

# The Role of Technological Innovations and Advancement in Achieving Sustainable Development in Nigeria

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## Abstract

*In today's world, advanced technology plays a crucial role in the success of a well-established economy and plays a significant role in differentiating between developed and developing nations. The lack of a developed economy and technological infrastructure in a country indicates that the country experiences poverty, unemployment, and insecurity, similar to the situation in Nigeria. Even though Nigeria is referred to as a developing nation, it has been projected that a staggering 120 million Nigerians will be living in extreme poverty by 2030. This article discusses the current situation of this Nigeria's cancer and proposes a solution to ensure its continuous development and success in the global market, ultimately contributing to Nigeria's transformation into a developed nation. The answer lies in entirely integrating the latest technology and the necessary foundation to support it. The government will take advantage of the opportunity and redirect its efforts towards the adoption of contemporary technology. If Nigeria capitalizes on technological advancements, just like the United Nations does to rank countries, it can leverage this progress to transcend its classification as a developing nation. Cutting-edge technology infrastructure will transform Nigeria into a developed nation and enhance various areas of human engagement, such as human capacity, economy, security, and more.*

**Keywords:** Technology, Development, Sustainable, Economy

## 1. Introduction

Today, there are both developed and developing nations in the world. The presence of poverty, unemployment, and insecurity commonly observed in developing countries denotes struggling economies. This leads to a significant level of corruption. For a significant period in Nigeria, poverty and unemployment persisted as significant issues with regards to social development. Unemployment in Nigeria was deemed highly critical in the 1980s and has subsequently grown, as stated by Obadan and Odusola (2001) as referenced in the work of Akwara, Akwara, Enwuchola, Adekunle, and Udaw (2013). The percentage of unemployment in the country's workforce has grown to 20% in 2011, up from 15% in 2008, according to Lamido (2013). The group of people most affected by this issue are young Nigerians, who currently have the highest rate of unemployment. Around 40% to 60% of the unemployed individuals in Nigeria are between the ages of 18 and 45, according to Rotimi (2011, as cited in Akwara et al., 2013). On the other hand, Akanda and Okuwa (2009), as mentioned by Adebobola et al. (2015), report that the age range of unemployed individuals in Nigeria is from 15 to 25 years old. The issue of unemployment and poverty among young Nigerians is a significant problem. This presents a challenge not just for the youth, but also for the broader social, political, and economic framework of the nation, as stated by Nwokike et al (2022). At present, Nigeria is grappling with two significant issues that greatly impact its economy and society: unemployment and

poverty. The National Bureau of Statistics (NBS) has revealed that Nigeria's unemployment rate in the final quarter of 2020 stood at 33.3%, marking a rise of 6.2 percentage points compared to the second quarter of the same year. In the year 2020, Nigeria ranks third among countries with the highest number of unemployed individuals globally. Additionally, based on data from World Poverty Clock, the number of individuals living in extreme poverty in Nigeria has decreased from 86.9 million in 2018 to 93.7 million in 2019. Consequently, Nigeria holds the unfortunate distinction of having the highest number of people living in extreme poverty worldwide. Unfortunately, this trend of increasing unemployment and poverty is expected to worsen. The World Data Lab has bleakly projected that the prospects for poverty reduction in Nigeria are dim, with an estimated 120 million Nigerians predicted to fall into extreme poverty by 2030. The issue of poverty and unemployment is increasing in Nigeria, causing severe hindrance to the nation's progress. Therefore, the crucial inquiries revolve around finding a resolution to the escalating issue of poverty and unemployment in Nigeria. Is it possible for this solution to ensure the achievement of "sustainable development" in the country?

This paper is organized in the following order:

Part 1 is an introduction that provides a good overview of the topic; Section 2 is a theoretical framework that outlines the views of other authors on the topic, as well as those of the author; Sections 3 and 4 provide a summary and conclusion, respectively; and section 5 contains recommendations.

## **2. Theoretical Framework Technology**

In the past, it was the responsibility of humans to perform all the tasks of collecting data, making observations, and tracking processes until completion. Many of these activities are challenging and require a lot of time, which is why technology has been introduced. Technology is the outcome of applying scientific knowledge for practical purposes. Different forms of innovation arise when people try to find more efficient methods of working and experiment with new ideas, according to the Indeed Editorial Team [Indeed] in 2023. As individuals and companies seek new methods to carry out their tasks, offer services, establish themselves in the market, and boost profits, technology is becoming increasingly paramount. Ahmadi (2018) acknowledges that as society strives to improve and extend their lifespan, the rate of technological progress also increases, aiming to discover and implement more convenient methods of living. Technology has consistently progressed and become prevalent in nearly all domains and uses. And there is no limit to the potential of more advanced technologies. This led to the development of various industries such as biotechnology, agricultural technology, medical technology, information technology, communication technology, e-commerce, and others.

### **2.1 Development of a Nation**

According to Ahmadi (2018), development is connected to innovation. Advancements in technology have played a crucial role in enabling humans to reach the current stage of development. Modern technology has played a pivotal role in bringing about a transformative and forward-thinking shift in the economy that we witness today. It has extensively contributed to advancements in various facets of existence. And its advancement is directly related to the expansion of the economy and supports the progress of every nation. In the present era, the progress in science and technology plays a crucial role in shaping policies that aim to foster sustainable economic growth and development, as stated by Ahmed (2021). As modern technologies continue to advance and enhance business practices, governments across various

nations are incorporating them into their policies in order to improve efficiency and boost economic growth.

The advancement in technology has positively affected the economy as it has enhanced communication, expedited the process of entering new markets, increased the number of marketing channels, and also resulted in mergers and acquisitions. The business world has been fundamentally transformed by E-commerce, which refers to the conducting of commerce online. E-commerce has facilitated connections and business transactions between producers and consumers across borders in global markets. Technological advancements promote global rivalry between countries. According to Ahmed (2021), the progress of technology has played a major role in the improvement of economic, social, and cultural aspects of life.

Moreover, Ahmed (2021) discovered that technological advancements have varying effects on economic growth at the macro level, as well as corporate profits and market share at the micro level. Social progress occurs when a society is able to develop and incorporate technological advancements into its everyday social and cultural practices. In reality, it appears that economics has influenced the direction of technological advancements, as the developments introduced by progress in technology are closely connected and influenced by economic interactions and conditions. Countries that have the ability to share important technology and information with all parts of their society have the chance to create new job opportunities within their own borders. However, the hiring of skilled labour is necessary for these newly developed regions. Due to this, it is necessary to modify education policy to guarantee the cultivation of human resources possessing the required skills to maintain economic progress.

As he hinted, economic development refers to the growth in the number of resources and products available to fulfill the needs of people in any country or region, regardless of their location. We can assess the rate of economic growth by considering if there is a genuine rise in the gross domestic product (GDP) from one year to another, disregarding any changes in prices. GDP refers to the overall value of all quantifiable goods and services generated by an economy, which is used to measure the rate of economic growth (Ahmed, 2021). In this manner, "Technological progress, which indicates economic growth, can be defined as the entire set of knowledge, structure, and procedures needed in the production process."

This technology allows for increased productivity without requiring additional resources in any production process. This is highly likely to result in reductions in both labour and capital expenses. Technological advances enhance economic advancement. However, it also has the potential to enhance societal prosperity by boosting income levels and overall wealth. The advancement of technology is crucial for sustainable economic development over an extended period of time (Ahmed, 2021).

## **2.2 Technological Advancements and Infrastructure**

According to Ahmadi (2018), the progress of innovative technologies has been ongoing since the dawn of human civilization. From creating tools such as spears and knives, crafted from stones and sticks, to aid in hunting and gathering food, to the invention of the printing press and computers.

Technology has permeated every aspect of human existence. Technology has an impact on various sectors such as agriculture, industry, work, healthcare, education, arts, politics, entertainment, religion, and daily life.

In other words, the growth of technology has advanced at a very rapid pace during the 20th and 21st centuries. Developments in technology have minimized the potential dangers encountered by manufacturing companies. According to Ahmadi (2018), there has been a remarkable enhancement in the global healthcare field. Not only has the average lifespan of people risen, but there has also been a significant decline in mortality rates (London and Elsevier, 2004). This has been made possible solely due to the progress in technology within the healthcare industry. Moreover, technology has progressively evolved and now holds significant importance in society, playing a crucial role in everyday tasks.

This portion is made possible due to the assistance of the technology system, including software, hardware, devices, buildings, and amenities. The term technology infrastructure relates to the equipment and systems that enable the operation and control of IT services and business computing environments. This structure encompasses all the tools, software, systems, and resources that companies use to create, test, deliver, monitor, and support IT services (Indeed, 2023).

"The technological framework refers to the essential elements such as services, software, equipment, infrastructure, and systems that form the basis of a country, city, or organization's abilities in terms of innovation." This refers to the combination of both traditional IT systems and infrastructure that has evolved to a level where it can be categorized as modern technology (John, 2018). Technology infrastructure encompasses various components such as solar panels used in modern energy technology, seawater greenhouses in green technology, internet of things (IoT), traffic control systems, internet backbone, routers, computer systems, mobile devices, cloud computing, switches, and other related technologies. These structures have played a significant role in the advancement of nations and their positions on the global stage. The distinction between developed and developing nations lies in the availability of advanced technology and the infrastructure that supports it. Developed countries also take note of this basic distinction. Hence, it is impossible to overemphasize the significance of technological innovations and progress.

### **2.3 The Global Implication of Technological Innovations and Advancement and How It Affects Nigeria**

- Innovation and technological progress have become a global measure of economic development and ranking.

The progress of a nation can be gauged by the standard of living enjoyed by its citizens and their active involvement in profitable business ventures, which in turn impacts the economy and the country's global position. Therefore, there are certain nations that are classified as developed, while others are in the process of developing. Switzerland, Germany, USA, UK, Canada, and other nations are considered developed countries. Some of the countries mentioned are Nigeria, Angola, Central African Republic, Gambia, Mali, Senegal, Cambodia, Afghanistan, Nepal, Haiti, and Solomon Islands. identified as underdeveloped nations. The assessment of global human development by the United Nations Development Program involves monitoring various data points in multiple areas such as GDP per person, literacy rates, life expectancy, political stability, and access to electricity. Afterward, these individual scores are combined to form a singular score known as the yearly Human Development Index (HDI). The Human Development Index (HDI) varies between 0.000 (indicating the lowest growth) and 1,000 (reflecting the highest growth). Countries with a score ranging from 1,000 to 0.800 are categorized as developed nations. Nations with a lesser Human Development Index (HDI) are labeled as developing, underdeveloped, or informally referred to as less developed countries. The HDI can be employed to determine the top countries to reside in, as countries

that have reached a higher level of development typically provide their residents with an improved standard of living (World Population Journal, 2023). Nigeria has a Human Development Index (HDI) of 0.539, which categorizes it as either a middle income or developing nation. However, it is commonly used to refer to a wealthy nation with a well-established economy and advanced technological infrastructure. The advancement of technology is crucial in transitioning a nation from the category of developing countries to developed countries. Several of the worldwide technological progressions comprise of computers, the internet, mobile phones, tablets, satellites, and electricity. Computer technology serves as the driving force behind various advancements, making it an essential component in modern inventions. These inventions, along with their operations and control, rely on computers, computer programs, and computer devices. Therefore, nations construct their economies by having a reliable supply of electricity and efficiently managing vast amounts of data. This enables them to achieve modern industrial advancements quickly and create various opportunities on multiple levels. Every nation globally is anticipated to accept these technological advancements and utilize their capacities to develop their economies. Advancements in technology and infrastructure positively impact a nation by enhancing productivity, security, information organization, and overall economic growth. Any nation that fails to stay updated with the rapid technological advancements of today will be unable to enter advanced markets, as it is a prerequisite for achieving a global ranking by the United Nations.

#### **2.4 Solution to Nigeria's Backwardness and Global Rating**

Remember that Nigeria has a Human Development Index (HDI) of 0.539, which places it in the category of a middle-income or developing nation. The aforementioned information highlights a significant level of poverty and unemployment within the nation, resulting in Nigeria being ranked 161st out of 189 countries globally. However, attempts and proposals have been made to enable Nigerians to complete their education in a country that is more advanced. Possible solutions encompass changes in the agricultural industry, advancements in the manufacturing sector, and acts of goodwill from private individuals and corporations.

One proposal to alleviate the increasing rates of unemployment and poverty in Nigeria is to implement an agricultural renaissance. Local economists often share the viewpoint that the country's unemployment rate can be reduced by strengthening the manufacturing sector, as it has the potential to provide employment opportunities for a significant number of people. Please rephrase this text. Additionally, other actions are suggested to help alleviate the hardship experienced by individuals living in poverty. For instance, Aare Afe Babalola, the founder of Afe Babalola University in Nigeria, highlighted the significance of giving and generosity in a compelling three-part publication in Vanguard some years back. Charitable initiatives aimed at reducing the hardships faced by underprivileged individuals in the nation. In addition to various reasons, he remarked that one factor contributing to the widespread poverty in Nigeria is the willingness of the poor to give. He stated that the government cannot be solely relied upon to improve people's quality of life as there are limitations due to the current global economic situation. The affluent individuals have the ability to assist the government in offering facilities and services to those who are not as fortunate. The affluent members of our society should adopt and promote the practice of philanthropy. Charity is deeply grounded in feelings of love and empathy, and it has substantial advantages not only for the one who engages in it but also for the receiver and the entire society.

A while back, a collection of advocates requested the implementation of a "universal basic income" and collected more than 200,000 signatures to clearly express their demand. The movement has sparked a fresh demand for the implementation of a guaranteed basic income as a crucial component of the contemporary economy (Ighakpe, 2021).

Regrettably, the aforementioned concepts and endeavors have proven ineffective in enhancing Nigeria's worldwide influence. Ahmadi (2018) states that the primary reason for poverty in less developed nations is their lack of technological advancement. A certain degree of technological progress must be achieved before rapid growth becomes possible. Therefore, if the HDI of the United Nations Development Program is used to assess human development in different countries and consider a developed country as one with a well-established economy and technological infrastructure, then it suggests that poverty and unemployment in Nigeria can directly be linked to their failure in leveraging global technological advancements and progress in terms of infrastructure. Thus, the remedy for the poor economy and unemployment lies in Nigeria's complete embracing and utilization of its own technology and infrastructure. Nigeria has not made significant progress in the field of technology so far.

The healthcare industry has not fully utilized the potential of health information technology (HIT). Additionally, security agencies have not implemented rules for information technology security solutions and have not utilized centralized electronic storage. The agricultural sector does not show much evidence of fully adopting green technology. Similarly, the education system lacks the necessary knowledge and complete implementation of this technology. It appears that the Nigerian government is primarily focusing on oil, politics, and traditional methods of industrialization, which have not contributed to the country's advancement in the modern world. However, if the focus and resources of the country are shifted towards developing its modern technology and infrastructure, the economy of the country will flourish in the international market and experience considerable growth in human capacity and enhanced security in the future.

### **3. Summary**

The countries that are still developing can be characterized by poverty, unemployment, and insecurity. These countries suffer from insufficient development in their human capacity, lack technological advancements, and have inadequate infrastructure. This unfortunate scenario is evident in almost every aspect of human endeavours, including health, agriculture, education, security, economy, science, and the like. This represents the current condition of Nigeria, being a country in the process of growth and progress. Although Nigeria is currently classified as an underdeveloped nation, there is a forecast that predicts 120 million Nigerians will be living in extreme poverty by 2030. So, in order for Nigeria to avoid this imminent danger, its government needs to fully accept and utilize modern technology and infrastructure. This is because these aspects have become globally recognized as indicators of a country's development and rating. Additionally, they contribute to building the capacity of Nigeria's people, economy, and security, as well as being a versatile and vast area that spans across different professions. Nigeria's potential for improvement is also wide open.

### **4. Conclusion**

The global rating standards have undergone a transformation, and Nigeria must now establish its position in this new context. Sophisticated technology and infrastructure have been suggested as a means of promoting sustainable development. Technology has become a crucial tool in various fields such as science, health, education, agriculture, security, commerce, and more. It would be beneficial for Nigeria if the government starts focusing on this technology as soon as possible. If Nigeria wants to surpass being a middle-income country, it should adopt the same classification system used by the United Nations to distinguish between developed and developing nations.

## 5. Recommendation

The authors suggest that the federal government should prioritize the comprehensive implementation of technological and infrastructure advancements. This will have positive impacts on the country's human capacity, economy, security, and also contribute to sustainable development.

## Conflicts of Interest

The authors hereby state that there is no clash of interest regarding the publication of this paper.

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