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## DIGITAL STABILITY: THE POTENTIAL OF TECHNOLOGY TO STRENGTHEN UPCOMING GENERATIONS IN WEST AFRICAN COUNTRIES (NIGERIA AND GHANA)

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### ABSTRACT

The unprecedented advancement in technology in the twenty-first century has witnessed one of the key elements of development. The Internet and Android mobile phones are products of this innovation. People's daily lives and social interactions have changed significantly as a result of the use of these newly designed devices. Additionally, technology has had an impact on social institutions like the economy, politics, education, technology, health, and family life through several adjustments that have occurred in each of these social institutions. The primary focus of this paper is the interaction between multiple concepts, including automation and employment, financial technology's potential, technological and economic obstacles to digitization, the political implications of digitization, the risk of digital authoritarianism, and the geopolitics of digitization. The phenomenon was explained by the use of social evolutionary theory and technical theory of social transformation. Therefore, this study examined how much technology has been incorporated into the lives of people in West and North Africa through the usage of mobile phones and the Internet, as well as the notable changes or modifications to the ways in which technology can empower the countries of West Africa's future generations. The study also demonstrates how the digital economy may turn out to be a crucial component of the West's answer to the problem of youth unemployment. The paper also demonstrates that the digital economy could become one of the key solutions to the youth unemployment crisis in the West and North Africa, owing to the significant roles that these technologies play in people's daily lives and the benefits that people gain from using them. The regional governments have taken action to foster an atmosphere that is conducive to the success of technology entrepreneurs. It is advised that in order to stop China from spreading its internet governance model throughout the area, Europeans assist in building digital infrastructure. The digitization push in West and North Africa should also get financial, regulatory, and capacity-building help from the European Union.

### KEYWORDS

Financial technology, information and communication technology (ICT), digitization, social change, and youth empowerment

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## 1. Introduction

The development of devices like personal computers, laptops, mobile phones, the Internet, and others has led to an exponential increase in the world's technological capabilities (Babalola, Anayo & Itoya, 2021; Manyati & Mutsau, 2020; Asongu & Le, 2017; Otsen & Agyei-baffour, 2016). These devices have made it possible for people all over the world to communicate with one another and empower millions of people by promoting the development of society to a certain extent. Therefore, nations in the West Africa have long struggled to produce a sufficient number of employment for their expanding working-age populations. Consequently, with approximately 300 million the young unemployment crisis still affects persons under 24 in the West and North Africa. This has led to socioeconomic issues that have exacerbated the violent conflicts and civil unrest that still tremble the area (Asongu & Le, 2017).

Although many African nations have historically relied on hydrocarbons, expanding internet connection may lay the groundwork for new economic opportunities. As governments throughout the region implement initiatives for economic diversification, the region's technology sector and its tech-savvy, frequently jobless youth have the capacity to revolutionize the economy (Langendorf, 2020). Such a digital revolution has the potential to empower both present and future generations by giving them new avenues for civic engagement and much-needed employment possibilities. The World Bank has, in fact, urged countries in the West and North Africa to initiate a "moonshot," a reference to the US space program of the 1960s and 1970s, which will free their millions of tech-savvy young people's digital futures. Additionally, if on a relatively modest scale, there have already been some achievements in the African technology sector. Global investors now have a better understanding of the West African technology sector thanks to the ride-hailing service Careem and the online marketplace Souq, which Uber and Amazon recently acquired for \$3.1 billion and \$580 million, respectively (Ajani & Fakunle, 2018).

The region's rollout of 5G is expected to usher in a new era of digital technology. However, digitization—which involves a number of challenges—is the application

of digital technologies to change daily routines and business operations. While smartphone and internet penetration rates have surged over the last ten years, reaching over 65 percent of the population in the region, estimates suggest that this has not yet resulted in a rise in digital occupations. Furthermore, despite all the hoopla, 5G could not out to be the beneficial game-changer that many analysts anticipate. Digitization has two drawbacks. New technologies have the potential to increase accountability and openness, but they can also give authoritarian governments new tools for monitoring their populace and suppressing dissent. Geopolitics is also intertwined with digitization. The fight for technological superiority is a highly political matter, especially in respect to 5G, as evidenced by the US-China trade war and Russian meddling in the 2016 US election (Langendorf, 2020). Africa is becoming a major theater of operations in both areas.

This study examines how the region's nations—Ghana and Nigeria in particular—have increased their digitalization efforts in recent years. Ghana, the primary center of Africa's digital economy, wants to establish itself as a worldwide hub for technology innovation. Nigeria, one of the pioneers of the digital economy in the area, has established the continent's first ministry dedicated to the digital economy and committed substantial resources to leveraging digitization to accelerate economic growth. Both nations are vital friends of the US and Europe, with Nigeria playing a significant role in the former European colonies. Stabilizing the West and North Africa is of great concern to European states, especially in order to stop terrorist organizations and conflicts from emerging (Omotayo, 2016).

A crucial part of this endeavor is supporting the region's economic prosperity by means of initiatives for youth employment, aid, and stabilizing funds. The EU should think more carefully about how it might promote digitalization in West and North Africa and further include this into its development strategies, since helping Africa's digital economy is a crucial and little-considered aspect of the process. The European Union ought to leverage its leadership role in worldwide regulations to assist African nations in developing legislative frameworks that will fortify their digital economies. The bloc ought to augment

its financial support for initiatives aimed at enhancing regional capacity, with the goal of equipping youth with cutting-edge digital competencies. Furthermore, this research aims to confirm that the EU should reassess the role performed by European IT companies in providing cyber-surveillance technology to African nations in light of the aforementioned claim.

## 2. Conceptual Clarifications

The constant, yet elusive desire is technology. The majority of us today share a similar desire to see technology advance in developing countries, but we are constrained in our efforts by the knowledge that technology is still essential to a nation's social, economic, and cultural well-being despite its potential for negative effects (Ebaye, 2009). The majority of academics concur that emerging nations' ability to fully realize the promise of contemporary technology varies from nation to nation for overall benefits. The development of domestic technologies must take precedence over reliance on imported technology, and this is a crucial role for the nations to play.

Some technological specialists contended that the changes brought about by daily activities have an impact on society that extends well beyond information and economics. Technology is the second greatest social equalizer, only surpassed by death. It has the power to destroy boundaries based on culture, to outweigh discrepancies in wealth, and even to make up for intellectual deficiencies. Pitroda (1993) asserts that modern technology is the most powerful democratizing instrument ever created since it can level the playing field for people who are not equally treated.

In its broadest sense, technology is the application of human cognition to the job of using the natural world to the benefit of humankind's advancement and survival. This idea depends on the idea that technology serves as a bridge connecting people to the abundance of natural resources. Likewise, technology can be defined as the methodical investigation and advancement of methods for producing and operating objects. It is believed that only humans possess the ability to think logically and imaginatively about their experiences and surroundings.

Therefore, in accordance with human intellectual capacity, humans are able to recreate and modify their surroundings (Adegbola, 2003).

In general, technology encompasses both human-made objects, such machines, and the processes involved in producing them. But the term also refers to the degree to which a society is able to control its surroundings. That is, the desire to satisfy a need is what drives all technological endeavor. The idea of technology's potential is derived from the operationalization of the notion in the context of a West African country in this study.

### 2.1 Automating Processes and Generating Employment

According to World Bank projections, in order to meet the employment demands of its youth, the West and North Africa must create 300 million jobs by 2050 (Babalola et al., 2021). The governments of numerous nations in the region have undermined the private sector by permitting the public sector to take the lead as the primary employer. For instance, the government employed two thirds of Nigerian workers in 2018. More over half were in Ghana. These governments are now putting more of an emphasis on entrepreneurship and innovation to diversify the economy, spur growth, and lower unemployment as a result of pressure to find alternate sources of employment for their expanding populations (Keengwe, Schnellert & Jonas, 2012). They believe that digitization offers a promising way to do this.

According to Bahoshy (2019) however, a recent study calculated that an "enhanced digital job market has the potential to create 1.3m additional jobs in the GCC [Gulf Cooperation Council] by 2025, including 700,000 in Saudi Arabia alone." The study also made the case that some of the 3.9 million women and young men in the GCC who are not in the workforce could gain by working for themselves digitally. Regarding the effect of greater internet availability on employment creation, opinions differ. While acknowledging that the long-term impacts of internet connectivity are "complex," a 2018 World Bank report makes the case that it will promote employment creation in the near term. The growth of broadband generates "direct jobs to build the infrastructure", "indirect and induced jobs

from this activity”, as well “additional jobs ... because of broadband network externalities and spillovers” (Fakunle, Okunola, and Ajani, 2023).

Still, there is a dearth of scholarly research on the effects of digitalization on the world economy, particularly on the creation of jobs in North and West Africa. Many digitization experts that the researcher spoke with expressed doubt about the digital sector's ability to grow into a significant employer in that area. The labor market in the area is already benefiting from digitization initiatives, particularly when it comes to the jobs offered by ride-hailing services like Uber and Careem. Although the total number of jobs created by startups is still relatively small, a report by the Internet Society argues that these companies have enormous potential to create more jobs of a high caliber and foster an entrepreneurial culture where recent graduates are more likely to create their own jobs than to emigrate (Fakunle & Ajani, 2021).

A move toward the "cloud"—the transfer of data from an on-site platform to a remote virtual database that can be accessed online—can encourage digital transformation and the creation of jobs in the area. For instance, a study conducted by International Data Corporation and Microsoft projects that between 2017 and 2022, the cloud and the Microsoft ecosystem will generate over 500,000 new jobs. A 2018 study by International Data Corporation predicted that between 2017 and 2022, the expanding usage of cloud services and the Microsoft ecosystem would generate over 55,000 new jobs. Many of the 30,000 employees that Amazon Web Services plans to hire will be based in the Middle East, not Africa, according to a top executive statement from the company in September 2019. As in other parts of the world, the nature of work is changing throughout the West and North Africa, leading to widespread worries that digitization may result in a net loss of jobs. According to a 2018 report by McKinsey and the World Government Summit, current technology could automate 45% of labor operations, saving \$367 billion in wages across the UAE, Bahrain, Egypt, Kuwait, Oman, and Saudi Arabia (Langendorf, 2020).

But according to the same analysis, over the medium to long term, “the associated labour productivity increases can also be an engine for growth and new job creation like in previous innovation cycles” and the majority of these positions would be “outside the technology sector itself”. Among them might be jobs requiring “strong human-machine interaction.” Beyond the numbers, digitization is also transforming the qualitative nature of labor. For example, modern communication technology enable remote work, which reduces the cost of logistics. A recent research from LinkedIn that listed “software engineer” as the most popular emerging role in the Middle East and North Africa between 2013 and 2017 supports these results. Additionally, LinkedIn highlighted “data scientist” and “data analyst” as new employment opportunities in the area between 2018 and 2022. Similarly, behind oil and gas, information technology was the second most popular industry in the region according to the jobs website Bayt in 2018 (Fakunle, Okunola, and Ajani, 2023).

This technology will impact industries like manufacturing in addition to the media consumption of the general public. The development of “smart factories,” for example, would enable different systems on a production line to interact with one another and change in real time with minimal assistance from humans. Additional anticipated uses for 5G include robotics, drone technology, entertainment, and remote surgery. When combined, 5G data transfers, AI-enabled large-scale data processing, and the vast amount of data gathered by IoT-connected devices will improve businesses' ability to make decisions. (The internet of things enables the connection, collection, and exchange of data across objects like speakers and automobiles.) Enacting legislation that permits the widespread flow of non-personal data would support national initiatives aimed at fostering innovation. Big data processing, however, presents concerns for human rights since it can enable autocratic governments to keep a tight eye on their populace, as can be seen below (Igyuve, Akilla, Oriola & Agbele, 2018). Additionally, despite the hype surrounding 5G, a number of industry insiders advised against assuming that the technology will bring about a radical shift in the way things are done. According to a

venture capitalist in the area, 5G is being overhyped by vendors, and he doesn't see how it will have a big impact on customers in the near future (Riyad Abou, 2019). Thus, the number of startups worldwide has grown rapidly thanks to digitization. A record 564 startup investment deals totaling \$704 million in funding were made in the area last year. In only a single year, this translated into a funding increase of 12 percent.

## 2.2 The Financial Technology's Potential

The development of the fintech (financial technology) industry could be extremely advantageous for the West and North Africa, since a large portion of their population lacks access to traditional banking services. Fintech initiatives can benefit the region's sizable expat community and advance financial inclusion. Even if people still prefer to pay with cash, the number of fintech businesses in the area is expected to continue growing quickly in the years to come. This has the potential to drastically lower financial sector transaction costs. Countries such as Nigeria and Ghana have also started both governmental and private projects to support their developing fintech industries. However, in order for fintech to have a significant impact on the area, governments must alter the laws to make it easier for new players to enter the market and upend the current banking system (Langendorf, 2020).

## 2.3 Technological and Financial Obstacles to Digitization

West African governments will need to solve a number of issues with their digitization initiatives if they hope to expand the digital economy and effectively utilize the region's large pool of young people who are computer proficient. This includes streamlining the legislative framework for nascent digital enterprises, enhancing the digital infrastructure startups depend on, and augmenting public and private funding for digital literacy initiatives. A lot of business owners in the area stress how hard it is to get funding for their digital enterprises, especially in the beginning (Ojua, Lukpata & Atama, 2014). Even if they have had easier access to venture financing in recent years as the startup industry has grown, this is still the case. Hiring and keeping competent employees is a difficulty for startups in West Africa.

Due to the substantial emigration of highly skilled workers to the US, Europe, and the Gulf Cooperation Council (GCC) in quest of higher pay and benefits, this issue is especially severe in non-GCC nations (Murad, 2018). As evidenced by the success of indigenous business models in the African market, such as food delivery applications and online enterprises, numerous tech companies throughout the continent have successfully developed their innovations. However, a few insiders in the sector have taken issue with what they perceive to be a dearth of innovation in the area. West Africa has been a consumer of innovation rather than a producer, according to one interviewee working in the region's digital economy (Gasper, 2019).

A more substantial commitment to human capital will be necessary for a digital transformation plan to be effective. However, public schools in African nations frequently prioritize memorization over critical thinking and modern technological abilities, failing to sufficiently prepare pupils for participation in the digital economy. Some nations in the area, like Nigeria, have made an effort to start teaching pupils digital skills at a young age. Even in these situations, though, the education industry faces challenges due to the speed at which new technological advancements are made.

## 3. The Effects of Digitization on Politics

Digital transformation in Africa has the potential to positively impact politics by facilitating the free flow of information and establishing secure direct communication channels that support civic mobilization, in addition to opening up new economic opportunities for youth (Omotayo, 2016). Increasing regional internet access may even make it easier for people to hold local governments accountable. Persecuted minority communities have also used a variety of online channels as gathering places and hubs.

In a similar vein, digital communications platforms have empowered youth and enabled political engagement by serving as public forums. Both the African upheavals that swept the continent at the start of the previous decade and more recent demonstrations like those that have taken place in some parts of Ghana were greatly aided by these instruments. Growing internet access has not only made

digital communication possible but has also led to the rise of news outlets that offer essential reporting in nations that are either at war or under authoritarian leadership (or both). Increased internet access in Nigeria has been associated with the growth of citizen journalism and the creation of numerous online news outlets that expose the crimes and regime perpetrators, offering a forum for citizens to debate potential political alternatives for the nation (Aremu, 2006).

#### 4. The Potential Negative Impacts of Digitization

Understanding and addressing the negative effects of digitalization is necessary to secure a successful digital future. The study determines which digitalization negative effects and dangers are most likely to be serious. In order to do this, we use an iterative taxonomy building approach that is influenced by scholarly works, press stories, and expert interviews. Furthermore, it encourages the foresight and management of unfavorable effects in the design of such systems in relation to the possible negative effects of digitization discussed below:

##### 4.1 Digital Authoritarianism's Menace

However, as digital rights expert Hanane Boujemi argues, governments throughout Africa generally view the internet as a tool of surveillance rather than development (Boujemi, 2019). A growing number of these regimes use technology, like spyware and automated surveillance systems, to keep tabs on their citizens and suppress opposition both domestically and internationally. In fact, Freedom House has warned of a trend towards digital authoritarianism in the region due to the possibility that these countries will entirely control domestic data flows.

The ambition of authoritarian regimes to keep control over the internet also lessens the potential of digitization to foster economic growth and an atmosphere conducive to entrepreneurship (Puddephatt, 2020). China is a major player in this. Chinese President Xi Jinping has proposed China's style of government, which includes internet management, as "a new option for other countries and nations that want to speed up their development while preserving their independence." Undoubtedly, a large portion of this is influenced by Beijing's experience tightly regulating domestic internet usage. According to researcher Tin Hinane El Kadi, one of the main problems

with China's hegemony in the global communication market in North Africa is that it has the power to influence future developments in cyberspace governance in ways that legitimize censorship and curtail liberties. African nations' governments have expressed a desire to replicate China's centrally planned digital landscape within their borders (Langendorf, 2020).

Freedom House claims that after these discussions, legislation pertaining to cyber-security that are similar to those in China were introduced. For example, Nigeria implemented a contentious cybercrime law in 2018 that was modeled after China's approach to internet regulation. Soon after, hundreds of websites—many of which were news-focused—were blacklisted by Nigerian authorities. China offers certain African governments a useful model of how to encourage economic innovation while keeping citizens under control. However, China is not the only country that contributes to the unfriendly digital landscape. Digital privacy expert Samuel Woodhams contends that the opaque global selling of surveillance technologies has been allowed to grow, leading to serious and recurring human rights abuses, because there are no effective international regulatory frameworks that comply with human rights (Woodhams, 2019).

Langendorf (2020) in his analyses affirmed that the Surveillance technology has been exported to West and North Africa by US, Israeli, and European companies, as well as companies in Italy, Germany, France, and the UK. For example, Bloomberg reports that the Italian company Area started constructing an internet monitoring system in Syria that would have allowed the regime to read, filter, and catalog almost all e-mails sent and received in the nation. Similarly, it is said that Gulf States have spied on opponents and dissidents in the region, including the late Saudi journalist Jamal Khashoggi, by using software linked to the Israel-based NSO Group. According to Igyuve et al. (2018), WhatsApp has accused NSO Group of enabling "hacking sprees" against journalists, political dissidents, government officials, and diplomats in 20 countries, including the United Arab Emirates (UAE).

##### 4.2 Digitalization's Geopolitics

Geopolitics and digital change frequently interact, as China and the US's disagreement over Huawei and 5G technology demonstrates. The Shenzhen-based company is recognized for being a trailblazer in the field of 5G technology, offering quicker installation timelines at a more affordable price than its rivals in the US and Europe. However, ZTE and Huawei are just two of the many businesses that are essential to China's ambition to become a technological giant. Even though the majority of China's IT companies are privately held, the government provides them with a lot of support, including loans from state-owned banks, which enables them to establish relatively low prices in both established and emerging markets (Igyuve, et al., 2018). Huawei's pivotal role in the proliferation of ICT infrastructure serves as a prime example of Chinese tech dominance throughout the African continent. The company has inked a number of 5G installation agreements with GCC operators as part of this endeavor. As China expands the Belt and Road Initiative and increases its economic involvement in the region, the company's influence is expanding (Hsu, 2019).

The US obtained evidence, according to US National Security Advisor Robert O'Brien, that Huawei could surreptitiously "access sensitive and personal information" on 5G networks in February. Huawei has denied these accusations. However, the US has openly pushed European nations not to adopt 5G equipment made by Chinese companies, threatening to stop sharing intelligence with them if they do not comply. The US applauded the European Council's conclusion in December that only reliable sources should supply essential components for national security. Threatening to halt intelligence collaboration with any nation that utilizes Huawei's 5G technology is the Trump administration. The UK government designated Huawei as a "high-risk vendor" in January, but nevertheless permitted the company to work on building the country's 5G network. However, the business was not allowed to work on the network's critical "core" components, and its participation of the local 5G market was limited to 35 percent. Although the US is said to have been disappointed by the decision, the nations have managed to avoid a more major conflict over it thus far. Meanwhile, according to Igyuve et al. (2018), the

French government has said that Huawei equipment would not be banned from the country's 5G network. According to reports, US authorities have also cautioned the GCC about the potential hazards of utilizing Huawei's 5G mobile infrastructure. However, it also seems that Washington's partners in Africa do not share its worries about Huawei and other Chinese businesses, thinking that they can handle the security risk (Langendorf, 2020).

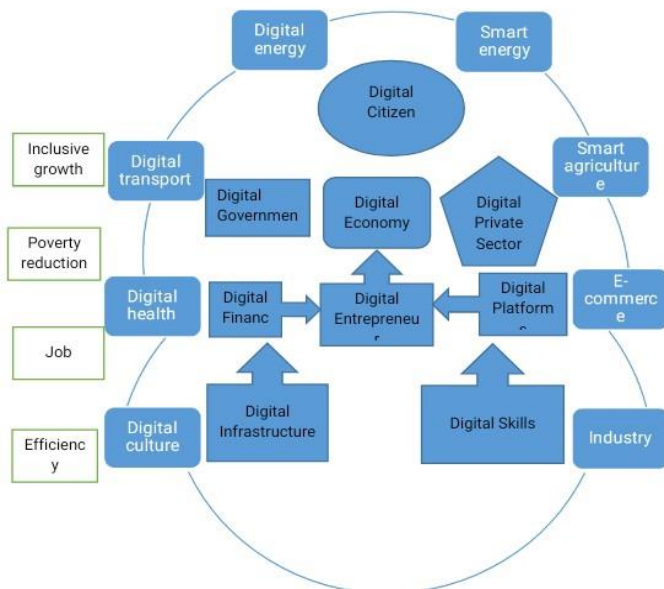
## 5. In-Depth Examination of the Digital Economy

The portion of the economy that is based entirely or mostly on information and communication technology (ICT) and has a business strategy centered on digital products or services is known as the "digital economy." The gig economy, platform economy, industry, digital economy, robotics and artificial intelligence (AI), machine learning, 3-D printing, and e-commerce are some of the components that make up the digital economy (Ernst & Young, 2018).

There are numerous ways in which a digital economy could increase gains and productivity. The way economies of scale are attained can be altered by a digital economy, especially when it comes to online service delivery, where the additional expense of providing a new good or service might disappear. In a cutthroat market, the digital economy could facilitate better matchmaking between buyers and sellers. By resolving some principal-agent issues where buyers and sellers are divided by intermediaries—or perhaps numerous levels of intermediaries—it might allay some worries about asymmetric information. By enabling some decentralized forms of trust (as with a blockchain) where centralized authorities are not trusted, it may increase people's faith in businesses or governments. It might make it possible for goods and services to be targeted and tailored, which would improve inclusion while simultaneously making it simpler to exclude some people.

Participation in the Digital Transformation initiative with a few multinational tech businesses reveals that although Silicon Valley companies are willing to invest in Sub-Saharan Africa, there are obstacles standing in the way of such ventures. Therefore, Nigeria is in a position to leverage private sector investment in all of the DE4A core aspects, or focused investments in key pillars, thanks to the

opportunity identified by companies ready to invest in Sub-Saharan Africa. Nevertheless, in order to establish a conducive atmosphere for these investments to help Nigeria's digital economy, current impediments need to be removed. Among the obstacles to investment that have been noted are:



**Figure 1:** Precise examination of the digital economy has the potential to promote shared prosperity and lower rates of poverty.

- I. Government policy makers' inability to comprehend emerging technologies;
- II. Government-sponsored monopolies and inadequate regulatory frameworks;
- III. Government bias against new technologies that have the potential to significantly cut costs or increase impact and their reluctance to adopt older, more established ones;
- IV. Data localization and sovereignty laws that impede infrastructure investment;
- V. The finance ministry is not supportive, and fragmentation across government organizations hinders technology's capacity to have the desired impact (e.g., exchanging data between health education ministries);
- VI. The inability of many business concepts (such as fintech and e-commerce) to grow up due to a lack of regional integration; and
- VII. People's lack of digital literacy.

It has been suggested that the World Bank Group may provide assistance to businesses and governments in a concerted effort to overcome these obstacles by doing the following:

- I. Concentrate on a taxation perspective that is appropriate, policy-driven, and regulated;
- II. Provide governments with data regarding the effects of disruptive technology on important development objectives (such as jobs);
- III. Provide patient cash (such as concessional financing), especially for new business concepts, as the financial markets are frequently insufficient to fund initiatives;
- IV. Maintain objectivity in technology and remain receptive to new, disruptive innovations (such as low-Earth orbit satellites);
- V. Make sense of the plethora of overlapping African attempts in this area; and
- VI. Concentrate on big initiatives spanning businesses, projects, and geographical areas.

## 6. Theoretical Framework

The paper adopted two social change theories, that is, Social evolutionary theory and Technological Theory. Sociologists believe that social change is a sign of progress toward better things, and that societies ought to advance to new and higher levels of civilization. Throughout history, several explanations have been put out to explain why societal change happens. The technical shift may take the shape of something slow or evolutionary, which takes time to become apparent, or something startling and revolutionary, which happens quickly. Most often, social institutions including the family, the economy, politics, education, technology, health, and people's social activities are where this shift takes place. Change encompasses the alterations, additions, or changes made to each of these social institutions as well as the customs and behaviors common to the members of a given community.

The nature, source, and pace of a particular kind of change that takes place inside a concerned society, as well as the period of time the change happens, are some of the main concerns of social scientists about social change (Steve & Steven, 2006). Since the late 20th century,



information and communication technologies have been spreading throughout the sub-Saharan region of Africa (Sarfo, Adamu, Awuah & Ovbiagele, 2017). Technology related to computers, Internet, and mobile phones has expanded as a result of this dissemination. The regularity with which the residents travel to their social activities has been impacted by all of these technologies (Adenuga, Lahad & Miskon, 2020; Ajani & Fakunle, 2018, 2021).

### 6.1 Social Evolutionary Theory

The Darwinian theories of biological evolution introduced the concept of evolution into the social sciences. The British biologist Charles Darwin (1859), who wrote "Origin of Species," created the concept and addressed the notion of biological evolution. Herbert Spencer consequently connected organism to his theory of social transformation. He developed and clarified his theory of social development using the concepts of biological and physical evolution. In the struggle for survival during biological evolution, only those organisms that can effectively adapt to changing conditions survive. Herbert Spencer explained social evolution using these two concepts: biological and physical evolution. Spencer accepted Darwin's theory of "Survival of the Fittest" as gospel. He contends that animals must battle to survive (Ritzer, 2011).

The fight for survival permeates every facet of life and is not limited to just one area. According to Spencer, only species with strength endure and adapt; only those with strength advance. The feeble are eventually destroyed. Therefore, a powerful organism is one that can adapt to the constantly shifting environmental conditions. The fundamental presumptions of this theory, which can be summed up as follows, are that change is a characteristic of human civilization:

- I. The transformation is expected and organic.
- II. The shift happens steadily and gradually.
- III. There is a sequential change.
- IV. Every step of transformation that comes after the previous level is superior to it.
- V. The irreversibility of changing phases.

### 6.2 Technological Theory

The theory was proposed by Gyanendra Kumar Sahu (1992) and it is assumed that the average individual usually thinks of technology when discussing the changes that science has brought about in society. Not only is technology one of them, but it also plays a significant role in social change. When it is claimed that technical advancements have produced nearly everything of human civilization. Almost every part of our lives has been impacted by computers, from making reservations at train ticket windows to registering for medical facilities or universities to managing accounts at banks and major organizations.

### 7.0 Conclusion and Recommendations

The growth and popularity owing to the important roles that these technologies play in people's everyday lives and the benefits that come with using them, the digital economy in the West and North Africa may prove to be one of the primary answers to the region's youth unemployment problem. The regional governments have taken action to establish favorable conditions for the growth of technology firms. They must, however, overcome obstacles including deficiencies in their educational systems, ineffective bureaucracy, and a shortage of capital for start-up enterprises. Digitalization facilitates digital authoritarianism in the area in addition to opening up new career and political involvement chances. For the purpose of preventing China from spreading its internet governance model throughout the area, Europeans must assist in building the digital infrastructure. The digitization push in West and North Africa should be aided by finance, capacity-building, and regulations from the European Union. The following suggestions can be broadly categorized into three areas: money; legislation; and capacity-building and vocational training. They are in line with the new European Commission's priorities regarding digital concerns.

### References

- Adegbola, A. A. (2003). Science, Technology and Culture in Africa: Challenges and Prospects in Ayo Fadahunsi (ed.) *Philosophy, Science and Technology*, Ibadan: Hope Publications.
- Adenuga, K. I., Lahad, N. A., & Miskon, S. (2020). Telemedicine system: Service adoption and implementation issues in Nigeria. *Indian Journal of Science and Technology*, 13, 1321–1327.

- Ajani, O. A., & Fakunle, S. O. (2018). Mobile phone use and travel behaviour of adult residents Ile-Ife, South-western Nigeria. *Research on Humanities and Social Sciences*, 8(14), 71–77.
- Ajani, O. A., & Fakunle, S. O. (2021). Gender differential in mobile phone use and travel behaviour. *Discovery*, 57(306), 519–529.
- Aremu, A. D. (2006). Culture and some basic theories in anthropology. In O. A. Ogunbameru & R. A. Rotimi (Eds.), *Man and his social environment: A textbook of sociology*. Spectrum Books Limited.
- Asongu, S. A., & Le, S. (2017). Technological forecasting and social change enhancing ICT for inclusive human development in Sub-Saharan Africa. *Technological Forecasting and Social Change*, 118(5), 44–54. <https://doi.org/10.1016/j.techfore.2017.01.026>
- Babalola, D., Anayo, M., & Itoya, D. A. (2021). Telehealth during COVID-19: Why sub-Saharan Africa is yet to log-in to virtual healthcare? *AIMS Medical Science*, 8(1), 46–55. <https://doi.org/10.3934/medsci.2021006>
- Bahoshy, P. (2019). An Interview on MAGNiTT, Dubai
- Boujemi, H. (2019). An interview on Tech Policy Tank
- Ebaye, S. E. N (2009). The Crisis of Technological Underdevelopment in Africa. *A Journal of Contemporary Research*, Vol. 6 (1)
- Ernst, E. & Young, N. (2018). *Growth & Employment Project (GEM): Digital Economy Industry Value Chain*.
- Fakunle, S. O., & Ajani, B. K. (2021). Peculiarities of ICT adoption in Nigeria. *Insights into Regional Development*, 3(4), 51–61. [https://doi.org/10.9770/IRD.2021.3.4\(4\)](https://doi.org/10.9770/IRD.2021.3.4(4))
- Fakunle, S. O., Okunola, J. L. and Ajani, B. K. (2023). Technological Advancement, Globalization, and Developing Countries. A Case Study of Travel Behavior and Familial Settings in Sub-Saharan West Africa DOI: 10.1007/978-3-030-87624-1\_160-1
- Gasper, J. (2019). An interview on Razr Lab.
- Hsu, S. (2019). An interview at the State University of New York at New Paltz. <http://aisel.aisnet.org/amcis2000/359>
- Igyuve, A. I., Akilla, O. M., Oriola, O. M., & Agbele, J. D. (2018). Smartphone adoption in Nigeria: Issues and discourse. *Saudi Journal of Humanities and Social Sciences (SJHSS)*, 3(1A), 11–20. <https://doi.org/10.21276/sjhss.2018.3.1.3>
- Kah, M. M.O. (2000). Strategic Significance of Information Technology: The Gambia, West Africa *AMCIS 2000 Proceedings*.
- Keengwe, J., Schnellert, G., & Jonas, D. (2012). Mobile phones in education: Challenges and opportunities for learning. *Education, Information and Technology*, 11(12), 1–10. <https://doi.org/10.1007/s10639012-9235-7>
- Langendorf, M. (2020). Digital stability: how technology can empower future generations in the Middle East. *A publication of European Council on Foreign Relations*.
- Manyati, T. K., & Mutsau, M. (2020). Exploring the effectiveness of telehealth interventions for diagnosis, contact tracing and care of Corona virus disease of 2019 (COVID19) patients in sub Saharan Africa: A rapid review. *Health and Technology*, 11, 341–348. <https://doi.org/10.1007/s12553-020-00485-8>
- Murad, R. (2018). An interview
- Ogungbure, A. A. (2011). The Possibilities of Technological Development in Africa: An Evaluation of the Role of Culture. *The Journal of Pan African Studies*, Vol.4 (3)
- Ojua, T. A., & Omono, C. K. (2012). African sacrificial ceremonies and issues in socio-cultural development. *British Journal of Arts and Social Sciences*, 4(1).
- Ojua, T. A., Lukpata, F. E., & Atama, C. (2014). Exploring the neglect of African family value systems and its effects on sustainable development. *American Journal of Human Ecology*, 3(3), 43–50.
- Omotayo, F. O. (2016). Adoption and use of information and communication technologies by Pentecostal churches in Ibadan, Nigeria. *Journal of Librarianship and Information Science*, 49(2), 22–233. <https://doi.org/10.1177/0961000616662517>
- Otsen, B., & Agyei-baffour, P. (2016). Cost-effectiveness analysis of telemedicine for primary healthcare delivery in the Amansie-west District, Ghana. *African Journal of Health Economics*, 5, 1–11.
- Pitroda, S. (1993). Development, Democracy, and the Village Telephone. *Harvard Business Review*, Nov/Dec
- Puddephatt, A. (2020). An interview on Global Partners Digital.
- Ritzer, G. (2011). *Sociological theory (8th ed.)*. Mc Graw-Hill Higher Education.
- Riyad Abou, R. J. (2019). An Interview of Middle East Venture Partners (speaking in a personal capacity).
- Sarfo, F. S., Adamu, S., Awuah, D., & Ovbiagele, B. (2017). Tele-neurology in sub-Saharan Africa: A systematic review of the literature. *Journal of Neurological Science*, 380(17), 196–199. <https://doi.org/10.1016/j.jns.2017.07.037>
- Steve, B., & Steven, Y. (2006). *The sage dictionary of sociology*. Sage.
- Wahab, E., Odunsi, S., & Ajiboye, O. (2012). Causes and consequences of rapid erosion of cultural values in traditional society. *Journal of Anthropology*, 10(1), 10–17.
- Woodhams, S. (2019). An interview on Top10VPN

