools in Nigeria hampered instruction, especially in primary and intermediate schools. 4IR technologies are the only method to reduce the coronavirus's negative effects on service delivery, but do Nigerian schools have access to these cutting-edge resources to assist the 46 million affected students? Are there options available for parents to offer their children online learning opportunities? Do teachers have the tools necessary to record massive open online courses (MOOCs) or deliver them live? Obviously, Nigeria has not yet benefited from 4IR. The biggest concern, to put it more clearly, is that new technologies like automation, robotics, and artificial intelligence may eventually displace workers, which would raise the unemployment rate. This will replace many large-scale human jobs, resulting in global unemployment and poverty (Department of Economic and Social Affairs, 2017).We can't even create enough new jobs to keep up with the rate at which technology and robots are replacing human work. Jobs that we once thought to be safe are now being threatened by technology,

including those of taxi drivers and pilots of airplanes, both of whom face threats from autonomous vehicles. Even in remote locations, drones are used to deliver things.

The World Economic Forum (2018) expressed the following in response to the difficulties the Fourth Industrial Revolution has brought the world: "Over the coming years, a cluster of developing roles will become much more important, whilst another cluster of job profiles is projected to become progressively obsolete." However, the Organization for Economic Cooperation and Development (2016) estimates that there is a substantial likelihood that 14 percent of employment will be totally automated and that another 32 percent will experience major change. According to WEF study, demand is anticipated to increase for a number of occupations, including:

- Artificial intelligence and machine learning specialists
- Big data specialists
- Process automation experts
- Information security analysts
- User experience and human-machine interaction designers
- Robotics engineers and block chain specialists

The digital divide will not assist many developing nations, especially LDCs, unless proactive policy measures are put in place to strengthen current institutions and human resources. Their economies won't be able to compete with those of wealthy nations, which would widen the gap in global economic inequality.

Track for Digital Divide in Developing Nations

This research has made us aware of how the world is evolving. And everyone who wants to take advantage of what it has to offer needs to follow the trends as they develop right before our very eyes. Therefore, individuals with skill that is future-proof are the only ones who may profit

from new chances. The world is now divided between developed and developing nations as a result of the fourth industrial revolution. In particular, it makes the inequality between nations worse. Those who can benefit from new technology grow in a geometric progression, while those who rely on older ones languish in extreme poverty. Can Nigeria compete with China in the level of industrial revolution? No!

What can Nigerians do, then, to benefit from the advantages associated with automation technologies? The benefits of 4IR outweigh the drawbacks by a wide margin. Nigeria merely needs to adapt and integrate the 4IR automation technology.

Establishing enabling and mitigating laws and policies

In order to integrate 4IR into the operations of the public sector, the government must adopt sound laws and regulations, and this can only be done with the participation of multiple ministries. For instance, the introduction of an information and communications policy that imposes universal service obligations on internet providers to ensure connection of even the "last-mile" users to the internet would benefit a trade policy that lowers tariffs on the import of smart phones and tablets and an investment policy that lifts the cap on foreign ownership of internet services.

Reinventing Labor, Skills, and Production

Developing "future-proof" abilities will be essential because the future is digital. Although spending money on STEM fields—science, technology, engineering, and mathematics are important, soft skills like creativity, teamwork, and time management cannot be overlooked. As a result, Nigerian governments must fund education and skill-upgrading initiatives to make sure that technology augments rather than substitutes for labor. Numerous professionals in the fields of education, healthcare, and other service delivery sectors would benefit from investments in education.

- **Investing in technology and digital infrastructural development**

Nigerians cannot embrace 4IR technologies without enhancing electricity in both local and urban communities. The new technology is tied to the effective promotion of electricity. It will

increase the use of mobile phones and the internet. In addition, it is required that governments accelerate the physical connectivity of fiber-optic networks as well as the interoperability of virtual platforms. This is very critical for upgrading technology on the continent and also for reaching and lowering unit costs for the underserved. More broadly, adequate infrastructure development will drive and sustain economic transformation in Africa. With lower transport and communication costs, countries with suitable agro-ecological conditions can produce high-value products.

Conclusion

The advantages of 4IR are far greater than its disadvantages. There is a need for Nigeria to adjust and align with the 4IR automation technologies. Adoption of automation technologies ushered in by 4IR in developing countries will transform and push the third world countries to develop into developed countries. In addition, industrialized infrastructural facilities and the predominating presence of highly-skilled employees will promote access to the opportunities presented by 4IR. This study advises governments to embrace new technologies, overhaul infrastructure, and ensure that their workforce is well-equipped. There should be proper funding and good maintenance of these gadgets from the appropriate quarters. Also, there should be proper re-orientation of the African mind to fight resistance and embrace adaptation.

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