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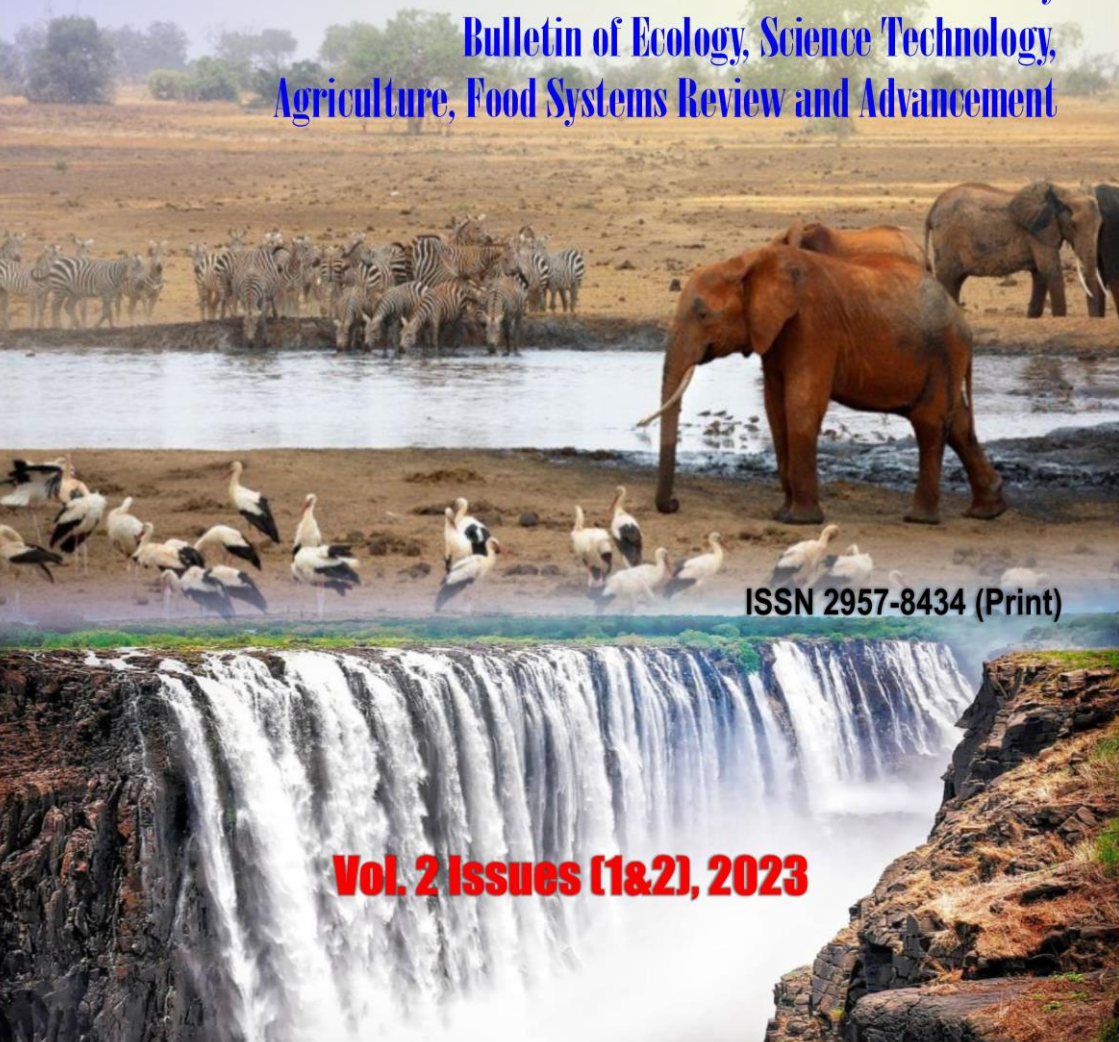
The Zimbabwe Ezekiel Guti University Bulletin of Ecology, Science Technology, Agriculture, Food Systems Review and Advancement



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The purpose of the *Oikos - The Zimbabwe Ezekiel Guti University Bulletin of Ecology, Science Technology, Agriculture and Food Systems Review and Advancement is* to provide a forum for scientific and technological solutions based on systems approach and thinking as the bedrock of intervention.

CONTRIBUTION AND READERSHIP

The natural scientists, engineering experts, technologists; multidisciplinary teams are encouraged.

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The journal is a forum for the discussion of ideas, scholarly opinions and case studies natural and physical science with a high proclivity to multidisciplinary approaches. The journal is produced bi-annually.

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Digital Economy in the Developing World: Implications on Policy and Practice

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Abstract

The article explores and examines policy and practice in the digital economy in the developing world. It analyses the policies put in place in the global and regional context in relation to the digital economy, their viability and success, while drawing lessons for Zimbabwe. The background to the subject under discussion is the increased importance of the digital economy which rough estimates place its value at around 5% of the global Gross Domestic Product (GDP), contributing about 3% to global employment. The article is based on a desktop study involving interrogation of literature and documents mined from Google Scholar and other websites with news and/or information on policies, statutes and other related materials on the subject matter. For data analysis, the study engaged mainly textual analysis. Key observations from the study were the undeniable increase in the importance of digitalisation due to adverse effects of the COVID-19 pandemic, among other factors; the need to formulate policies that perpetuate the smooth running of the digital economy which will enable it to be beneficial to all, as well as to hammer and fully implement the prevailing ones and getting rid of all hindrances to

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the desired outcome. The study also noted that there is limited knowledge on the digital economy in some developing countries, like Zimbabwe, for instance. To establish and maximise the benefits of digitalisation, the article recommends that there should be increased knowledge on the issue at hand and, there should be policy instruments set up to spearhead and speed up the whole digital economy process with high levels of transparency and governance.

Keywords: Digitalisation, global, COVID-19, governance, Gross Domestic Product, Zimbabwe.

INTRODUCTION

Digital technologies are spreading globally at a fast pace. The dissemination of technology is re-shaping consumer behaviour, the way people interact socially through the social media, business models and governments. It is cumbersome to develop exponentially without access to digital technologies. However, it is foolish to acquire such technologies without digital literacy skills. Digital renovation has significant implications for world economies and people's livelihoods. There is no one commonly accepted definition for the digital economy, hence posing a difficulty in measuring it. Bukht and Heeks (2017) estimate that the digital economy makes up around 5% of global GDP and 3% of global employment. Dahlman *et al*. (2016: 11) defines it as:

> … an economy that encompasses the physical infrastructure that digital technologies are based on (broadband lines, routers), the devices that are used for access (computers, smartphones), the applications they power (Google, Salesforce) and the functionality they provide (IoT, data analytics, cloud computing).

In defining the term this way, Dahlman *et al*. (2016) observe that the internet is a necessary but not sufficient feature of the digital economy. Contrary to this perspective, Bukht and Heeks (2017) acknowledge that the Internet is the foundation for the growth of the digital economy and economic changes are related to its advent. From an Internet perspective, the digital economy is an economy that functions mainly by means of digital technology, for example, electronic transactions that are made using the internet (OUP, 2017).

For developing economies to achieve inclusive and sustainable growth, the digital economy can be harnessed. Digital technologies come with many benefits in life for both citizens and consumers. Mobile phone networks and their related applications are used to change the way people communicate, socialise, shop, travel and work, and are creating entirely new business models and markets. In the work environment, it has helped to promote and increase workers' and firms' productivity and helped governments extend key services to the people at national level. The use of digital technologies enables firms to participate in global value chains and help to raise capital and labour efficiency (Miller and Atkinson, 2014). Electronic commerce (e-commerce) in the digital economy has helped in contributing to greater inclusion in business by lowering transactional costs and increased access to international trade across borders network effects (Mansell, 2001; World Bank, 2016a). Economies have tried to address the problem of information asymmetry through exploiting digital technologies, hence achieving economies of scale. Furthermore, digitalisation has helped to circulate knowledge and entertainment among the world's populace at an exceptional rate. In the academic world, it has helped to disseminate education and carry out research using online surveys. The medical world has also benefited through the rise of digital imaging and advances in artificial intelligence (AI) that have aided doctors diagnose and cure many diseases.

Potential drawbacks also exist despite all these seemingly benefits of the digital economy. Despite the creation of new jobs in the information and technology industry, digitalisation has also destroyed manual jobs and changed the structure of existing ones. Digitalisation contributes to a change that is biased towards the technological industry. It is this change that has contributed much to the rise of labour income inequalities (OECD, 2011; Cowen, 2015). Such developments may work against the governments' macro-economic objectives such as reducing unemployment, as digitalisation continues to worsen unemployment (Cowen, 2015). Many governments have adopted reliance on digital technology systems but, at the end, they become vulnerable to cyber terrorism (Dahlman *et al*., 2016).

Looking specifically at the developing world level, the digitalisation process has posed particular challenges (Manyika *et al*. 2013). For developing economies to optimise the benefits derived from the digital economy, there is need to reach a certain basic level of technological infrastructure. Many developing countries have not yet reached such a level since they lack the infrastructure and institutions (Murphy and Carmody, 2015). These emerging economies have a lot to gain if they have the basic level of infrastructure but will lose more if they are further away from the technological boundary (Dahlman *et al*., 2016). This calls for developing economies to develop strategic planning to optimise their benefits from digitalisation. Failing to move along with the current digitalisation economy exacerbates the risk of lagging behind on the international business map. This also means even the people's wellbeing in the country is under threat.

The implications of digital economies for developing countries at the level of government, firms and workers, remains under-researched (Bukht and Heeks, 2017). The discussion above shows that digitalisation has both pros and cons for developing economies. It is the aim of this study to locate these challenges and opportunities in the context of the African developing countries to cover the research gap. It analyses why the digital economy matters for developing economies and the policies they need to consider when developing a national digital strategy for digitalising the economy. The study introduces the concept of the digital economy and illustrates trends, opportunities and challenges.

BACKGROUND AND OVERVIEW

The global digital economy is growing and supporting economic growth and productivity. McKinsey Global Institute (2016), quoted in Dahlman *et al*. (2016), posits that between 2013 and 2014, cross-border data flows raised annual global GDP by 3% which was equivalent to US$2.2 trillion in 2014. The use of Internet has almost trebled in a decade, from approximately one billion users in 2005 to over three billion in 2016. Two thirds of these users are located in developing countries. The access to Internet remains a challenge with approximately 40% of households in upper middle-income economies

having access to it, compared to 10% in low-income countries (World Bank, 2016b).

The revolution of global digital economy coincided with the evolution of the mobile broadband internet that has reached over 5.5 billion mobile phone subscriptions in developing countries to date. Indicative of the increase in technologies is the rapid spread in the internet and the usage of mobile broadband. Most people access internet products through their mobile phones. Good examples are the usage of products like WhatsApp and Facebook applications that use the internet to allow users to send instantaneous text and multimedia message to other people. Another one is the Uber digital platform that matches drivers and passengers through a mobile application.

E-commerce is growing rapidly with important implications for developing countries. Firms, such as Alibaba in China, are in a position to exploit large markets and become the predominant platforms in e-commerce. For Alibaba and other Chinese firms, was made possible by the Chinese government which put in place a firewall to protect domestic firms from foreign completion. Developing economies continue to be important factors behind the growth of the media spending with the Latin America and the Asian countries contributing more (McKinsey and Company, 2015). The use of digital systems is making life easier, bringing greater convenience to consumers in the developing world. They can call a driver with Uber, find jobs in the comfort of their homes using LinkedIn, and buy second hand goods using eBay.

The education sector in developing economies has also advanced in the use of digital systems through the use of massive open-online courses. These are free online courses conducted by instructors from certified institutions. The use of these online courses has helped so much to improve the education system of the marginalised in the developing world. Provider of university level massive open online courses, edX, acknowledged that 40% of its 3.5 million students are from developing countries (Valerio, 2015). In countries like Kenya, Tanzania and the Democratic Republic of Congo, the Vodafone Instant Classroom was deployed to over 15 000 children and young adults in

the year 2015 (Vodafone, 2015). It provides a digital school in a box that provides tuition to refugees and communities with poor infrastructure.

The digital economy brought financial inclusion to developing economies. However, to other people in developing countries, financial services provided through the internet, is a luxury. The mobile banking services offered through mobile phones reduces the marginal cost of financial transactions, a situation that allows service providers, like banks, to offer mobile banking services to the marginalised poor. In many developing countries, mobile banking is already showing great potential. Mobile banking services, like M-PESA in Kenya, has attracted quite a number of people into the use of financial products. In Zimbabwe, Ecocash has dominated the mobile money system in which Telecash, One Money and Mycash are also critical players. In Bangladesh, there is bKash, that processes about two million transactions a day (Dahlman *et al*., 2016). Increased mobile banking usage over the internet has prompted African banks like Ecobank, Standard Chartered and Barclays, to mention a few, to launch mobile banking applications. Mobile bank applications that do not use data were also developed to offer convenience into the digital space to those who cannot afford data.

Governments are exploiting the digital economy to simplify service provision and enhance the delivery of social welfare programmes. Digital technologies help governments in developing countries to deliver services. Annual revenues in Rwanda increased through digitalisation, whereas South Africa reduced the cost of tax collection by embracing the modern systems of doing things (Songwe, 2019). The service sector is benefiting from the digital technology through taxes and data collection, provision of healthcare and formulation of policy. The World Bank (2013) estimates that close to 40% of global food aid is wasted due to the absence of personal data records in the developing world. The developing countries are now benefitting from the digital economy in this field by safely keeping files in electronic formats. Despite earning these benefits within, there is a huge digital divide among developing and developed nations.

INEQUALITIES WITHIN THE DIGITAL ECONOMY

Findings by various authors revealed that there are inequalities among men and women; developing countries and developed countries; the rich and the poor; the educated and the uneducated; the young and the old, to mention a few. These divides exist due to various financial, political, economic and socio-cultural factors.

To start with, we look at the existence of inequalities amongst men and women in developing countries. Literature reveals that men have an upper hand than women in the digital space within developing countries (Hilbert, 2011; Pande, 2012) due to lack of access to education, exacerbated by various factors, including lack of time to attend school, household chores and cultural norms that give low priority to education (Pande, 2012; Chadwick *et al*., 2013). Hilbert (2011) has associated this to women being more technophobic, and the technology itself has not been designed to meet their needs. Traditional culture accelerates the rate of growth of inequalities at all levels. For example, in African countries and in Southern India, there is a belief that women are a source of family support (Johnson, 2012). This brings a lot of disadvantages in upholding women's individual needs and their roles in society, and the technological space is not an exception. Findings in literature reveal that in some African countries like Ghana, there is a strong relationship between the environments that one works in and his or her access to digital resources (Antonio and Tuffley, 2014). In Zimbabwe, poverty forced many citizens to join the informal sector. Zimbabwe has the largest informal economy in sub–Saharan Africa and second largest to Bolivia in the world (Madina and Schneider, 2018;23). Such an informal environment is dominated by women and does not promote digital literacy, according to Antonio and Tuffley (2014). The number of men using internet is greater than that of women across all age groups in developing countries. Education is more important in breaking the yoke, but women are given low priority in education (Hafkin, 2007).

Digital technology reduces costs and improves competence, whilst protecting inclusion. In developing countries, it offers an avenue to deliver services in areas where old-fashioned rules of the game are weak. The potential to realise this is, however, far from being achieved.

The digital gap still exists between developed and developing countries. Bukht and Heeks (2017) observe that there is a disparity in the digital economy between the global north and the global south. It seems rich countries benefit more in the digital space than poor countries (Melhem *et al*., 2014). More still needs to be done, especially in investing in information and communication technology (ICT) infrastructure. The policy environment in developed countries promotes development of skills in digital economy that enhances efficiency in the digital field. Developing countries have a limited digital enabling policy environment that also lacks privacy and security (Songwe, 2019). Africa digitalisation may play a critical role in reducing the gaps that exist between the developed and developing world in all sectors. It is easy to open a company in developing countries than in developing countries due to institutions in which digitalisation is not an exception. In Africa, some countries have managed to shorten the time needed to open a business using electronic commerce (e-commerce). The number of small to medium enterprises grew in Mauritania, Rwanda and Senegal, through embracing the use of e-commerce. Rwanda and South Africa benefitted in revenue collection and reducing cost of tax collection as alluded to above.

AFRICAN DIGITAL POLICY

Africa lags behind the rest of the world in internet use, with an average of only 40% of people using it in 2019, compared with 60% for the rest of the world (Tralac, 2020). The African Union (AU) introduced the digital transformation Strategy for Africa (2020-2030) in 2019. It is based on previous creativities and consultations with many stakeholders in the digital ecosystem in Africa . Through the usage of technology, the strategy aims at transforming the economies of Africa, targeting mainly inclusive growth through digital transformation and innovative systems. Inclusive growth is the major target of the strategy that is aligned with Africa's sustainable development goals. In line with the African Continental Free Trade Area agreement (AfCFTA), the digital economy in Africa builds upon the existing framework. The Agreement promotes free trade across borders of 55 African member states and the digital policy aims to create a single digital market for Africa that promotes access and engagement in online activities. The

scope of digital trade differs considerably across African countries. Just 10 African countries are responsible for 94% of all online business on the continent (ITC, 2020). Most of African countries use platforms that allow only domestic industry transactions, with only 28% of the operations offering online payments (ITC, 2020). Banga *et al*. (2021) highlight some of the challenges that restrict e-commerce across borders in Africa. These include high postal, delivery and transport costs, double taxation and VAT regulations, customers not being aware of the regulations that are within the African region, no reliable payment solutions and custom duties and procedures. The AfCFTA comes with a critical role to play in promoting and boosting intra-African trade. However, the AfCFTA is a recent agreement that does not yet include any specific provisions in the area of data protection or privacy. There are prospects that this agreement will promote home-grown digital content and solutions.

Africa sets to drive digital transformation through securing privacy, providing access to the internet at lower cost, using gargets that are made in Africa sold at competitively lower prices. Specific objectives to drive digital transformation have been set. To facilitate extensive use of digital systems, the continent aimed at providing e-learning skills and knowledge to millions of Africans by the end of the year 2021 (Denis, 2021). The AU is willing to invest in digital transformation that is strengthened by policies, regulations and legislation from 2020 up to the year 2030. The transformation strategy of the African digital economy is based on creating an enabling environment, providing digital infrastructure, offering digital skills, promoting digital innovation and entrepreneurship in Africa. The AfCFTA provides an opportunity for Africa to realise its dreams in the digital sector. It enables the continent to harness opportunities that come along the pipeline in the digital sector, especially in the COVID-19 era. The agreement has already moved forward in promoting digitalisation through a digital payment and settlement platform for cross-border transactions within the continent. This will surely help Africa to move forward with flexibility and come up with more strategies that promote an upturn of the African economy during the COVID -19 pandemic economic downturn.

THEORETICAL FRAMEWORK

To understand the nature of the digital economy, focus should be put on theories related to it. The concept of "digital economy" was introduced in 1995 by Dan Tapscott, a business consultant. This section analyses the digital economy in the developing world from a theoretical perspective. The section focuses on the knowledge gap hypothesis, the 4As perspective.

The knowledge gap hypothesis explains that distribution of knowledge is uneven across social systems in the world. Just like wealth, the theory posits that people of high socio-economic status are always ahead because they find out about new sources of information first because they can afford access to them. The knowledge gap hypothesis is often mentioned in connection with social consequences of information sharing. However, the assertion of the theory can also be transferred to fit in what happens in the digital economy. The flow of digital infrastructure is not homogenous across the divide due to social structures of the society. As the new digital systems are infused into the world, developed countries are always ahead and poor countries will always lag behind. As such, the rich will always receive the material first than the poor. Developed countries acquire digital systems at a faster rate than the less developed nations. The gap in the knowledge between these two groups tends to widen rather than decrease (Tichenor *et al*., 1970). The educated are also ahead of the uneducated because of the internet. The internet, on its own, is a factor that widens the digital gap (Nie and Erbring, 2000). With the supply of information by internet, new factors emerge tahat are not captured by the supply traditional media, like television and radio on which the marginalised depend. In most African countries, access to the internet is, to some extent, restricted, with those who have access to it facing exorbitant data charges.

The leapfrog hypothesis proposes that big companies holding monopolies based on incumbent technologies, are less likely to innovate. Small and incremental innovations lead a dominant firm to staying ahead. Sometimes, major innovations can make new firms to leapfrog the traditional dominant firms. This phenomenon can also apply to leading countries in the digital economy. Developing

countries can skip some stages of the path taken by developed countries in the digital economy, enabling them to catch up faster in terms of economic growth. The leapfrog can arise from the fact that a developed nation has reduced earning rents from old technology. Developed nations have less incentive to innovate as compared to their potential rivals, the developing nations.

LITERATURE REVIEW

Korovkin (2019) carried a study on 17 African countries, with the major aim of comparing their national digital strategies, and to find effective approaches for the formulation of digital strategies to offer policies targeting national economic strategizing in the 17 African countries with market and partly-market economies. Countries must find a niche particularly in the global digital economy to accelerate inclusive social and economic development using technology. Conclusions from the study revealed that from the 17 developing countries' perspective, developing strategies for the digital economy is not yet part of their national digital strategy. The majority do not have dedicated documents for digital strategy. They have neither addressed the issue with commitment within their overall national strategies. Some nations, like Algeria, have taken up the process of national digital strategizing, but abandoned it. The study highlights that the same problem is also present in west Asia,[8] only yet to be adopted by some stakeholders. The study also acknowledges that the African continent still faces digital infrastructure challenges. It recommends that Africa should nurture some commendable solutions to help its nations to frog leap into digital development. This can be done only by constructing modern digital systems and developing markets for new digital enterprises.

The digital economy plays a significant role in international trade. With the aim of examining the role played by the digital economy, Abendin and Duan (2021) assessed its impact on growth of 53 African developing countries. The study used static and dynamic models to consistently draw on the digital economy's significant effect in influencing international trade impact on Africa's economic growth.

[8] Saudi Arabia, Iran and Kuwait have no national digital strategies, while Bahrain, Jordan, Lebanon and Iraq have abandoned digital strategizing.

Panel data was used to carry out the study from the year 2000 to 2018. Results are estimated by Pooled Ordinary Least Squares (POLS), random and fixed effects, and the General Method of Moments models. Findings revealed that trade has positive effects on economic growth only when interacted with the digital economy in the POLS estimations. The digital economy's output elasticity showed a positive significant impact on Africa's growth, suggesting that an increase in the digital economy development level stimulates Africa's growth. Digitalisation is a way forward for the continent to leapfrog the phases of economic development. This is consistent with some studies that were carried in the same field (Pradhan *et al*., 2017; Wamboye and Tochkov, 2018; Ehigiamusoe and Lean, 2018; Nkikabahizi *et al*., 2018; Adeleye and Eboagu, 2019). The study recommends that concentrated efforts be directed towards developing the digital economy to ensure international trade's full economic effect in Africa. Thus, governments must strengthen and further develop the digital economy to ensure full economic benefits of international trade.

Dahlman *et al*. (2016) singled out the point that digital economy matters for developing countries and what they need to consider when developing a national digital strategy. The study revealed that the world is experiencing a digital revolution, with more important effects for global economies and their incomes. This was attached to the revolution the ever-increasing pace of technological advance and diffusion. It is important for countries to encompass the digital economy in their national strategies. The study acknowledges that the digital revolution is too important for every country to overlook, especially in the developing world. The article further articulates that the digital economy can be harnessed for inclusive and sustainable growth. These technologies make life easier for consumers, citizens and the government. It recommends that governments must engage in strategic planning to maximise the development impact of digitalisation and ensure that its benefits are evenly distributed.

Denis (2021) carried a study with the purpose of presenting support for the African continent's transition to a digital economy, predominantly in response to the problems raised by the COVID-19

crisis and with the aim of building inclusive, long-term economic resilience. The study acknowledged that the pandemic was taking lives and called for economic resilience, digital technologies and solutions that can significantly alleviate the effects should be created and made available to all African people. The COVID-19 pandemic activated a call for solutions through exceptional demand for digital health technology. The internet is a vital communications tool that can help communities deal with the crisis. The article also revealed that the technology sector was helping many industries to adapt to this new situation and reduce the risks induced by the pandemic. However, while the growth figures are still remarkable, a huge digital divide still remains in the continent. Close to 900 million people are still not connected to the internet. The study recommended that there is a need for sufficient savings and investment in digital technologies to positively stimulate all sectors of the economy and society. The growing importance of the digital sector was found to be an instant reaction to COVID-19 economic shocks that has potential to bring back strength in all sectors of the economy.

METHODOLOGY

In line with similar studies conducted in this field (Dahlman *et al.*, 2016; Manyika *et al.*, 2016), this article adopted a mixed methods design. It used a content analysis of literature based predominantly on desk review to concretise the arguments. Qualitative research methods were used, drawing literature from books, journal articles and other publications. For data analysis, the study engaged textual analysis. Secondary literature review of previous studies was done on the digital economy in developing countries, especially the Africa's sub-Saharan region. This was supplemented by direct interviews that were carried out to gather information from experts in the digital space. Policy and statutory documents were visited to assess the current standing and provisions by the government on information, communication and technology in African countries. Thus, this study classifies various policies that have a hold on the nourishment of the digital economy to recognise where policy alternatives and improvements are needed.

DISCUSSION

The main reason inspiring developing countries to digital transformation is that they are craving to survive in a changing economic environment (Ismail *et al*., 2018; Dolganova *et al*., 2019). Digital economy financing in Africa seeks to address the emerging needs of the African continent in its transition to a digital economy. The internet is a vital communications tool that can help communities deal with the crisis. The technology sector is helping many industries adapt to this new situation and reduce the risks induced by the COVID-19 pandemic.

Digital technologies are spreading globally at a fast pace. The dissemination of technology is re-shaping consumer behaviour, the way people interact socially through the social media, business models and governments. It is awkward to develop at an exponential rate without access to digital technologies. The internet is the foundation for the growth of the digital economy and economic changes are related to the advent of the internet.

For developing economies to achieve inclusive and sustainable growth, the digital economy must be harnessed. Digital technologies come with many benefits in life for consumers. People communicate, socialise, shop, travel and work, and are creating entirely new business models and markets. Despite creating new jobs in the information and technology industry, the digital economy destroys jobs and changes the structure of existing ones. Digitalisation contributes to a change that is biased towards the technological industry.

The global digital economy is growing and supporting economic growth and productivity in the world. The revolution of the global digital economy coincided with the evolution of the mobile broadband internet that has reached over 5.5 billion mobile phone subscriptions in developing countries to date. Indicative of the increase in technologies is the rapid spread in the internet and the usage of mobile broadband. Most people access internet products through their mobile phones.

E-commerce is growing rapidly with important implications for developing countries. The education sector in developing economies

has advanced in the use of digital systems through the use of massive open online courses. The digital economy brought financial inclusion to developing economies. However, for other people in developing countries, financial services provided through the internet are a luxury. The mobile banking services reduce the marginal costs of financial transactions, a situation that allows service providers, like banks, to offer mobile banking services to the marginalised poor. In many developing countries, mobile banking is already showing great potential.

Governments are exploiting the digital economy to simplify service provision and enhance the delivery of social welfare programmes. The service sector is benefitting from the digital technology through taxes and data collection, the provision of healthcare and the formulation of policy. There are inequalities between men and women; developing countries and developed countries; the rich and the poor; the educated and the uneducated; the young and the old, to mention a few. These divides exist due to various financial, political, economic and socio-cultural factors. Traditional culture accelerates the rate of growth of inequalities at all levels. For example, in African countries and in southern India, there is a belief that women are a source of family support. This brings a lot of disadvantages in upholding women's individual needs and their roles in society and the technological space is not an exception.

Digital technology reduces costs and improves competence, whilst protecting inclusion. In developing countries, it offers an avenue to deliver services in areas where old-fashioned rules of the game are weak. The potential to realise this is, however, far from being achieved. The digital gap still exists between the developed and the developing countries. The policy environment in developed countries promotes development of skills in the digital economy that enhances efficiency in the digital field.

In line with the AfCFTA, the digital economy in Africa builds upon the existing framework. The agreement promotes free trade across borders of 55 African member states and the digital policy aims to create a single digital market for Africa that promotes access and engagement

in online activities. There are prospects that this agreement will promote home-grown digital content and solutions.

The AfCFTA provides an opportunity for Africa to realise its dreams in the digital sector. It enables the continent to harness opportunities that come along the pipeline in the digital sector, especially in the COVID-19 era. Countries must find a particular niche in the global digital economy to accelerate inclusive social and economic development using technology.

CONCLUSIONS AND RECOMMENDATIONS

For digitalisation to be successful in the developing world, policy instruments should be set up to lead and speed up the process of digital economy. Transparency and good governance should be put at the forefront as they are significant factors in achieving all this. The digital economy is very important in boosting growth in the developing world. The economy touches various sectors such as trade, the education system, and industry, among others. For these sectors to effectively enhance economic growth, governments should ensure that they strengthen and develop the digital economy to maximise the economic benefits derived from it.

The developing countries, especially African countries, have insufficient internal demand due to either being small or poor. Competition is, however, a very big challenge they face when trying to enter or expand into big international markets. Some platform companies create barriers to potential entrances since they dominate, especially in online search and mobile advertising. Despite barriers created by the size, developing countries can still find their niche in the global digital economy. There are multiple entry points into the global digital economy and that size is not the only determining factor of success. It is recommended that developing countries should find market niches where they can gain competitive advantages in the digital space. Technology should be utilised especially in sectors like agriculture, in which they are well vested. Finding these niches help to

accelerate technology led inclusive growth. Policies associated with the digital economy to achieve set goals must be a priority. Policies targeted towards private public partnerships may help to achieve these goals.

Developing countries should not overlook digitalisation as it is significant for achieving growth. Promoting digitalisation does not only come with benefits of growth in general, but inclusive sustainable economic growth, helping governments to extend key services to its citizens. This needs the government to engage in strategic planning that ensures equality in the distribution of the benefits derived from digitalisation. There is need to learn from the pioneers who are already ahead with digitalisation. Using the experience of leading economies in the digital space will help significantly to frog leap developing economies in this field. Upcoming economies need to learn that growth and benefits from the digital economy do not come in a short period of time. Growth is an iterative process. Those who have become big started small, facing challenges, but through learning, they have succeeded. There is a lot to learn and also expect changes as the digital world is rapidly evolving with time. The implementation phase is always cumbersome, hence the need to continuously adapt and change policies to meet the current position, rather than withdrawing.

There is a strong need for government to create an equal platform for everyone to participate in digital technologies and services. For this sector to be inclusive, equal opportunities should be created at all levels. Strategies should be devised to make sure that developing countries are moving at the same pace with the diffusion of technology. This can be ensured through adopting basic infrastructure and accessibility gaps being faced by developing countries at the moment.

Developing countries also need to invest much in research and development, targeting the digital economy. There is need to create institutions that promote digitalisation in the country. Funds should be set aside in the budget to cater for the digital economy. Governments also need to fund the development of digital skills in the education

sector since digitalisation is the way to go in the future. This way, developing countries' governments promote the growth of the digital economy in a smart way.

It also recommends that it is importance to invest in digital services as a long-term strategy that immediately responds to the urgent need to boost digital economy in Africa. Governments must concretise actions to invest in broader ICT infrastructure development to enable innovative use of ICT for socioeconomic purposes, such as e-health, e-banking, e-commerce, e-government and other ICT-enabled services.

Digitalisation is a powerful tool that can be used to promote financial inclusion for the vulnerable people in the developing world. Remote financial services, delivered via banks and microfinance institutions (MFIs), enable more affordable (by reducing transaction costs) and wider (by increasing outreach) access to financial services, particularly for the most vulnerable populations such as women and rural inhabitants. Africa needs to promote financial inclusion through mobile money services, for example, Mpesa in Kenya and Telecast, My Cash, One Money, Ecocash in Zimbabwe, to reach those in remote areas.

The African region is presented with a challenge of addressing gaps in investment that targets a growing population of young entrepreneurs in sub-Sahara, since it has the strongest culture of entrepreneurships worldwide. The region, however, is at the global bottom in terms of innovation. The article recommends that strong steps need to be taken to improve innovation on the continent. Innovation and entrepreneurship are recognised as the most powerful engines for the growth of the region. These may bring prosperity and sustainable growth.

Despite its substantial growth potential, Africa's mobile industry faces many infrastructural and operational challenges. Mobile operators face difficulties in powering their existing networks, both off-grid and on-grid, due to unreliable power supplies and heavy reliance on expensive and polluting diesel generator power. Adopting green power alternatives from energy service companies (ESCOs) presents a

strong financial and corporate social responsibility opportunity for mobile operators.

The foundation of creating connectivity is providing devices, electricity and access to the internet. Governments should make sure these are available at affordable prices in their respective countries to enhance inclusive growth through the use of digital systems. Without promoting this, the digital economy in African countries will continue to be piecemeal and unevenly distributed. There is need to promote access, otherwise only the already advantaged will continue to benefit without promoting the growth of micro institutions and shutting out the poor.

REFERENCES

Adeleye, N. and Eboagu, C. (2019). Evaluation of ICT Development and Economic Growth in Africa. *Netnomics: Economic Research and Electronic Networking, 20*(1), 31-53.

Antonio, A. and Tuffley, D. (2014). The Gender Digital Divide in Developing Countries. *Future Internet, 6*, 673-687.

Banga, K. *et al.* (2021). E-commerce in Preferential Trade Agreements Implications for African Firms and the AfCFTA. ODI Report. London. Available at https://cdn.odi.org/media/documents/e-commerce_in_preferential_trade_agreements_report.pdf

Chadwick, D., Wesson, C., Fullwood, C. (2013). Internet Access by People with Intellectual Disabilities: Inequalities and Opportunities. *Future Internet, 5*, 376-397.

Cowen, T. (2015). "The measured worker", MIT Technology Review, 28 September 2015, www.technologyreview.com/news /541531/the-measured-worker/ (accessed 11 November 2015).

Dahlman, C., Mealy, S. and Wermelinger, M. (2016). Harnessing the Digital Economy for Developing Countries, OECD, Paris. http://www.oecd-ilibrary.org/docserver/download/4adffb24-en.pdf DBCDE, 2009. Australia's Digital Economy: Future Directions, Department of Broadband,

Dolganova O.I., Deyeva E.A. (2019). Company's Readiness for Digital Transformation: Problems and Diagnostics. *Business Informatics, 13*(2), 59-72.

Ehigiamusoe, K. U. and Lean, H. H. (2018). Tripartite Analysis of Financial Development, Trade Openness and Economic Growth: Evidence from Ghana, Nigeria and South Africa. *Contemporary Economics*, *12*(2), 189-206. https://doi.org/10.5709/ce.1897-9254.271/

Friederici, N., Ojanperä, S., Graham, M. (2017). The Impact of Connectivity in Africa: Grand Visions and the Mirage of Inclusive Digital Development. *Ejisdc 79*(2), 1-20.

Hafkin, N. (2007). Women and Gender in ICT Statistics and Indicators for Development. *Inf. Technol. Int. Dev.*4, 25-41.

Hilbert, M. (2011). Digital Gender Divide or Technologically Empowered Women in Developing Countries? A Typical Case of Lies, Damned Lies and Statistics. *Women's Stud. Int. Forum , 34*, 479-489.

Ismail H.M., Khater M. and Zaki M. (2018). Digital business transformation and strategy: what do we know so far? Working Paper. DOI: https://doi.org/10.13140/RG.2.2.36492.62086

ITC (2020). Business and Policy Insights: Mapping e-Marketplaces in Africa. Available at https://d1c2gz5q23tkk0.cloudfront.net /assets/uploads/3033619/asset/Mapping_emarketplaces_in_Africa.pdf?1610636522

Johnson, V. (2012). The Gender Divide: Attitudinal Issues Inhibiting Access. In: Pande, R., van der Weide, T. (eds.);*Globalization, Technology Diffusion, and Gender Disparity: Social Impacts of ICTs.*110-119. Hershey, PA, USA:IGI Global: .

Manshell, R (2001). Digital Opportunities and the Missing Link for Developing Countries. *Oxford Review of Economic Policy, Summer, 17*(.2), 282-295.

Mckinsey Global Institute (2016). *Digital Globalization: The New Era of Global Flows*. Chicago: McKinsey & Co.

Medina, L. and Schneider, F. (2018). Shadow Economies Around the World: What Did We Learn Over the Last 20 Years? IMF Working Paper, WP/18/17. IMF: Washington DC.

Melhem, S., Morrell, C., Tandon, N. (2009). Information Communication Technologies for Women's Socioeconomic Empowerment. World Bank Working Paper.

Miller, B., Atkinson, R.B. (2014), "Raising European productivity growth through ICT", The Information Technology and Innovation Foundation, June, www2.itif.org/2014-raising-eu-productivity-growthict.pdf (accessed 5 November 2015).

Murphy, J.T. and Carmody, P. (2015). *Africa's Information Revolution,* Chichester, UK: John Wiley.

Nie, N.H. and Erbring (2000). Internet and Society. A Preliminary Report. Stanford, CA: Stanford Institute for the Quantitative Study of Society.

Nkikabahizi, F., Rizinde, T. and Karangwa, M. (2018). The Balance of Trade-Economic Growth Nexus in a Panel of Member Countries of the East African Community. International Review of Applied Economics. Springer Nature. https://doi.org/ 10.1080/02692171.2020.1792422

OECD (2011), *In It Together. Why Less Inequality Benefits All*. Paris: OECD Publishing,, http://dx.doi.org/10.1787/9789264235120-en.

OUP (2017). *Digital Economy, Oxford Dictionary* Oxford, U. Oxford University Press https://en.oxforddictionaries.com/definition /digital_economy.

Pande, R. (2012) Gender Gaps and Information Communication Technology: A Case Study of India. In: Pande, R., van der Weide, T., (eds.). *Globalization, Technology Diffusion, and Gender Disparity: Social Impacts of ICTs*. Hershey, PA, USA; IGI Global; 277-291.

Pradhan, R. P. *et al.* (2017). ICT-finance-growth Nexus: Empirical Evidence from the Next-11 Countries. *Cuadernos de Economía, 40*(113), 115-134.

Songwe, V. (2019). Digital Africa, Technology Can be a Springboard for Faster More Inclusive Growth. *Finance and Development*, 56, 1-3

Tichenor, P.A, Donohue, G.A., Oliien, C.N. (1970). Mass Media Flow and Differential Growth in Knowledge. *Puplic Opinion Quarterly. 34*(2). 159-170.

Wamboye, E. F. and Tochkov, K. (2018). Information and Communication Technologies' Impact on Growth and Employment in Africa. In: Wamboye, E. F. and Nyaronga, P. J. (eds.), *The Service Sector and Economic Development in Africa*. London: Routledge.

World Bank (2016a), World Development Report 2016: Digital Dividends, World Bank, Washington, DC, www.worldbank.org/en/publication/wdr2016.

World Bank (2016b), World Development Indicators, World Bank, Washington, DC, http://data.worldbank.org/indicator.