International Research Journal Of Business and Strategic Management

Vol 6, Issue 2, pp 411-426, Dec 19, 2024, © International Research Journal Publishers, ISSN 2710-2742 (online) www.irjp.org

KENYA'S DIGITAL ECONOMY: PEOPLE'S PERSPECTIVE AND CHALLENGES OF IMPLEMENTING DIGITAL ECONOMY IN INFORMAL SECTOR IN KENYA

Racheal Waithira Njuguna
Management Science and Engineering, Nanjing University of Aeronautics and Aerospace

Accepted, December 18th, 2024

Abstract
The Kenyan digital economy can be categorized as fair and in the right direction. An in-depth analysis of Kenya's digital economy from the perspective of Kenyans was carried out. The research works focused on challenges facing the informal sector in Kenya and why it is lagging behind in digital transformation. The research highlights recommendations that can help in the growth of digital activities in the informal sector. Kenya's digital economy follows an existing blueprint designed by the Ministry of ICT.

Keywords: *Digital Economy, Informal Sector*

INTRODUCTION

Kenya's digital economy is ranked the best in Africa. According to Domingo (2023), Kenya's digital economy is expected to average 9.24% of the total GDP. Data on Kenya's digital economy is impressive with an annual growth of 10.8%. Kenya prides itself as the first country to digitize formal financial services with the introduction of M-Pesa, a mobile-based money transfer. Data from the Ministry of ICT Kenya estimates that 98% of Kenyans have used mobile banking while 65% have internet access. Despite Kenya's will to steer and boost its digital economy, there are still a number of setbacks holding back businesses and people from fully making use of the digital ecosystem. Kenya still ranks poorly when it comes to digital competitiveness. The digital competitiveness index published by Statistica (April 28, 2023) focused on two dimensions (ecosystem and mindset). Kenya's economy is mainly supported by the informal sector. While the formal financial sector advanced its digitization, the informal sector remained behind without full acceleration. The gap that needs to be researched is to understand the views of Kenyans as regards to digitization. There is still a gap in studies explaining the challenges faced by the informal sector when it comes to digitization. Hence this research paper aims to explore and understand the challenges and opportunities of digitizing the informal sector in Kenya.

Defining Digital Economy

There is no specific definition of digital economy. The basic understanding of the digital economy is that it is based on digital technologies. The digital economy can be summed up as activities that rely on digital communications for its execution. Leveraging the internet and mobile phones to carry out business transactions. The digital economy also accounts for business models that derive their operations from digital technologies. The most popular business models

in the digital economy are platform, gig and sharing economies. The informal sector receives less attention from the government hence making it difficult to define its contribution to the digital ecosystem (Awinja and Fatoki, 2021). The Kenyan government still lags behind in leveraging ICT to deliver its services. The failed ICT usage by the Kenyan government implies that the informal sector remains forgotten. The fast-evolving technologies if fully utilized can transform how the informal sector operates. Digitizing the informal sector is one way that the Kenyan government can help improve the living standards of citizens.

What is the Informal Sector Economy?

The informal economy is the non-structured economic activity. People who work in the informal sector are not monitored and rarely declare their income. The informal sector despite its contributions to the GDP are often considered as troublesome hence not given the right attention. Data from the IMF (2021) shows that there are over 2 billion who work in the informal sector. Data from Statistica shows that there are a total of 15.26 million individuals who are in the informal sector (Kamer, 2022). It is therefore true to say that 80% of Kenya's economy is supported by the informal sector. According to the Registrar of Companies (2021), the Kenyan urban informal economy comprises individuals who work as artisans, retailers, motor vehicle riders, and motorcycle riders popularly known as "bodabodas". The informal sector is a key job creator as compared to its counterpart. The informal sector averagely creates 768,000 new jobs yearly (Kamer, 2022).

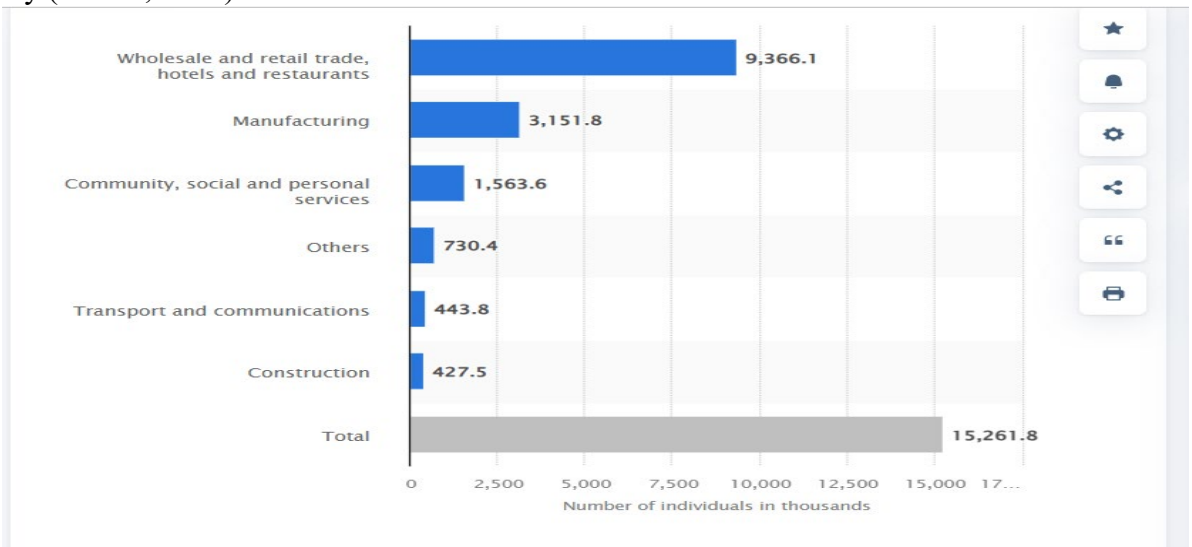

Figure 1: The individuals who are engaged in the informal sector in Kenya as at 2021

Characteristics of Kenya's Informal Sector Economy

According to Douglas, Muturi and Ochieng (2017) an estimated 6,987,090 informal enterprises as of 2016 with more than 99% not legally registered. These enterprises employed individuals with certificate-level education. Females are key players in informal enterprises estimated at 58.5% while the informal Small Medium Enterprises (SMEs) are operated by males estimated at 51.2%. The informal sector is characterized by poor innovation and poor digital competitiveness. The low digital competitiveness implies that these businesses are behind when it comes to leveraging in digitization to increase productivity. Employment and remuneration are poor in the informal economy with most businesses failing to pay the national social security fund and the national hospital insurance fund. Informal sector businesses do not embrace advertising to market their products. The informal sector lacks a policy framework or guidelines that help shape its full exploitation of the digital ecosystem.

Problem Statement

The digital economy is a new era of an economic revolution that combines the traditional and world of the internet. Digitization is successful if fully understood and the use of the right skills are acquired by its users. Kenyans in particular are still not fully utilizing the digital ecosystem. Data from the World Bank (2023) projects over 230 million job creations within the digital ecosystem. The huge gap between businesses that have gone digital and those yet to embrace leaves out opportunities. The informal sector in Kenya is yet to be fully digitised (Dahlman, Mealy and Wermelinger, 2016). The opportunities that can created through digitization of the informal sector call for the implementation of strategize that are short and long-term. The challenges denying the informal sector the opportunity to digitise need addressing. The Kenyan government, ICT stakeholders, world businesses and informal sector players have to merge to strategize how they can be part of the digital ecosystem.

Research Questions

i. What is people's understanding of the digital economy?
ii. What are the challenges facing the informal sector when it comes to digitization?

Research Aim

To access people's perspective of Kenya's digital economy in the informal sector.

Research Objectives

i. Analyzing the digital competitiveness among Kenyans
ii. Identifying factors that derail digitization of Kenya's informal sector
iii. Analyzing the impact of digitization on Kenya's informal sector
iv. Providing recommendations to the Kenyan government on strategies that can be applied to digitize the informal sector.

The purpose of this research paper is to inform about the digital economy as a global entity. The discussion will then lead to evidence regarding the current state of digitization in Kenya. The paper will focus on informing policymakers, the Kenyan government, the informal sector players and regulators about understanding the possible effects of digitizing the informal sector. Additionally, the research is going to be of critical help to investors and researchers who will be interested in understanding the possible impact of digitizing the informal sector. The public will also get an opportunity to understand why their businesses are likely to be productive when given an opportunity to fully harness digitization.

LITERATURE REVIEW

Introduction

The digitization of information in the early 2000s gave birth to a New Economy. According to Mesenbourg (2001), the combination of the internet with technology changed global business operations. The new economy is now popularly known as the digital economy. The internet increased connectivity translating to increase in productivity and efficiency in the business world. While the digitization is creating new opportunities it is still a challenge to fully understand and grasp the characteristics of the digital economy. The challenges faced in defining the framework that supports the digital economic activities is what prevent full scope of frameworks that can help fully utilize digitization. Research by Mealy and Wermelinger (2016) shows that developing nations are yet to harness the digital economy. It is therefore true to say that digital technologies are the future ways in which citizens can improve their productivity. The developing nations have to benchmark digital strategies already in place in developed nations. This literature review examines the trends and what is currently known as regards to digital economy. Additionally, it will illustrate how digital economy is yet to be harnessed. Empirical

research on Kenya's digital economy will help understand the people's perspective and challenges witnessed while utilizing digitization.

Empirical Evidence

The growing digital economy and its ecosystem is worth the research. Quantifying and defining digital ecosystem is still not clear because governments and business stakeholders have not formalized it (Carlsson, 2004). Studies by popular economic institutions have shown how important the digital economy is to the world. According to McKinsey Global Institute (2021), the digital economy averagely contributes the world's GDP by 3%. Further studies by Galvin, LaBerge and Williams (2021) showed that the G20 countries projected growth in the internet economy averaging USD 4 trillion as at 2016. From these studies, it is an indicator that the digital economy is not to be ignored but should receive boost and continued research to fully benefit from it. The most recent studies on digital economy by the World Economic Forum (2022) are that it currently contributes 15% of the world GDP. The 10-year growth in digital economy is tremendous and is likely to continue expanding. Chalyuk et al 2021 affirms that the era of technology is now the basis of globalization. The world's financial systems are now interlinked thanks to innovations in fintech. The traditional methods of transactions are now replaced by technologically attributed ways (Ertz&Bolly,2019). Digital currencies such as bitcoins and Ethereum are examples of disruptive innovations that have changed financial methods of transactions. The continued innovations and development of new technologies is an indicator that the world's economies will change depending how it harness digital ecosystem. The increase in number of theoretical researchers on digital economy is indicator that digitization is rapidly influencing the overall GDPs. The knowledge acquired as regards to various technologies are what countries and businesses are using to leverage for productivity. Digital economy is therefore not a stand-alone entity but rather a combination of various technologies that can be merged for productivity.

The advent and advancement of the digital economy have made it possible for world economies to create values. Understanding the attributes of digital economy as illustrated by Kusimba (2021) is one way to conceptualize the digital economy. Various researchers such as Ndemo(2017, p223) are part of the greater stakeholders who have attempted to systematically discuss concepts surrounding digital economy. The digital economy is still new therefore there are not much concepts and theories discussed. A study by Chakravorti, Chaturvedi and Tunnard (2015), outlays digital economy to include the infrastructure. The infrastructure is the components that supports transactions through digitization which include mobile phones, internet and broadband. The electronic transfers (E-commerce) are transactions that can take place while using digital platforms. It is the actual selling of goods and services. Digitization simply changed how traditional businesses were conducted (Torgusson, 2020). Customer engagement and how they carry out their business are key elements of digital economy. Customers are not benefitting from digitization through personalization of how they can access their favorite products. Data tracking is another key component of digital economy. Brands are now in a position to track customers activities through tools such as cookies to provide optimized engagement. Organization can use tracked data of their client to help in decision making. And finally, connectivity through wireless networks is crucial in ensuring that digital activities are executed.

Trends in the Digital Economy

According to Kolesnikov et al (2020), there is no single concept that is used to define digital economy. The global trends on digital economy and its ecosystem are varied. Develop countries can be said to be better placed in its digitization of its sector. The idea of digitization is still new

in developing countries with most nations in their early stages of establishing frameworks and roadmaps. Akulinin et al (2019) supports the idea that most nations are now gearing towards establishing programs that align with their specific objectives. Russia for instance is using a framework program dubbed" Digital Economy of the Russian Federation" (Akulinin, 2019). Kenya on the other hand is working on using different programs. The most popular is the digital economic blueprint (2022). A review by Limna, Kraiwanit and Siripipatthanakul (2022) is systematic and aims at shading light on trends witnessed in the digital economy. The economic systems globally have opportunities if they can harness digital ecosystems. The current trends surrounding digital economy is about innovation of disruptive technologies rather than increasing existing efficiency. The future of digital economy is shaped by development of new technologies that can be applied in different sectors of economics.

According to Ahmedov (2020) digital economy reliance on information and data implies that advancement in data handling is essential to fully digitize. Research by supports popular research work that the digital economy is successful if it can efficiently use technological information. Internet based business thrive when information and data are available on up-to-date basis. The activities that involve growing or ease of transactions forms part of digital economy. Digital payments, communications through internet and any component that digitize the traditional way of business transactions are all part of digital economy. Study by categorizes digital into three components that are e-business, e-business infrastructure and e-commerce. He further categorizes the digital economy according to its attributes. These attributes are digitization, connection, sharing, personalized and direct.

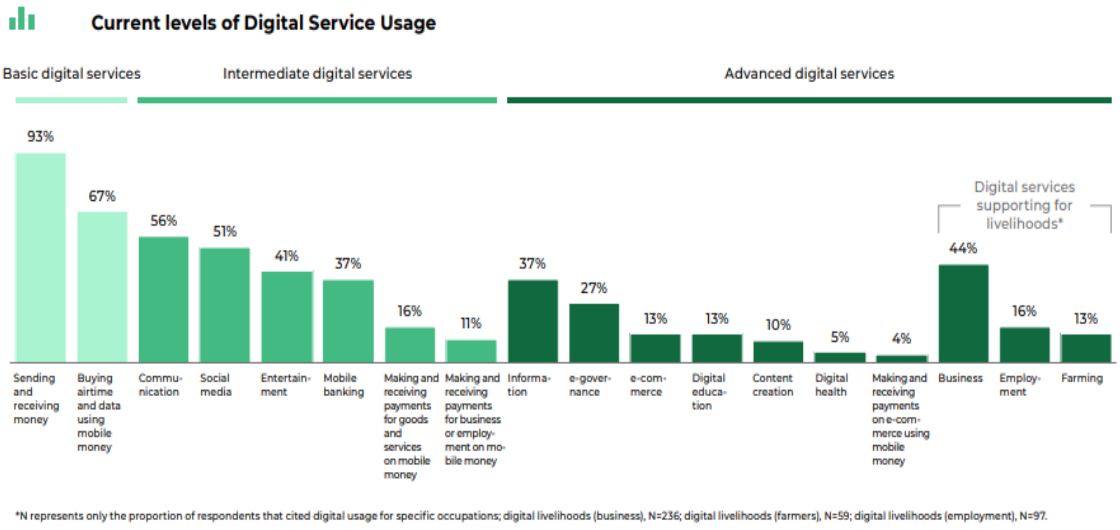

Figure 2: Current Kenya's levels of digital service usage

Challenges Facing the Digital Economy

Kenya's digital economy is still facing challenges making it difficult to completely harness its benefits. The digitization of Kenya's economy lacks implementation framework. There is no specific institution that is tasked with monitoring and co-ordinating digital ecosystem and its activities. It becomes even worse when it comes implementing digitization in the informal sector. The government is yet to have a clear mandate on the informal sector operations. The characteristics of the informal sector makes it difficult to establish a framework. According to the Standardmedia (2022) report, poor implementation is the leading reason why Kenya's digital

transformation is yet to be realized. Report by the *Kenya Digital Readiness: A Journey Towards Human-Centred Digitalisation* cites poor implementation strategies as key reasons why Kenya might not realize its objectives on digitization. Currently, there are well structured plans that in place towards achieving a digitized economy. These are the Digital Economy Blueprint, the Kenya National Digital Master Plan 2022-2032 and the National ICT policy. The public are yet to understand what entails the current plans on digital economy (Omusolo, 2022).

There are no readily available resources that are linked to support the informal sector digital system. The limited resources deny key informal businesses an opportunity to explore benefits that are associated with digitizing their operations. The failure by national stakeholders to address the need to expand e-commerce I all sectors reduces people's urge to be part of the digital economy. E-governance and programs tasked with supporting the digital economy are focused on urban and formal business leaving out the informal sector. News about digital fraud witnessed by Kenya's business is one hindrance that denies the informal business an opportunity to fully digitize. Most business in informal sector believes that they could lose their money if they fully digitize their businesses. The people perceptions about their safety on digital space are a challenge. The lack of consolidated regulatory to tackle digital safety will continue to deny business full involvement in digital ecosystem. Data from studies made by shows that most Kenyans have concerns as regards to safety uses of digital devices. People who have advance usage of mobile devices are likely to experience positive effect of digital services. Individuals who are not advanced in ICT skills are pessimistic with the use of digital services for fear of getting cyber attacked.

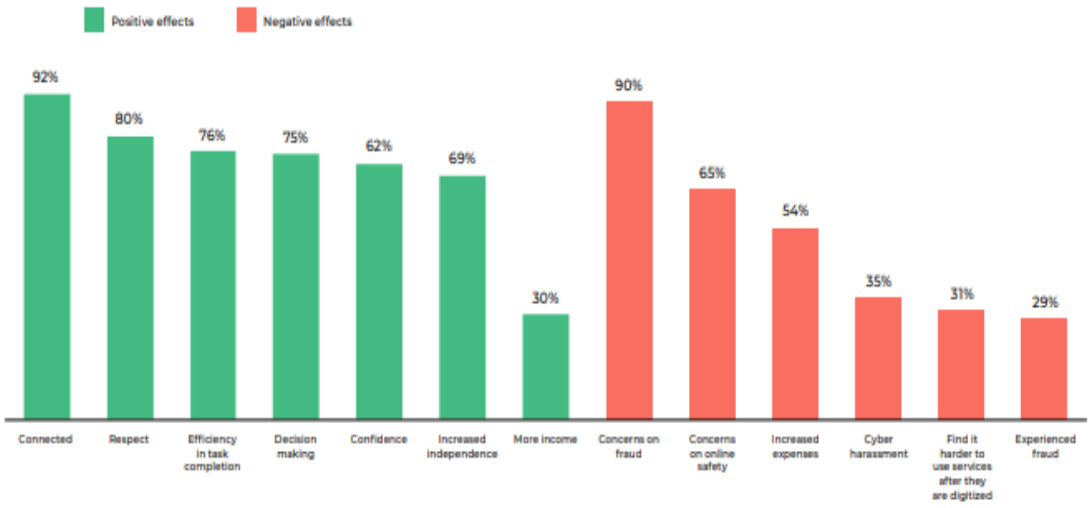

Figure 3: Representation of people perceptions as regards to effect of digital services

Figure 3 shows a representation of people perceptions as regard to effect of digital services. ICT skills are linked with usability of digital services. The existing gap between people who are able to access digital devices and services is related with benefits and challenges of digitization. Kenyans who do not have an access to advance digitization are likely not to be satisfied with digital services. The expenses related to operating internet enable devices are denying majority of Kenyans an opportunity to adopt digitization.

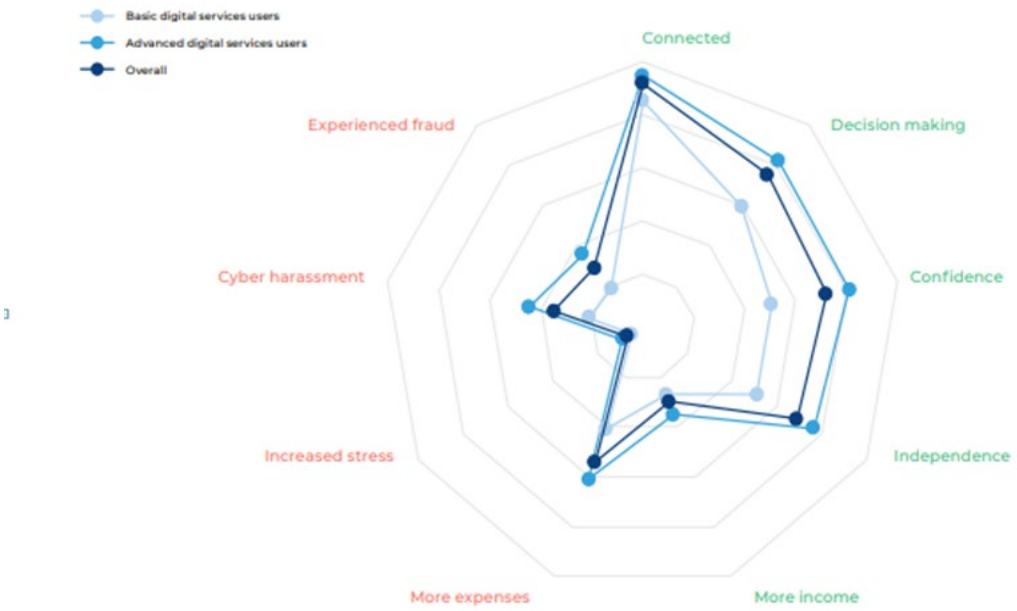

Figure 4: Perception that people have with regard to digital devices and major user sections

Figure 4 illustrates perception that people have regards to digital devices and major user sections. The informal sector and people operating businesses in these sectors are excluded therefore not getting the correct infrastructure and guidance on how to fully implement digitization. Kenyans in rural areas cannot access affordable digital infrastructure. These individuals would rather prefer to engage in restructuring their business to embrace digitization. In most cases, they lack the correct digital skills necessary to operate the basics of the digital ecosystem. Bureaucratic Legislation: The success of Kenya's digital economy is derailed by bureaucratic legislation that slows down the execution of ICT infrastructure. The failure to have coordination within the digital ecosystem impairs work performance of industry players both in formal and informal sectors. The current existing legal frameworks still promotes paper work therefore slowing down how businesses could adopt ICT driven transactions. Research by Kivuva (2012) established that there was government bureaucratic sabotage that derailed the adoption of digitization to run Air Transport. The Kenya's structural and legal arrangements make it a challenge to execute programs that are digital-oriented.

Kenyan Empirical Evidence

The Kenyan digital economy is on its incubation stages hence still got a lot to be harnessed and implemented. The countries indexes rank Kenya as part of the top 10 countries but is not yet established when compared to world-developed economies. According to data by UNCTAD Kenya ranked low at position 105 on the readiness for frontier technology.

Figure 5: Kenya's position of benchmark countries carried out by UNCTAD

A study by Ndung'u (2018) on Kenya's financial digitization shows that with the developments witnessed in the digital domain, new products designs have developed. Kenyans are now in a position to make payments with ease therefore supporting various economic sectors. The Kenyan economy relies on agriculture as its backbone to support the economy. The largest players in agriculture are small case farmers. Digital financing services inclusivity in agricultural activities have made it possible for small scale farmers to access credit especially during planting seasons. One Acre Fund (2022) is one example of digitally linked business that aims to assist farmers to facilitate in banking services. The interventions brought in by organizations such as One Acre Fund help to reduce the constraints faced by farmers in accessing financial help. The OAF interventions have made it possible for farmers to access and pay loans with ease using mobile transactions. The OAF program is an example of a successful program which has incorporated digital ecosystems with agriculture as an economic activity. Data from OAF shows that 50% of farmers who utilize digital financial services are able to generate at least $135 (Ndungu,2018). Kenya's investment activities have improved since digitization of financial institutions. M-Akiba is an example of a successful investment programs launched by the Kenyan government. The M-Akiba is best for individuals who are doing small businesses. Kenyans are able to invest in government securities through mobile banking. The M-Akiba program is therefore a best way in which digitization has provided Kenyans with paperless way of investing in government without the long paperwork processes (Ndungu, 2018).

Table 1: Breakdown of the Initial M-Akiba Uptake

Amount Analysis by Band (KShs)	Value (KShs Million)	Number of Investors	Share In Total Number of Investors (percent)
Minimum amount = 3,000	5.31	1,772	31.0
3,001 - 10,000	13.30	1,963	34.5
10,001 - 20,000	9.74	595	10.5
20,001 – 50,000	25.19	677	12.0
50,001 – 100, 000	28.52	366	6.0
Above 100,000	67.98	318	6.0
Total	**150.04**	**5,691**	**100**

Source: The National Treasury, Government of Kenya.

Figure 6: Shows data on initial M-Akiba transactions during its inception

Regulatory Settings

Digital economy policies and regulations continue to be updated as technological changes impact business operations. According to CEPR (2022), the last policy on the digital economy was updated in 2018. Since then, digital technologies have changed the way societies operate, forcing governments to develop and adopt the best regulations suited to their specific country's laws. UNCTAD (2021) affirms that governments globally have not been able to develop policies that enable the participation of business players.

The lack of coherent regulatory policies creates a gap in adapting the best decisions that align with public needs (Drake, Vinton, & Kleinwächter, 2016). The absence of universal global regulations creates a divide in how innovations are executed, with many stakeholders hesitant to take risks for fear of becoming entangled in a crisis. Policy fragmentation is a significant challenge. Fragmented policies are unpopular with most stakeholders, as they fear that such

fragmentation will create a global divide. Many players in the digital economy are concerned that fragmentation will lead to a rift in the connectivity provided by the internet. The national differences in how governments operate result in risks associated with fragmented policies and regulations.

Research by Evennett and Fritz (n.d.) shows that there are currently no laws that govern the various digital domains globally. There is a need for discussion on how digital domain policies can be better understood. Economic activities linked to the digital ecosystem are the primary determinants of policies and regulations. Mainframe economies influence the kind of policies to be adopted when executing digital activities. The gap between the mainframe economy and the digital economy hinders decision-making related to the digital domain (Bánhidi, Dobos, & Nemeslaki, 2020). Legal and regulatory issues affecting data control, content moderation, and varied tax systems need to be addressed to determine how policies can be comprehensively consolidated. Data from the G20 indicates that European nations and governments have taken the lead in implementing regulatory policies governing the digital space. Regulatory developments aimed at addressing the digital domain continue to be implemented by governments worldwide. The concern is that these regulations are fragmented, with each nation having its own laws. Major economies such as China and the USA do not share the same regulations regarding data storage. These divergent regulations threaten to undermine the global digital ecosystem.

Another area of concern is online content moderation. Content moderation is a major issue, with many nations disagreeing on what data should be censored. These regulations spill over into the commercial space of the internet. Trade that supports the digital economy is now at risk of being threatened if market access barriers continue to exist. The issue of fragmentation will persist as trade and businesses adopt divergent regulations. A way forward needs to be established to examine sectors that promote the digital economy. The regulatory policies outlined by the Digital Policy Alert are likely to create tension among world economies. These regulations could prevent the full potential of activities associated with the digital ecosystem. Geopolitics are likely to hinder transactions related to digitization, as most individual nations promote policies that best align with their internal laws. The lack of aligned regulations is a threat to the digital economy. Governments are encouraged to work towards developing trade agreements and policies that promote plurilateral management of e-commerce. E-commerce businesses should be universal, eliminating barriers created by regulations. The Indo-Pacific Economic Framework is one of the latest policies attempting to eliminate barriers caused by unilateral policies on e-commerce trade.

METHODOLOGY

This research study utilized a qualitative approach, analyzing secondary sources such as academic publications, industry reports, case studies and whitepapers, in order to get an understanding of the Kenyan digital economy in the informal sector. The approaches aimed at determining opportunities, challenges and potential recommendations on the best ways to promote digitization of the informal sector. The approaches adopted were categorized into parts. These approaches are demand analysis, supply analysis, policies and strategies, gap analysis and recommendations. Additionally, a comprehensive investigation into case studies on Kenya's digital economy was performed to establish an understanding of the status of digitization in the informal sector.

i. Demand Analysis

The objective of the demand analysis was to determine how ready Kenyans are to expand the ICT skills required to execute the digital economy roadmap. Research by the UN established Kenya's readiness to promote ICT skills, laying the foundation for the types of skills that will

drive the future of Kenya's digital ecosystem. Digital readiness is one way to position Kenya to capitalize on the opportunities associated with the digital economy. It is a useful methodological practice that can help assess Kenya's current state in relation to its future potential. Digital readiness is determining if Kenya can help its citizens to utilize digital services. The study conducted by Huawei Global Connectivity Index (GCI) and Network Readiness Index (NRI) established that currently Kenya is performing poorly worldwide. Kenya was ranked 70th out of 79 countries that took part in the research. The points gathered from the index analysis were low at 31 out of possible 120. Kenya performs relatively well when compared to its African counterparts. The IT workforce and software development category is what ranked Kenya the least. The GCI data obtained from the research are critical in establishing countries' progress in digitizing their economies. The GCI analysis is a guideline that helps policymakers establish best practices that assist in ensuring economies remain competitive.

PILLAR	INDICATORS	SCORE
Technology	Overall score	99
	Access	101
	Content	115
	Future Technologies	49
PILLAR	INDICATORS	SCORE
People	Overall score	78
	Individual	106
	Business	51
	Government	41

PILLAR	INDICATORS	SCORE
Governance	Overall score	50
	Trust	58
	Regulation	65
	Inclusion	70
PILLAR	INDICATORS	SCORE
Impact	Overall score	104
	Economy	94
	Quality of life	100
	Contribution SDGs	108

Figure 7: Kenya's ranking globally

The ranking made by the Network Readiness Index 2020 shows that Kenya was number 82 out of 134 nations. The table above shows the indicators utilized in carrying out the index rank.

ii. Supply Analysis

The Kenyan ICT skills translate to how different economies will adopt digitization. Currently, the Kenyans' ICT skills can be ranked as basic, intermediate and advanced. Kenya introduced the competency-based curriculum (CBC) for its learners. CBC plays a critical role in ensuring learners from a young age get an opportunity to learn basic ICT skills.

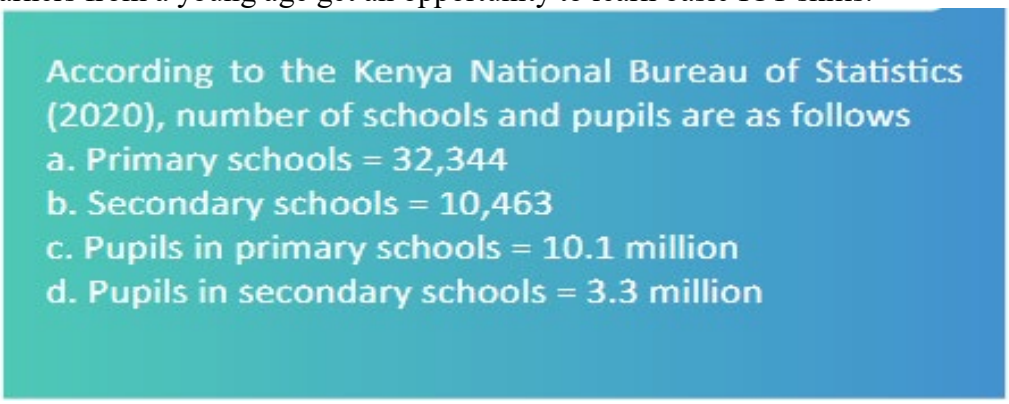

Figure 8: Summary of schools and students with access to digital learning

Figure 8 shows a summary of data obtained on the number of schools and students who have access to digital learning. Pupils who get an opportunity to acquire basic ICT skills are likely to venture into advanced ICT learning. Acquiring skills at a young age is a progressive way in

which Kenya is working to increase the number of people who have digital skills. ICT readiness is still a leading challenge towards the implementation of CBC programs. The number of students who can access digital devices is low.

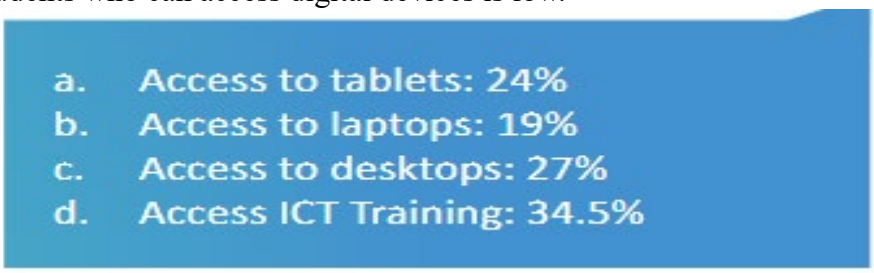

Figure 9: Percentage of student accessibility to ICT infrastructures

The distribution of TVET education and Training centers are not even in all counties. There are counties that are yet to improve on TVET training. Research by the Education for Sustainable Development Policy (2017) found that most teachers do not have the correct teaching equipment that is necessary for ICT training. The TVET institutions are still failing when it comes to e-learning techniques. The number of ICT graduates out of Kenya's Universities are still low. Data from the Commission for University Education shows that the 5000 ICT graduates are far below the yearly demand of 25,000. According to research by Tarus, Gichoya, and Muumbo (2015), Kenya does not have a comprehensive e-learning policy framework. Kenyan universities fail to execute e-learning strategies due to lack of finances and proper policies. There is also an issue with the technical skills required to innovate technological products. Most educators are not ready to shift to e-learning for fear of losing their jobs.

Case Studies

i. Digital Business in Kenya

Kenya can be categorized as above average when it comes to e-commerce. The country has since experienced an increase in number of e-commerce platforms. A study was performed by the Communication Authority Kenya and KNBS established that there are more than 40% of private enterprises that are engaging in e-commerce. The current roadmaps on digital economy set out by the Kentan government is likely to boost the number of e-commerce platforms. Mobile money transfer is the strength of Kenya's digitization boosting how e-commerce platforms are operating. The current e-commerce ecosystem in Kenya relies on mobile money-based transactions accounting for 70% of all money transactions (Statista, n.d.). Data from the economic survey 2019 shows a positive increase in e-commerce transactions. Data on the annual value of mobile commerce transactions in Kenya from 2016 to 2020 is shows growth. The transactions as of 2020 reached 9.4 trillion Kenyan shillings estimated at 85 billion U.S dollars (Statista, n.d.). The value represents a 35% increase as compared to 2019. The data on mobile commerce transactions has received a positive trajectory since 2016 (Statista, n.d.). The popular e-commerce platforms in Kenya are Jumia, Kilimall, Jiji, Sky Garden and Avechi. The development and growth in Kenya's e-commerce is attributed to already established mobile-based transaction platforms such as AirtelMoney and M-Pesa.

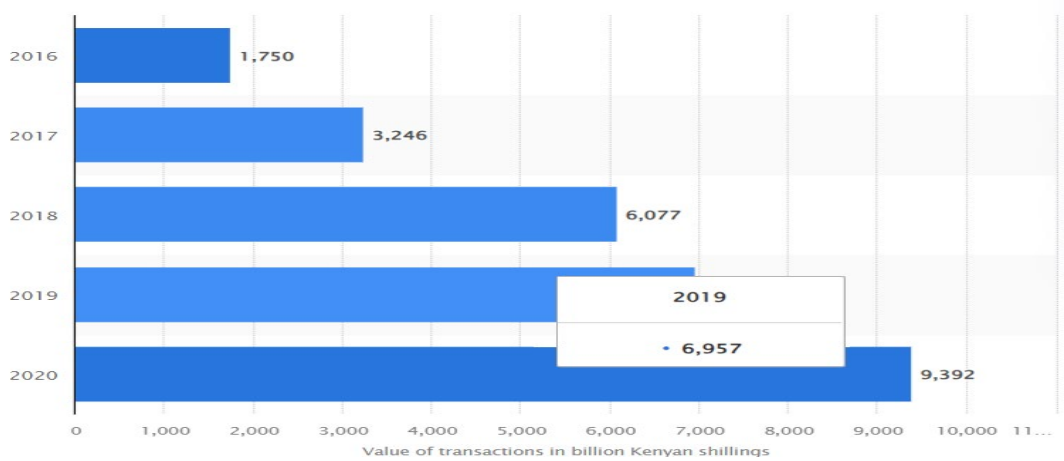

Figure 10: Annual value of mobile commerce transactions in Kenya from 2016 to 2020

ii. A Case Study of Technology Entrepreneurship in Nairobi

Research by de la Chaux and Okune (2017, 20) determines the challenges of technology entrepreneurship in emerging markets. The case study was carried out within Nairobi. The informal sector in Kenya is experiencing a new change with the application of digitization. Kenya's informal entrepreneurship includes sectors such as the Jua Kali artisan business. The advent of digitization is changing how informal sectors are operating. It is however becoming a challenge for the informal sectors to execute technology entrepreneurship. Kenya's digitization has been increasing its activities since the mid-2000s (Dahir, 2017). There are remarkable technological hubs and ventures located in Nairobi which include iHub, SwahiliBox and Dehub. These hubs could be a chance for digitizing the informal sector in Kenya, however, they face challenges that deny them an opportunity to harness its potential. According to Dahir (2017) Kenya's technological startups have failed to be successful due to challenges that includes low broadband connectivity, failed business expertise and lack of financial support. Barriers to digitization of the informal sector in Kenya are mainly due to lack of institutional features and framework. The informal sector does not have regulated system of operations (Graham,2019). The underdeveloped physical infrastructures of Kenya's digital ecosystem deny emerging business a full utilization of technology. Most businesses in the informal sector does not have the capacity to incorporate digitization in their business because they are not legally recognized. Lacks of proper regulations of the informal sector translate to low financial support from banking institutions. Businesses can therefore not have the finances to link digital infrastructure to their businesses. Data from the World Bank shows that Kenya's interest rates are high and at 10%. These high rates create a challenge to informal businesses since they shy away from investing in digitization. The informal sector players are pessimistic about the productivity of digitization. These individuals have not adopted changes since their businesses are not recognizable by the government. Kenya's informal sector businesses are comfortable with mobile-based business transactions and most do not see the need to shift to other ways of harnessing digitization such as digital marketing and branding.

CONCLUSION

The arguments and evidence in this paper show that the Kenyan digital economy is on a roadmap to achieving its objectives. Kenya's initiative to support its financial sector through digitization is one reason why most economic sectors are now benefitting from the digital ecosystem. The economic growth witnessed from digitization is going to be witnessed if the correct policies and

frameworks are adopted. The current existing Kenya's current digital economic roadmaps are what serve as a guide to fully attaining productivity from digital platforms.

Recommendations

Reliability and accessibility of affordable infrastructure are the critical and requirements that can propel digitization of the Kenyan informal sector. The informal sector in Kenya can only be part of the digital ecosystem if its infrastructure is established in all areas. The components for an ideal digital economy infrastructure include availing affordable devices, formalizing businesses and government engagement to allow best-managed digital assets. A deep discussion of best recommendations on how the informal sector can be improved to facilitate its inclusion in the digital economy is as shown below:

i. Expansion of Kenya's National Broadband Coverage: The Kenyan government is in the best position to expand and exploit opportunities from digitizing the informal sector. Currently, the formal sector is performing better compared to the informal sector when it comes to digitization. It is therefore a good plan for the government to strengthen digital assets and infrastructure. Most informal businesses are not digitized because of the current low broadband coverage. The government is a key player in promoting digitization of the informal sector for enhanced digital economies.

ii. Comprehensive Funding. The national broadband expansion will be realized if the government puts an effort towards increasing its funding. The success of innovations to promote the informal sector is saucerful when the fintech sector is well funded. A good example of fintech innovations are the way Kenyan banks have digitized their financial institutions. The 24-hour banking through applications are one way through which informal sector businesses can productively be active. Productivity will only improve if businesses in the informal sector are recognized and included in the national budget. Financial merging of businesses and banking institutions is one way that credit scores can be determined. Loaning apps such as M-Shwari, PesaPap, Branch and Okash are examples of how informal businesses can receive boosts without worrying about credit scores. In most cases, it would be difficult to access loans through banks if the business is not formal.

iii. Executing Reliable Affordable and Secure Broadband Connectivity: The Kenyan informal sector is characterized by businesses that are in developing stages and not well off financially. The only way to ensure this business embraces digitization is by ensuring a reliable and affordable connectivity. According to Ahmedov (2020) to research by it is true to say that economic activities are high when the broadband connectivity is accessible. Despite the growth witnessed in Kenya, there is still room for investment to ensure full broadband connectivity. There is still a great deviation between the urban and remote areas in Kenya. The remote areas in Kenya still do not have a good connectivity hence lagging behind in digitization. Most informal businesses are located in remote areas and will only be digitized if they are able to be included in the broadband connectivity program. Research by the Communications Authority of Kenya (2022) shows that there are more than 55% of locations in Kenya that do not have mobile signals. Kenya's fiber optics is still lowest and can only cover a small area which translates to 20%. A recommendation to find solution to broadband connectivity is key through various programs that are not limited to government initiatives.

iv. Revamping of ICT Skills: The digital economy strategy will be successful if the government change its policies and strategies on increasing the number of individuals with advance ICT skills. The current strategies on increasing the number of ICT learners are implemented by different agencies making it difficult to execute and co-ordinate. The Ministry of

ICT is therefore encouraged to establish a plan where all talent creation programs are centralized. The ICT plans and initiatives are co-joint with other government projects making it difficult to co-ordinate and implement them. Strategizing to find ways to coordinate and monitor ICT plans will give room for the accomplishment of existing projects. The success of these projects will translate to the improvement of digital activities in the informal sector.

v. Developing and Inclusive Digital Transformation: The Kenyan government is in a position to increase the opportunities that can be harnessed through digital domains. The use of ICT skills has to increase in order to allow full utilization of digitization. The challenges witnessed by individuals operating in the informal sector require a closer analysis. People in the remote areas have been left out and, in most cases, they have no opportunity to be part of digital transformations. The current stage of Kenya's digital growth will require that the informal sector is not left out. The challenges facing Kenya's digital transformation can be addressed if all groups are included the overall roadmap.

Limitations

The research design used was limited in various ways. First, I relied on qualitative data that are primarily secondary sources. The secondary sources relied on research and studies carried out by other researchers which could not be verifiable. The secondary sources were in some instances not relevant to the research at hand. The issue of errors is high since the secondary data were most likely not related to challenges facing the digital economy in Kenya. Some of the information collected was from the previous year's research. It therefore meant that these sources were outdated and could not apply to the current state of Kenya's digital sector. As a researcher, I did not have control of the collected data as regards Kenya's digital ecosystem. The original data that I worked with could have been flawed hence not aligning with my research's objective. It was difficult to find appropriate and relevant secondary sources related to my study topic. There is limited information about Kenya's informal sector. Kenya's informal sector does not have recorded data since its operations are not recognized by Kenya's government. The sector's activities do not have valid data that can be used to establish reliable research work. The research relied on information from e-commerce platforms which can be said to operate on a formal basis. It becomes a challenge to carry out a deep analysis of the full utilization of digital services. The informal sector for instance is not recognized hence making it difficult for Kenyans to take a closer look at existing research work on digitization.

REFERENCES

Ahmedov, I. (2020). The impact of digital economy on international trade. *European Journal of Business and Management Research, 5*(4).

Akulinin, F. V., Maksimov, M. I., Velikorossov, V. V., Kolesnikov, A. V., & Balakhanova, D. K. (2019). Innovation development trends and the digital economy program of the Russian Federation. In *Industrial Technologies and Engineering (ICITE) 2019* (pp. 105-109).

Awinja, N. N., & Fatoki, O. I. (2021). Effect of digital financial services on the growth of SMEs in Kenya. *African Journal of Empirical Research, 2*(1), 79-94.

Bánhidi, Z., Dobos, I., & Nemeslaki, A. (2020). What the overall Digital Economy and Society Index reveals: A statistical analysis of the DESI EU28 dimensions. *Regional Statistics, 10*(2).

Carlsson, B. (2004). The digital economy: What is new and what is not? *Structural Change and Economic Dynamics, 15*(3), 245-264.

CEPR. (2022). Commercial policies and regulations now fragment the digital economy. Retrieved July 14, 2023, from https://cepr.org/voxeu/columns/commercial-policies-and-regulations-now-fragment-digital-economy

Chakravorti, B., Chaturvedi, R., & Tunnard, C. (2015). Where the digital economy is moving the fastest. *Harvard Business Review*.

Dahir, A. L. (2017). Kenya's newest tech hubs are sprouting outside its 'Silicon Savannah' in Nairobi. *Quartz*. Retrieved July 13, 2023, from https://qz.com/africa/1059305/kenyas-newest-tech-hubs-are-sprouting-outside-its-silicon-savannah-in-nairobi

Dahlman, C., Mealy, S., & Wermelinger, M. (2016). Harnessing the digital economy for developing countries.

Dahlman, C., Mealy, S., & Wermelinger, M. (2016). Harnessing the digital economy for developing countries. *OECD Development Centre Working Papers*, No. 334. OECD Publishing. https://doi.org/10.1787/4adffb24-en

de la Chaux, M., & Okune, A. (2017). The challenges of technology entrepreneurship in emerging markets: A case study in Nairobi. In *Digital Kenya* (pp. 265-301).

Domingo, E. (2023). The Achilles heel of Kenya's growing digital economy. *ECDPM*. Retrieved July 9, 2023, from https://ecdpm.org/work/achilles-heel-kenyas-growing-digital-economy#:~:text=Kenya%20is%20one%20of%20the,growing%20digital%20economy%20job%20market.

Douglas, J., Douglas, A., Muturi, D., & Ochieng, J. (2017, September). An exploratory study of critical success factors for SMEs in Kenya. In *Toulon-Verona Conference: Excellence in Services* (pp. 223-234).

Drake, W. J., Vinton, C. G., & Kleinwächter, W. (2016, January). Internet fragmentation: An overview. *World Economic Forum*.

Evennett, S., & Fritz, J. (n.d.). A joint report of the Digital Policy Alert and Global Trade Alert: Emergent digital fragmentation: The perils of unilateralism. Retrieved July 14, 2023, from https://www.globaltradealert.org/reports/gta-29-report

Galvin, J., LaBerge, L., & Williams, E. (2021). Digital strategy in the post-pandemic era. *McKinsey*. Retrieved from https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/the-new-digital-edge-rethinking-strategy-for-the-postpandemic-era

Graham, M. (Ed.). (2019). *Digital economies at global margins*. MIT Press.

Kamer, L. (2022). Kenya: Informal sector employment by activity 2021. *Statista*. Retrieved July 10, 2023, from https://www.statista.com/statistics/1134287/informal-sector-employment-in-kenya-by-activity/

Kivuva, T. (2012). *Challenges in development and implementation of information systems in ad hoc landing and overflight clearances in the Kenyan airspace* (Unpublished master's research project). University of Nairobi.

Kolesnikov, A. V., Zernova, L. E., Degtyareva, V. V., Panko, I. V., & Sigidov, Y. I. (2020). Global trends of the digital economy development. *Opción: Revista de Ciencias Humanas y Sociales, (26)*, 523-540.

Kusimba, S. (2021). *Reimagining money: Kenya in the digital finance revolution*. Stanford University Press.

Limna, P., Kraiwanit, T., & Siripipatthanakul, S. (2022). The growing trend of digital economy: A review article. *International Journal of Computing Sciences Research, 6*, 1-11.

Mesenbourg, T. L. (2001). Measuring the digital economy. *US Bureau of the Census, 1*, 1-19.

Ndemo, B. (2017). The paradigm shift: Disruption, creativity, and innovation in Kenya. *Digital Kenya: An Entrepreneurial Revolution in the Making, 9*(4), 1-12.

Ndung'u, N. S. (2018). Next steps for the digital revolution in Africa: Inclusive growth and job creation lessons from Kenya.

Omusolo, M. (2022). Report: Poor implementation hindering Kenya's digital transformation. *The Standard*. Retrieved July 13, 2023, from https://www.standardmedia.co.ke/business/business/article/2001458812/report-poor-implementation-hindering-kenyas-digital-transformation

One Acre Fund. (2022). *One Acre Fund*. Retrieved July 14, 2023, from https://oneacrefund.org/?gclid=CjwKCAjw5MOlBhBTEiwAAJ8e1sm9Ssu7Es9Hfx5t3hBMvY39UivICbfFgK9-xLlscYUKQriHF3R8qBoCAlUQAvD_BwE

Statista. (n.d.). Kenya: Value of mobile commerce transactions 2020. Retrieved July 13, 2023, from https://www.statista.com/statistics/1278427/annual-value-of-mobile-commerce-transactions-in-kenya/

The Digital Economy Blueprint (Republic of Kenya, 2022). *Review of The Digital Economy Blueprint*. Retrieved from https://www.ict.go.ke/wp-content/uploads/2019/05/Kenya-Digital-Economy-2019.pdf

The Informal Economy in Kenya. (2021). *The Informal Economy in Kenya*. Retrieved July 10, 2023, from https://www.ilo.org/empent/Publications/WCMS_820312/lang--en/index.htm

Torgusson, C. (2020). *Concept Project Information Document (PID)-Kenya Digital Economy Acceleration Project-P170941*.

World Economic Forum. (n.d.). Why digital trust is key to building thriving economies. Retrieved from https://www.weforum.org/agenda/2022/08/digital-trust-how-to-unleash-the-trillion-dollar-opportunity-for-our-global-economy/#:~:text=The%20World%20Bank%20estimates%20that.