DRIVERS OF DIGITAL TRANSFORMATION AND THEIR EFFECT ON POLICY MAKING: A CASE STUDY OF THE FINTECH IN KENYA

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A RESEARCH PROJECT SUBMITTED TO THE SCHOOL OF LAW, ARTS AND SOCIAL SCIENCES IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF ARTS DEGREE IN PUBLIC POLICY AND ADMINISTRATION KENYATTA UNIVERSITY.

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DECLARATION

This research project is my original work and has not been presented for a degree in any other university.

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This research work has been submitted for review with my approval as university supervisor.

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DEDICATION

This project is dedicated to Family, friends and colleagues, who have supported me in my studies and work. Thank you

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ABSTRACT

One of the most significant transformational changes to the economy from the beginning of the twenty-first century has occurred in the digital space. Infrastructure, enabling platforms and services, policy and regulation, human capacity, governance, and business and innovation have been identified to be drivers of digital transformation. Building strong foundations in crucial policy areas including digital networks, online services, digital facilitators, and digital protections is necessary to develop a thriving digital economy. Kenya boasts to be among one of the world's most rapidly developing digital economies. The digital revolution of financial services is gaining traction as a result of the growing adoption and use of technology-enabled innovative digital financial services. Regulatory bodies have described the difficulties they are encountering in the digital economy. These include keeping up with the rapidly changing environment, dealing with financial restrictions, lack of knowledge, and handling pressure from traditional institutions to lobby on their behalf. Studies have shown the drivers of digital transformation globally and the role of government and organizations in driving digital transformation. Some of the studies have focused on the need for policy change that is driven by digital transformation. The study looked at digital transformation drivers and their effect on policy making in Kenya. The study intended to determine how development in ICT infrastructure, change in human capital needs brought about by digital transformation, increased competition from new digital products and services, and progress in technologies in the digital economy influence policy change in Kenya. The study was guided by the Digital Transformation Ecosystem Model, the Digital Transformation Model, and the Digital Economy Ecosystem model. The research was undertaken using the descriptive research design and a case study approach was used. The population of the study was the 65 registered members of the Association of Fintechs in Kenya. A total of 10 startup founders who are members of the association and two management members took part in the study. Data was collected through carrying out of interviews with the founders of the 10 startup fintech companies. The study results indicated that ICT infrastructure and progress in technologies have had a significant influence on policy making and development in Kenya. ICT infrastructure especially the use of mobile services and digital payments provides opportunities for the development of new products and services which have required new regulation. These new products have also increased competition with legacy products that have dominated that market over the years. There is not enough information, however, on whether this competition has led to changes in competition policy. Human capital needs, have also significantly changed with the demand for digital skills rising for both service providers and users. Emerging technologies have led to new trends in services which have necessitated new skills development and retraining of employees. The study however noted that there is little information on the macro policy changes for skills development in the country. It was noted, however, that human resource policies within organizations were changing to accommodate these new skill requirements. Among digital service providers, the adoption of accessible new technologies like online platforms such as App marketplaces is popular. The usage of these new technologies has expanded significantly but has not been accompanied by adequate regulations to control their use. The government was noted to have made some effort in driving policy change, but a lot was still required to be done especially to support technology entrepreneurs. The study recommends that the government puts more effort into including relevant stakeholders in policy change for the digital economy to allow for digital economy policymaking. Clear guidelines on institutions responsible for industry-specific policies need to be clear in order to properly guide technology entrepreneurs.

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LIST OF ACRONYMS AND ABBREVIATIONS

App	Application
BNPL	Buy Now- Pay Later
FinTech	Financial Technology
ICT	Information and Communication Technology
GSMA	The Groupe Speciale Mobile Association
OECD	Organization for Economic Co-operation and Development
R&D	Research and Development
UNCTAD	United Nations Conference on Trade and Development
USSD	Unstructured Supplementary Service Data

OPERATIONAL DEFINITION OF TERMS

Innovation A completely new product or a change made to an established service, idea, or sector.

Disruptive Innovation The transition or significant shift brought about by the emergence or advancement of a new technology or procedure.

Digital Transformation A process or ecosystem that modifies every industry of the economic system and, in general, develops the digital economy

Digital Transformation drivers The anticipations of future advantages that favorably impact and initiate the pre-adoption processes

Fintech The words "financial" and "technology" are combined to form the phrase "fintech". It describes any application, piece of software, or piece of technology that enables people or businesses to carry out financial transactions or get digital access to their accounts.

ICT infrastructure The collective elements required for the utilization and administration of business IT services and systems are referred to as ICT infrastructure.

Policy Making A systematic process by which governments and organizations design and implement policies to address public concerns.

Techno Entrepreneurship The entrepreneurial and intrapreneurial actions of both established and emerging businesses functioning in technologically demanding contexts.

CHAPTER ONE

1.0 INTRODUCTION

This chapter begins by presenting a background of the study. It then proceeds to present the problem statement, the purpose of the study, the objectives of the study, and the research questions that the study should answer. The chapter then provides a justification and significance of the study, the scope, and the assumptions undertaken by the researcher.

1.1 Background of study

Digital transformation has been one of the forces behind recent economic growth and policy shifts. Ebert & Duarte (2018) interpreted digital transformation as utilization of innovative technology to boost productivity, value creation, and social welfare Vial (2019) further defined it as the method by which businesses strategically respond to disruptions brought about by digital technologies in order to change the paths along which value is created. Digital technology has become the most revolutionary and disruptive trend in all industries and nations in the recent past. These technologies are evolving, innovating, and disseminating at an unparalleled pace, which has significant development consequences. Digital transformation has caused industrial change and has served as a catalyst for ongoing entrepreneurship and commercial agility, especially in technology-intensive sectors. Disruptive digital innovations change traditional operating paradigms, needing dynamic adaptability. Lesher et al. (2019) suggest that emerging enterprises stimulate innovation partly through playing a vital role in commercializing innovative technology and are frequently aggressive at pushing radical, and occasionally disruptive, advancements in their industry.

Digital transformation drivers comprise of evaluation instruments designed to address the key characteristics for the digital economy's primary components (Hanna, 2020). They reflect an understanding of the significance of the nation's digital policies and infrastructure. Jun, Kim & Park, (2022) separate digital transformation under three phases: Foundation, Adoption, and Acceleration, offering a framework that represents the changes across time. The five conceptual pillars that make up the framework include: Network/Infrastructure, Government, Business, People, and Ecosystem.

Al—Adaileh & Alshawawreh (2021) also provided a methodology for evaluating the effect of digital transformation through the viewpoints of the stakeholders. The framework's seven areas of attention were as follows: “Intelligent specialization and innovation driven by demand; emerging technologies and creative enterprises; government-sponsored innovation; a favorable enterprise environment; ICT skills; competencies and talent; and advanced infrastructure”.

Digital transformation in economies is influenced by a variety of drivers that reflect both technological advancements and socio-economic factors. Academic studies provide insights into these drivers, particularly in the context of broader national strategies. Fernández et al. (2023) indicate that the key drivers include; government policies and initiatives, economic competitiveness, technological advancements, societal expectations, cultural factors and public-private partnerships.

Within the context of digital transformation, the supply of digital services might be viewed as a critical tool for increasing value generation for consumers. Digital platforms enable businesses to deliver services and goods more successfully using

technology like mobile networks (Kitsios et al., 2023). Disruptive ecosystems that have emerged in the financial technology market are currently causing havoc in the banking, insurance, and financial services (Palmié et al., 2020). The rapid expansion of financial innovation in financial institutions has increased accessibility and inclusivity while also requiring regulation, credibility, and security. In order to effectively adjust to the new circumstances brought on by disruptive shifts, economic players and the environment in which they operate must take proactive measures (Kraus et al., 2021). Public policies may play a role in influencing this process.

Governments decide and implement public policy which is a body of laws, regulations, and guidelines in an effort to benefit the countries citizens. To placate each political party and pressure groups, some political administrations may adopt policies that are unclear, conflicting, or unexpectedly inconsistent (Anderson, 2014). Public policy changes are eventually only constrained by our imagination (Annenberg Institute, 2011). There are numerous ways to affect and educate policy. Burstein (2020) indicated that there is a common belief that advocacy, demonstrations, the balance of the parties, and macro-level features of political units -including demographic makeup, economic development and other components have an impact on public policy. When trying to deliver information that will guide policy, scholars sometimes encounter their own disparate problems.

Numerous factors, such as the general people's perception, political action, the state of the economy, nongovernmental organizations, scientific discoveries, technical advancements, interest groups and campaigning by companies influence public policy. New activities originate, old ones disappear, and the relative importance of all

economic activities as well as the ways in which they interact varies during the process of economic development (Pyka & Saviotti, 2004). Policies become essential determinants of economic success because they influence the motivations, judgments, and decisions made by significant consumer and business divisions (Haggblade et al., 2017).

Elevated levels of variability and complexity in the digital transformation of the innovation environment have resulted in transformation setbacks. Policymakers must actively create and put into place a number of policy instruments to assist transition in order to deal with this (Yang et al., 2021). In order to encourage the creation and expansion of digital services, policymakers must address the following common barriers: favorable legal and regulatory frameworks; supportive technological infrastructure; and associated government support systems (Pazarbasioglu et al., 2020). Innovation policy is the government action that results in technical transformation and other classifications of innovations. It refers to the collection of government actions taken to advance the public interest and aimed at changing the environment where businesses and other innovators work. According to Edquist (2001) it includes components of regional and education policy, R&D policy, modern technology innovation policy, and physical framework policy. the most important question in the design of public innovation policy is what the role of the state or public sector. Public policies must constantly adjust to the dynamic and complicated procedures of digital transformation since it necessitates a comprehensive approach to a country's development (ECLAC, 2021)

A World Trade Report (2020) indicates that through a combination of conventional regulatory tools such as tariffs, investment and tax incentives, procurement practices

determined by innovation and intellectual property laws, as well as government policies and innovative regulatory structures are progressively attempting to support digital innovation and handle related issues. In many developed countries, strategies that include national and regional policies have been developed by the governments to strengthen the tech sector and encourage digital transformation (Mićić, 2017). The European Union for instance, has established a regional policy in Europe that supports digital transformation and emphasizes regional financing and contributions to innovation across the continent.

African economies are now also using digital technologies to carry out market operations in a variety of industries. Africa is embracing digitized solutions more quickly because it has fewer legacy issues. The African Union has set forth particular goals to lead the digital transformation, support the continental free trade area of Africa, and advance industrialization in Africa. The initiative's goal is to help governments put the laws, rules, and regulations in place that are necessary to encourage and accelerate digital transformation and disruptive technologies for regional, continental, and national growth (Africana, 2020).

Achieving digital transformation in Kenya will necessitate the integration of several sectors and subject areas, including innovation, strategic planning, economic policy, public sector reform, growth of the private sector, recruitment and training, communications networks, Information technology solutions provider, and institution building (Hanna, 2016). An ecosystem framework is required to aid policymakers in developing digital transformation plans and smart development practices.

The Association of Fintech of Kenya was formed in 2021 by a group of seasoned fintech experts with a clear vision to lead and lobby for digital innovation as a fundamental tool for effectiveness, adaptability, and competitive positioning in Kenya's financial services industry. Their purpose is to provide members and the larger fintech community with the tools needed to leverage the potential of digital technology. They hope to establish an ecosystem where fintech solutions may thrive by encouraging innovation and knowledge-sharing, rendering financial services more available, affordable, and inclusive for all Kenyan people. They actively interact with policymakers to establish policies that foster innovation and provide a supportive setting for fintech growth through strategic alliances and lobbying initiatives.

1.2 Statement of the Problem

The explosion of ICTs across the African continent is thought to have originated in Kenya (Ndemo & Weiss, 2017). The nation has undergone a quick digital revolution that continues to progress forward. The digital economy possesses many opportunities; however, Kenya needs to establish ecosystems that enable digital transactions nationally, regionally, and internationally to effectively realize its promise. Digital-first policies and their underlying frameworks are critical for the government to transform its overall economic outlook. Public policymaking in the country is complicated by the simple reason that the process occurs in a context with emerging technologies, and it also involves policymakers with minimal knowledge in the subject area and even fewer of the abilities required to develop bold, innovative policies (Ndemo & Weiss, 2017).

Miasmal et al., (2023) indicate that the transformation of digital policy in Kenya especially in the financial technology sector has been a work in progress that has its basis in the Kenya Science Technology and Innovation policy that originated in the 1970s. Since then, a number of revisions to policies and regulations have been proposed and implemented to respond to the digital transformation in the country and support the achievement of Vision 2030. The country's Medium Term Plans since 2008 have included policy to facilitate ICT systems especially as a response to the development of mobile money payment platforms. There has also been a number of revisons of central bank policies to regulate digital lenders in collaboration with other regulatory bodies and supported by the National Payment system. Other contributions include the National Information, Communications and Technology policy of 2019 and the Digital Economy Blueprint of 2019 which aimed at actualizing the unlimited possibilities of the digital economy by fostering an environment that is favorable to all stakeholders and individuals. A Digital Economy Strategy has also been proposed for the country. In 2020, a draft that was built on several regulatory frameworks as well as other interdependencies that are part of Kenya's broader financial, cultural and governmental ecosystems that direct and affect the sector's growth was developed.

While a lot of effort have been put in digitization, there is a need to exactly establish the drivers to this digital transformation. This study looked at the drivers of digital transformation and their effect on of policy making to in Kenya. The study mainly focused on the financial technology industry that has been subject to inconsistent policies that have hindered adoption of their innovative solutions. The study findings can support in streamlining associated implementation policies and procedures by

assisting policymakers to understand the elements that are accelerating digital transformation and how to tackle them.

1.3 Objectives of the Study

The study's objectives were;

1. To determine the effect of digital transformation on policy change.
2. To determine the effect of human capital needs on policy change.
3. To determine the effects of increased competition from new digital products on policy change.
4. To determine the effect of progress in technologies on policy change in Kenya.

1.4 Research Questions

The research intended to respond to the questions below;

1. How has digital transformation brought about by development in ICT infrastructure has affected policy change in Kenya?
2. How the change in human capital needs brought about by digital transformation has influenced policy change in Kenya?
3. How has increased competition from new digital products and services has influenced policy change in Kenya?
4. How has progress in technologies in the digital economy influences policy change in Kenya?

1.5 Assumptions

The research is predicated on the premise that there is a clear distinction between digital policy and development policies and that the FinTech industry is a sufficient representative of the digital solutions in Kenya's digital transformation.

1.6 Justification and Significance

The digital revolution is inevitable and governments will unavoidably need to actively participate in the digital economy through policy reform due to the major changes and quick growth of the digital economy is bringing about in our social and economic life. When it comes to digitization, Kenya is a prominent case as it has made immense strides in the sector, especially in financial services access (Ndung'u, 2018). Studying digital transformation in Kenya offers valuable insights into innovative practices, economic development strategies, public service enhancements, and inclusivity efforts. As a frontrunner in the digital space within Africa, Kenya provides a rich context for understanding the complexities and benefits of embracing digital technologies.

Very few studies have been done to assess the impact that the slow development and inconsistent policies are affecting the digital economy in Kenya. This study will help policy developers to analyze the current innovation policies in place to review their direct impact on digital economy. While there may be a few innovation policies in place in Kenya, evidence is yet to be provided to support the effectiveness of these policies and highlight the gaps in innovation policy. The study also adds to the limited knowledge on policies for the digital economy in Kenya.

1.7 Scope of the study

The study's primary goal was to pinpoint the digital transition enablers and they gaps their influence in the policy change in Kenya with a focus on the financial technology industry. The study was limited to collecting data from the 65 FinTech start-ups that are registered with the Association of Fintechs in Kenya.

The researcher was limited to using interview questions for data collection included both open ended and closed questions.

1.8 Limitations of the study

Limitations may occur in the collection of information considering that many startups and developers of innovative solutions are not open to sharing information.

The study was also limited to four digital transformation drivers which could limit the amount of information that covers the subject. Technology development also evolves very fast with new trends occurring and requiring new, previously unforeseen policy needs. It also important to note that because of the nature of the innovative solutions, sometimes it is not clear which organizations should be taking up the role in regulating the technology. Lastly, the qualitative research method was used in this study. The method has its limitations as it is more challenging to evaluate and harder to put the data into ordered categories.

CHAPTER TWO: REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter begins by presenting a review of previous studies that have been done digital transformation drivers and the effect of digital transformation on the formulation of public policy. The chapter then evaluates theories that underpin the study which include; Hanna (2018) Digital Transformation Ecosystem Model, the Verina & Titko (2019) Digital transformation Model and the aadvanced Hanna (2020) Digital Economy Ecosystem.

2.2 Empirical Literature Review

The study focused on the digital transformation elements that have a capacity to drive policy change in a digital economy. The study reviewed literature on digital transformation drivers with respect to ICT infrastructure, human capital, increased competition and progress in technologies.

2.2.1 ICT Infrastructure

The proliferation of digital technologies has increased the availability and quality of data. A study done by Attrey (2021) focusing on the Organization for Economic Co-operation and Development (OECD) member countries emphasizes that improved data access enables more evidence-based policymaking, allowing for policies that are responsive to real-time information and public needs. The report also indicates that advancements in ICT infrastructure have prompted significant regulatory reforms in the telecommunications sector. A study by Guerrero & Qin (2023) in Chile looked at the importance of ICT infrastructure efficiency versus policy reaction in connection to entrepreneurial growth ambitions during the corona outbreak lockdown. The authors highlighted that government shutdowns throughout the epidemic expedited the digital

revolution, and this increased the importance of the necessary infrastructure. They concluded that in order to strengthen the robustness of the business communities, putting resources into high-quality ICT infrastructure is arguably a better alternative considering the evident challenges in adjusting economic policy responses to local circumstances.

A study by Nchake & Shuaibu (2022) that focused on the impact of ICT infrastructure on inclusive growth in 46 African countries indicated that the ongoing digital transition has brought attention to the disparities in access to technology that already exist. A growing number of policymakers are concentrating on developing inclusive digital policies that close the digital divide. Research suggests that because of this emphasis on inclusivity, new laws are needed to support infrastructure development and digital literacy in underserved and rural areas.

2.2.2 Human Capital

The need to retrain and improve the skills of today's workers has become more important owing to the rapid acceleration of digital transformation and the evolving work space. A study by Khubulova (2022) looked at the main perspectives of human capital development in a global setting, along with current trends and tendencies in the field throughout the digital transformation period. The study concluded that as cooperation in ecosystems of value with clients, vendors, and collaborators becomes more crucial, it is necessary to transform and automate working methods, businesses, procedures, and systems. The needs and expectations of workers as well as fresh talent with flexible schedules keep increasing simultaneously.

A study by Qureshi (2022) that focused on revamping policies for the digital era in the United states concluded that global labour markets are changing as a result of

digital revolution, which is creating new jobs as well as eliminating old ones. In response, policymakers are modifying labour market regulations to take these changes into account. In order to promote employment creation in new industries, policies that support small enterprises in the IT industry and encourage entrepreneurship are being given priority.

A study by Qureshi (2023) that focused on digital transformation as a tool for development in Africa indicated that as industries evolve through technological advancements, there is growing recognition of the importance of lifelong learning frameworks that allow individuals to continually update their skills. The study concluded that African countries are rapidly implementing policies that promote adult education and vocational training programs focused on digital skills. This is essential to closing the skills gap and ensuring that people can adapt to changing employment demands in the digital economy.

2.2.3 Increased Competition

The digital transition is mostly driven by competition. On a global scale, competitive pressure is motivating the digital technology efforts. The prevailing climate of intense rivalry and the demand for creativity renders digital transformation crucial for developing distinctive business models (Jahanmir et al., 2020). A research by Liu (2021) looked at the future of banks worldwide and their capacity to stay competitive and examined the effects of the continuing digital transformation affecting bank competitiveness as well as several of the major causes of that change. After reviewing several case studies, the research concluded that a number of the top international banks are intensifying their digital transformation to offer superior, digitally oriented services to customers in order to sustain market dominance.

A study by Schweitzer & Welker (2019) on competition regulation for the technological age focused on the European Union, indicated that components like data privacy laws and competition regulations have created new legal requirements. The authors state that prevailing competition laws demand to be modified in order to successfully safeguard competition in digital environments. They conclude that the expanding demand for legal direction as well as the rise in legal ambiguity may point to a requirement for an alternate form of competition law adaptation for the digital transformation.

2.2.4 Progress in technologies

Modern digital technologies are being developed at an exponential rate, which is causing socioeconomic, industrial, and economic systems to be profoundly transformed, destroyed, or replaced (Skog, 2019). In their study that highlighted the new challenges brought about by digital transformation in Russia, Akaev et al., (2018) indicate that despite the fact that the producer and ultimate user are frequently hundreds of miles apart, new technologies offer many options for quick and immediate trading of services as well as products.

Marsden, C. T. & Brown, I. (2023) in their study analyse the European antitrust-related evidence and policy arguments for and against App market store regulations. The study indicated that the prevalence of prominent app stores has sparked serious antitrust issues on a global scale. These platforms they indicate, frequently behave as gatekeepers, limiting access for a sizable consumer base while enforcing stringent guidelines for app developers.

A study Njagi & Ndavula (2020) that explored the influence of digital technologies on digital transformation in Kenyan industries to ascertain the degree of digital

technology infiltration across the corporation, the research concentrated on the existence and characteristics of the digital technologies used at the firm. The study concluded that digital technologies are proficient digital transformation tools.

2.2.5 Digital transformation and policy change

Governments are increasingly recognizing the need for integrated policies that address the complexities of digital technologies while promoting economic growth, enhancing public service delivery, and ensuring inclusivity. As digital transformation continues to evolve, ongoing research will be essential for informing effective policy responses that harness its benefits while mitigating associated risks. Most of the significant research on innovative digital solutions and policy changes to regulate and support the solutions to build a digital economy have been done by global corporations and development partners whose main agenda is to provide information and guide and inform governments on the need for policy change amid the adjustments the digital economy has made.

A study by Haug et al. (2023) look at how digital technologies affect public administration from research data from Western Europe, Asia and North America. The research finds 164 pertinent instances and offers a theoretical framework that connects small adjustments made to public sector organisations to more significant social transformations. It emphasizes that even though a lot of governments are still striving towards complete digitization, the use of digital technologies has already had a big impact on organizational structures and service delivery, changing public management policies.

The going digital integrated policy framework, created by the OECD, highlights the necessity of a unified strategy to digital transformation policies spanning several

industries. In a study “Going Digital in Latvia”, OECD (2021), the organization examined current trends in the country's digital economy and evaluated digitalization-related policies. The research suggested that in order to successfully negotiate the intricacies of digital transformation, government agencies from different levels and sectors must work together to reform policies., and offered suggestions for improving policy coherence.

In a study by Kim et al. (2020) on scaling up disruptive agricultural technologies in Africa that included a pilot intervention in Kenya, it was reported that the creation of new jobs and increased company competitiveness are two ways that digital transformation can boost economic growth in Africa. The necessity for governments to modify their policies in order to facilitate innovation ecosystems and digital entrepreneurship. Regulatory changes that make it easier for new and small enterprises using technology to obtain funding are among them.

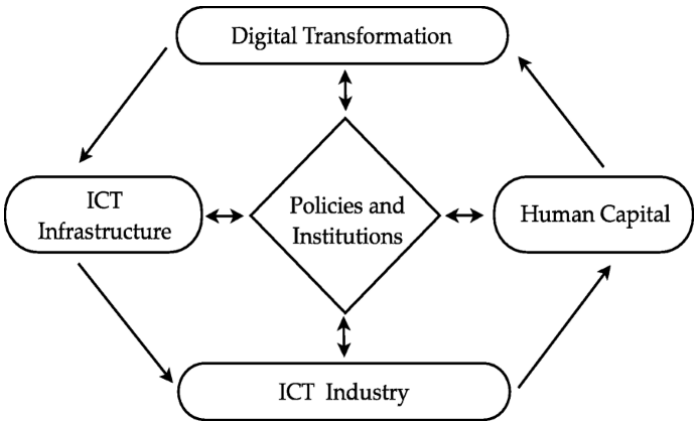
2.4 Theoretical Framework

The theoretical framework offers direction to the researcher with regard to what to examine in the data as well as how to approach the observed data and determine how it fits together. Discussing the results in the context of recognized concepts also aids in making them more understandable (Kivunja, 2018). It enables the researcher to present the results in an analytical, critical and creative way. This study was based on three theories, including; Hanna (2018) Digital Transformation Ecosystem Model, the Verina & Titko (2019) Digital transformation Model and the Hanna (2020) Digital Economy Ecosystem.

2.4.1 Hanna (2018) Digital Transformation Ecosystem Model

This model offers a selection of tools for diagnosis to evaluate the online economy comprehensively. It offers a possibly effective framework for tackling supplementary improvements and expenditures in modern technology networks, expertise, creativity, entrepreneurial endeavor, oversight, regulation, organizations, and management. It illustrates the variety of roles and strategies the state may play in promoting the digital economy. These obligations include supporting a national environment for digital transformation and developing a vibrant, inclusive digital economy. This study relied on this framework because it addresses the digital industry, the foundations—analogue and ddigital, in varied degrees, the acceptance and transformation of government and corporate sectors, and communities. The digital dividends or economic benefit of the digital transformation are produced by these elements and their interplay.

Fig. 2.1 The digital transformation ecosystem



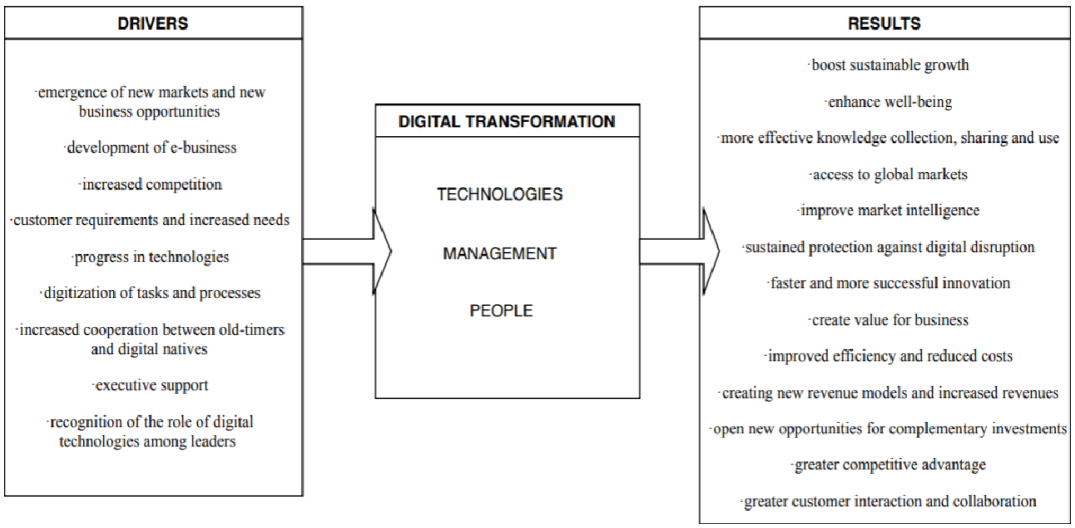
Source Hanna (2018)

2.4.2 Verina & Titko (2019) Digital transformation Model

The researchers developed a condensed conceptual model of digital transformation, concentrating on elements that support its processes while considering its potential

effects on the economy and society. The study's primary goal was to give an extensive overview of the notion of digital transformation, identifying its essential components and classifications. The researchers developed a condensed conceptual model of digital transformation, concentrating on elements that support digital transformation processes as well as possible effects on the economy and the community. The conceptual model is divided into three parts: digital transformation drivers, digital transformation categories, and digital transformation results. The study relies on this model because it outlines the connections between the forces driving digital transformation and the outcomes that may be anticipated from their effective application in terms of technology, management, and personnel.

Fig 2.2 Digital Transformation: Conceptual Framework



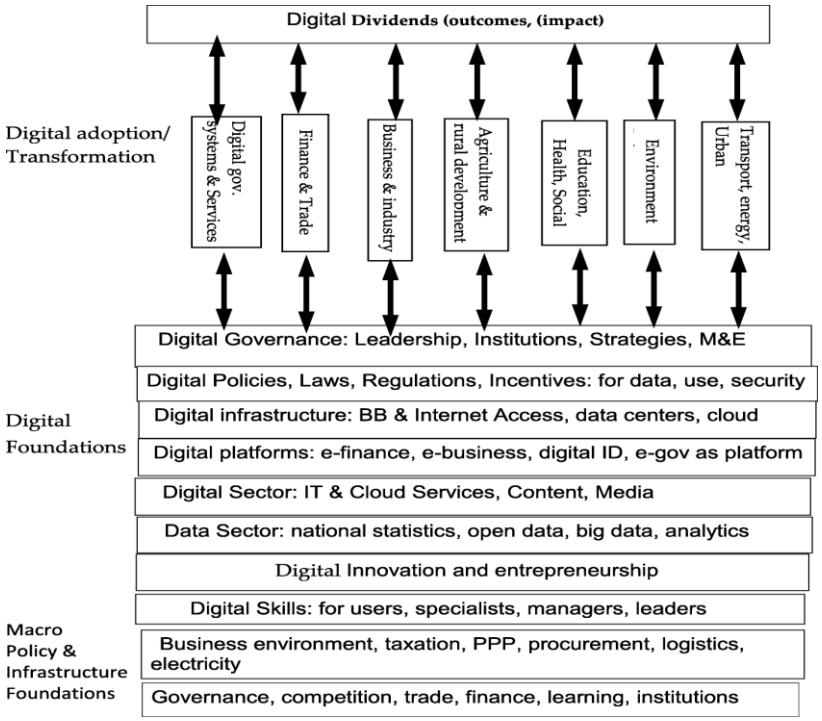
Source Verina & Titko (2019)

2.4.3 Hanna (2020) Digital Economy Ecosystem

This model is an extension of the Hanna (2018) digital economy ecosystem model. The key objective of the study was to look at the drivers behind a comprehensive evaluation of the digital economy. It describes the frameworks, methods, and

procedures used for assessments as well as the difficulties encountered and lessons discovered when using these assessments in various situations. This study relied on this model since it offers a collection of indicators that are used to assess the differential advantages and limitations of the digital economy's underlying structures in addition to the degree to which the digital revolution has permeated a nation's diverse economic sectors.

Fig 2.3 Digital Economy Ecosystem



Source: Hanna (2020)

2.5 Summary of literature review and theoretical framework

Numerous research has been undertaken in this area to highlight the digital revolution and transformation. Most of these studies however are focused on business digital transformation highlighting how businesses are adopting digital tools to change in structure, operations and output. Very few studies focus on digital transformation from a national perspective and what is required to assist governments build an

enabling environment for digital transformation and assist in digital innovation adoption. Digital transformation has been experienced in Kenya over the past few years especially driven by the rapid growth of financial technology. Unfortunately, there has been a gap in policy development to regulate the technology. The goal of this study was to offer more insight into this gap.

The study applied the three models which formed the conceptual framework. The first two theories are the Digital Transformation Ecosystem Model, Hanna (2018, 2020). The models provide a digital transformation framework that outlines the main building blocks of a digital economy. The theories are applicable to the study as they offer relevant digital transformation variables- ICT infrastructure and human capital that affect policy change. The third model is the Digital Transformation Model, Verina & Titko (2019) which explains factors enabling digital transformation processes. The focus of this study was two variables; increased competition and progress in technologies. These theories are constructed into a compound framework that guided the study.

2.6 Conceptual Framework

The study used the following conceptual framework

Figure 2.4 Conceptual Framework

Source: Researcher (2023)

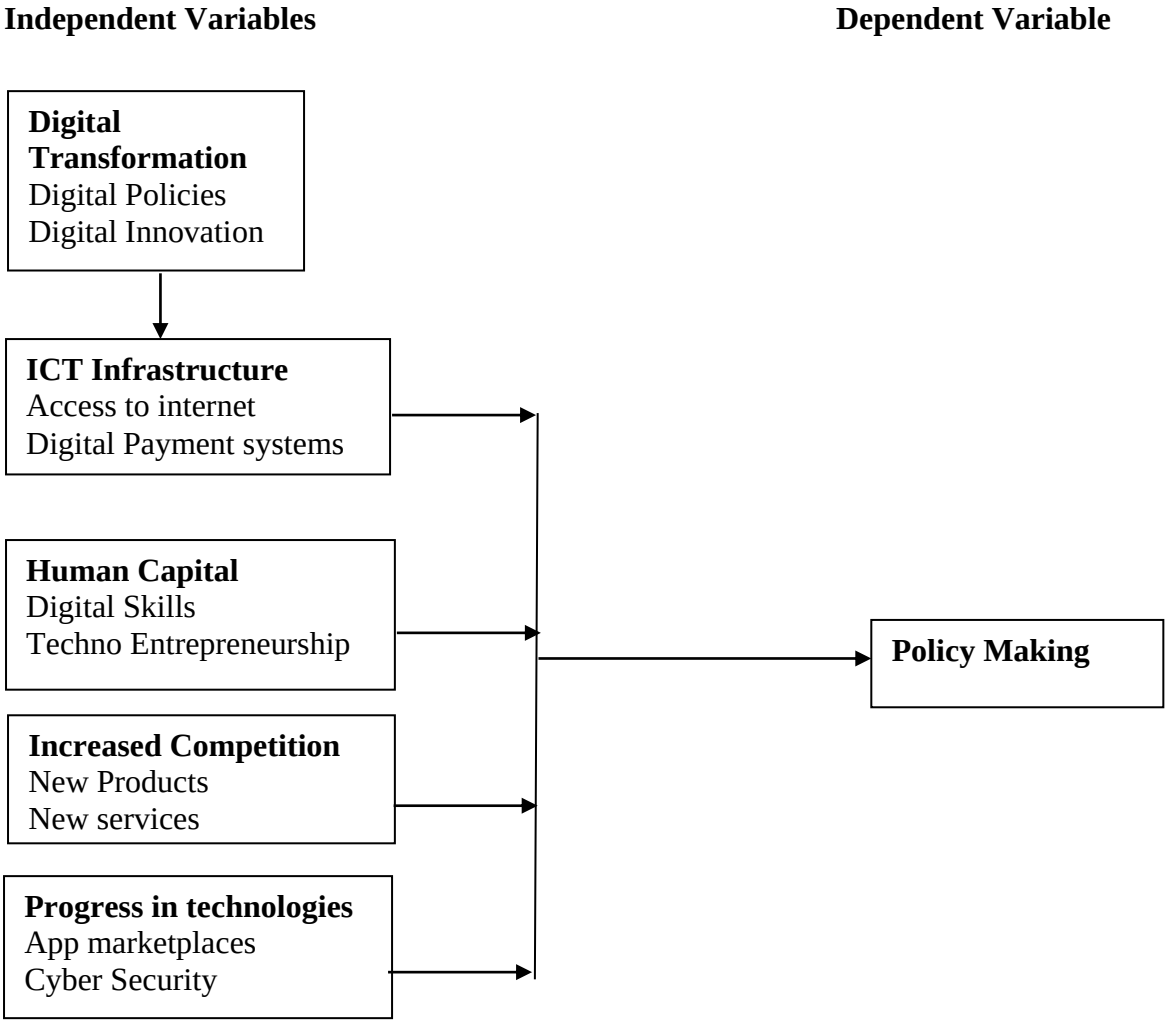


Figure 2.4 shows how the independent and dependent variables are related. The study proposed this model that looks at the drivers of digital transformation; ICT Infrastructure, human capital, increased competition and progress in technologies as the independent variables and their resulting influence on the policy making process. The study sought to find out to what extent enhanced ICT Infrastructure – especially access to internet and digital payment systems is necessary to enable growth of the

digital economy establishing strategic plans and policies for digital transformation. The study also explored the link between human capital and digital transformation. The focus was highlighting on the growth and necessity for digital skills and the growth of technology entrepreneurship. The link between increased competition which has led to new products and services has enhanced digital transformation requiring new policy measures was also an area of interest in this study. The use of new technologies especially App marketplaces and cybersecurity as fundamental elements of digital transformation were measured. The study examined how these components have led to policy change.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

These chapter summaries the research methodology used in the study. The chapter comprises of research design, study variables, target population, sampling design and sample size, data collection instruments, data collection procedure, data analysis and ethical consideration.

3.2 Research design

This research was undertaken using the descriptive research design. The descriptive approach was selected because it offers an accurate depiction or account of the characteristics of a specific individual scenario or group. It is a tool for discovering new meanings and categorizing data. There is no manipulation or control over variables. Rather, they are only recognized, scrutinized, and measured.

3.3 Study Variables

Variables can be specified in terms of quantifiable parameters using a conceptualization method. This research focused on following independent variables; ICT Infrastructure, human capital, increased competition and progress in technologies as the independent variables. The dependent variable in the study was policy making.

3.4 Study Site

A case study of the Association of Fintech members in Kenya in Nairobi County.

3.5 Target Population

The population selected for the study was the current 65 Fintech Startups that are members of the Association.

One of the main objectives of the association is to communicate with the government and regulatory organizations in order to develop favorable policies its member companies.

3.6 Sampling Techniques and Sample Size

The researcher selected 10 of the Fintech companies that are members of the association to take part in the research. The method of sampling that was used to choose the sample was based on the following criteria; (1) the firm selected must an active member of the association (2) The firm selected must have a minimum of two years' operation in the market and (3) the firm should be providing new innovative products.

3.7 Research Instruments

The data required from the research was qualitative and the researcher used interview tool to collect data. Interviews are especially helpful for learning the narrative behind the observations of a participant and gathering comprehensive data about a subject. It is well acknowledged that an in-person interview is an appropriate method for qualitative research to get feedback from individuals (Majid et al., 2017). The interviews include a session where respondents were asked general questions and open-ended questions and their individual replies were recorded.

3.8 Validity and Reliability

A measure's reliability is related to its uniformity. For this research, the accuracy of the interview instrument was critical because the findings of a study were dependent on the information received from the instrument. As for tool dependability, the data are anecdotal and in story form, which may make the analytic portion challenging. To

compare test participants' responses to the study objectives, the researcher conducted a pilot test of the instrument and to test validity and reliability of the instrument.

3.9 Data Collection Procedures

Using data collecting methods, researchers may methodically gather details on the subjects of their studies (people, objects, events), as well as the surroundings in which they take place (Chaleunvong, 2009). In this research, data collected relied on primary and secondary data inputs. The secondary data was acquired from publications such as books, research reports, journals, statistics from the public domain, old records, and material on the subject that has been published. Primary data was collected through interviews with Fintech startups registered at the association of FinTech startups.

The interview guide had four sections. The first section of the interview covered background data about the interviewee, while the subsequent section captured the digital transformation drivers and their role in digital transformation. Part three sort to establish the policy implications by the digital transformation drivers. The last part of the interview sort to provide policy recommendations to support digital innovation adoption in Kenya.

3.10 Data Analysis and Presentation

This study applied the use of both primary and secondary data. The data obtained was reviewed using the content analysis approach. According to Gaur & Kumar, (2018) compared to other research approaches, content analysis provides several methodological benefits that include; It is inconspicuous and largely devoid of either demand biases in researchers or recollection biases in informants.

In this research, the qualitative data gathered from the questions asked was evaluated using thematic content analysis and the results were used to compile a report showing the findings and recommendations.

3.11 Data Management and Ethical Considerations

It is crucial to follow ethical guidelines in order to safeguard the wellbeing, rights, and human decency of research subjects and accuracy data collected. The broad nature of the study methodology makes ethical issues in qualitative investigations more significant. Performing in-person interviews with a group of persons who are vulnerable raises greater ethical questions (Arifin, 2018). The researcher adhered to ethical standards by maintaining the greatest degree of objectivity possible throughout all conversations and analyses in the research. The researcher intends to maintain anonymity of the respondents as requested.

CHAPTER FOUR: RESEARCH FINDINGS

4.0 Introduction

This chapter contains the results of the data analysis and interpretations. The findings are presented, interpreted, and discussed in light of the study objectives, which sought to look at the drivers of digital transformation and their effect on of policy change to facilitate digital innovation adoption. The main focus was on the financial technology industry that has been subject to non-existence policies that have hindered adoption of their innovative solutions. The research intended to interview 10 startups founders that are members of the Association of Fintech startups.

4.1 Response rate

The study's methods for gathering, presenting, and analyzing data were all qualitative. In-depth interviews were used to gather the data. The researcher was able to interview 12 respondents including Ten Fintech startup founders and two Association Management representatives.

4.2 General Information of Startups

The focus of the study was on Startups that were providing digital products or services and had at least two years in operations and were active members of the Associations of Fintech startups since its inception. Table 4.2 below shows the distribution of the respondents based on the three requirements.

Table 4.2 Demographic profiles of startups

Requirement		**Frequency**	**Percentage**
Type of Product/ Service providing	Digital services	10	100%
Number of Years in operation	1-3	4	40%
	4-6	1	10%
	6-10	3	30%

	More than 10 years	2	20%
Number of years as a member of the association	2	10	100%

When asked how the digital economy has affected their work, all the respondents acknowledged that the digital economy has had significant impact on their services. They all indicated that there has been a significant improvement on the products and services and improved access to employees and customers and greater innovation and jobs. Respondent R2 and R4 Responses are illustrated by the quotes below.

"There has been mass education of traditionally underserved groups such as smallholder farmers on the benefits of the digital economy which has in turn increased their propensity to adopt tech-based solutions"

"...Forced improvements in user experience and channel options to reach the digital native customers."

4.3 Findings of the Study Variables

4.3.1 ICT infrastructure Development

In the first objective, the study sought to find out to what extent enhanced ICT Infrastructure – especially access to internet and digital payment systems is necessary to enable growth of the digital economy establishing strategic plans and policies for digital transformation. Interviews with the Fintech startup founders revealed the importance of ICT infrastructure for digital transformation. According to respondent R1 ICT infrastructure forms the foundation for the development of digital products. This was supported by other respondents who indicated that ICT infrastructure allows

of digital distribution and access and helps in reducing operation expenses and expanding customer reach. Respondent R3 Response is illustrated by the quote below.

> "*Ours is a tech-enabled solution that requires hosting, USSD and SMS gateways, mobile money and bank integrations among other infrastructure solutions"*

The results are in concurrence with the work of Mukhametov (2022) that concluded that because it offers a range of technologies for linking and accessing information, the ICT infrastructure is a catalyst for the implementation of information policies that encourage digital economic growth.

When asked whether increased internet access for users supported their work, all the interviewed responded positively. Respondent R2 further added that there was great value that internet access has provided to their services. His response is illustrated by the quote below

> *" There is increased access to affordable smart phones and internet access which has ensured we can reach a wider end user base for our solution"*

More than half of the respondents, 70 percent however indicated that they were not aware of any policy change as a result of increased internet use. 30 percent of the respondents however indicated that they were aware of some policy changes by government with Respondent R2 referencing the laws on data protection. His response is illustrated below

> *"Yes, I can say there are some policy changes, Data protection has been the biggest policy change to affect our business".*

All the respondents confirmed that their work involved digital payments. When asked to identify policy gaps or changes in policy formulation that have been brought about by the increased use of digital payment systems, all the respondents indicated in their response that there are quite a number of policy gaps that hinder use of digital payment products. The data showed that 70 percent of the respondents indicated that the policy gaps were related to slow action by the regulating bodies to match trends in new digital products. Some of the gaps identified include; There need to be improved interoperability and cross-border money transfer and a need for tiered licensing can make it easy for fintech startups to get licensing. 30 percent of the respondents indicated that the government needs to look the data access and emerging products, especially in relation to virtual assets as a form of value exchange which is an emerging area. An explanation provided by respondent R2 is shown in the quote below.

> *"We have different parties interpreting and applying data protection standards in different ways and that affects our access to third party data for example, the Safaricom's recent Data minimization push."*

This result aligns with work by Fu et al. (2021) that concluded that the majority of policy talks needs keep up with emerging technology and concerns related to the digital economy, such as governing and operating digital platforms. The researchers also indicated that a consensus-based policy framework and guidelines are required for regulating digital platforms in the public interest especially in developing counties.

4.3.2 Human capital

The second objective of the study was to explore the link between human capital and digital transformation. The focus was to highlight on the growth and necessity for

digital skills and the growth of technology entrepreneurship. When asked how has the adoption and implementation of digital technology products changed human capital needs, all the respondents indicated that human capital needs have changed in the digital economy. The sighted changes indicated include how the digital economy has improved access to talent with some indicating that they have had to hire or allocate new roles such as a "*Data Protection Officer and anti-money laundering and counter-terrorism financing Officers"* as indicated by respondent R3. The respondents also reported that remote work has increased and the use of Artificial intelligence has reduced human capital costs. There was also an indication that the digital economy has reduced dependency on headcount and had forced people to acquire new skills to remain relevant. The findings by Gabriel et al. (2020) that indicated that it is anticipated that skills will become even more significant as drivers of macroeconomic success support these results. The researcher indicated that the new skills are essential for promoting breakthroughs that are desperately needed, but they also facilitate the uptake, spread, and ongoing advancement of new information and technology.

When asked to identify what new digital skills are required in their work, 80 percent of the respondents highlighted artificial intelligence and machine learning as the key required new skills while 10 percent of the respondents indicated the need for legal and regulatory compliance experts. 10 percent of the respondents however indicated that no new skills were required in their operations. These results concur with Sousa & Rocha (2019) in their research that sought to establish the necessity of skills for an effective digital transformation and found that the primary talents were artificial

intelligence, nanotechnology, robotization, internet of things, augmented reality, and digitalization.

When asked if there are there any new policies required that are required to facilitate these new skills, and their development to ensure that individuals are equipped to produce and use digital products 70 percent of the respondents indicated that they were not aware of any policies. The data also showed that 30 percent of the respondents however indicated that internally, the human resources guidelines have had to change to accommodate the new type of digital expert that demanded a more open-policy environment. Respondent R3 also added in his response that more needed to be done to harness better skills as illustrated by the quote below.

> *"We need regulatory sandboxes, especially within the financial services space this would improve innovation alongside compliance for startups".*

4.3.3 Increased Competition

The third objective sought to determine the link between increased competition which has led to new products and services has enhanced digital transformation requiring new policy measures. All the respondents indicated that the digital transformation in Kenya has resulted in the rapid increase in technology entrepreneurs. The data additionally showed that respondents were aware of existing policy gaps in the support of technology entrepreneurs to implement their solutions and sighted some gaps to include;

"*National funding gaps, Lack of regulatory sandboxes and a startup specific package of concessions, Government Policy support for startups to accelerate easy of doing business, Tiered licensing schemes and Clear frameworks for investing in Tech start-ups*".

When asked to indicate what new products and services have emerged in Kenya as a result of digital transformation, the data showed the most identified products and services to include; Digital legal services, Fintech products riding on mobile money and banking platforms, neo bank for young people, Micro Lending and Buy Now-Pay Later (BNPL) products.

All the respondents also shared the opinion that these new digital products have changed the nature of competition. The responses indicated that new digital products have led to Increased competition, especially between incumbents such as banks and Micro Finance Institutions and have given access to the underserved. More than half of the respondents, 90 percent indicated that they however were not aware if this change in competition has influenced a review of competition policy. Ten percent of the respondents however indicated that they had some knowledge of efforts made by the relevant regulators to address policy gaps. Respondent R2s response is shown in the quote below.

> *Interviewer: Are you aware if the change in competition has influenced a review of competition policy? If yes, how?*
>
> *Respondent R2: 'Yes, Lately, the Competition Authority has been active in reviewing competition guidelines and approving mergers and acquisitions. This is slow but increased digital products are forcing them to pay attention".*

Similar results were found in the study by Liu (2021) who demonstrated that the global competition for bank products has intensified as a result of the digital transformation. Banks dominate the market for digital financial services in high-income economies, while non-banks may be driving change in lower-income ones.

4.3.4 Progress in technologies

The forth objective of the study was to determine whether the use of new technologies especially App marketplaces and cybersecurity as fundamental elements had led to policy change. When asked what specific new technologies have facilitated their work in the development of digital products, the respondents indicated the most common technologies as Computer programming, Open Application Programming Interfaces, Bulk Short Message Services, Unstructured Supplementary Service Data (USSD), Android Technology, Artificial intelligence, and Cloud infrastructure. 90 percent of the respondents indicated that the adoption of these new technologies in their work however has not led to change in current policy that they are aware of. The data showed that 10 percent of the respondents indicated that they were aware of policy change within organization in response to new technologies. Respondent R3 response is illustrated by the quote below.

> *"Not on a national Level but I am aware that there are corporate specific policies based on the platform owner for example data minimization by Safaricom"*

Less than half, 40 percent of the respondents indicated that their product was not listed on an App marketplace with 60 percent indicating that either their products, or products developed for their clients were listed on the marketplace. All the respondents however indicated that they have knowledge of the App marketplaces undergoing effective update of policies and release of a new set of policies to address evolving challenges by the service providers. O'Loughlin et al. (2019) study results also indicated the effort by App Marketplace platform owners to update user policy. The study results however pointed out that although mobile applications have

innovative and promising prospects, they also have serious disadvantages, like inadequate data security and more crucial privacy regulations. Platforms varied greatly in the availability of policies and updated policies by platform providers were not always sufficient.

When asked if the increasing threat of cyberattacks and data breaches has prompted governments to develop and strengthen cybersecurity policies and regulations, 70 percent of the respondents indicated that they were aware of policy action taken by the government citing examples like the new cybersecurity regulations and the establishment of the office of Data Protection. The data indicated that 30 percent of the respondents did not indicate knowledge of active government response to these threats with Respondent R2 highlighting the lack of government action by citing the recent cyber-attacks on government platforms. His response is illustrated in the quote below.

> *Interviewer: "In relation to your work, have the increasing threat of cyberattacks and data breaches prompted governments to develop and strengthen cybersecurity policies and regulations?"*
>
> *Respondent R2: "No, the government has not done enough and this is evident in the recent nationwide data breach by Anonymous Sudan."*

Gagliardone & Sambuli (2015) also concluded that the situation in Kenya demonstrates that, despite their impressive nature, theoretical efforts are insufficient to address the ever-increasing cyber-security risks in the region. Instead, action must be taken to put existing institutions and processes—particularly those within the government—into stronger shape, hire and develop a workforce capable of taking on new challenges.

4.4 Policy gaps and design recommendations

The goal of the research was to determine if the digital transformation drivers had led to change in policy development. The researcher also interviewed two managers of the Association of Fintech startups Management. The purpose of the interviews was to determine the purpose and role of the Association in policy development. Based on the mandate of the association, one of the managers indicated that, has digital transformation changed how policies are developed in Kenya. The respondent indicated that there is more intention in getting government services digitally and the banking sector is adopting faster to digital engagements.

When asked what gaps exist in the formulation of policies to support the development of digital products in Kenya, two of the managers indicated the Involvement of all stakeholders and the costs are high for digital resources the addition of taxation to these digital products also has increased the cost substantially. Fischer et al. (2014),

When asked to identify which digital economy areas have the most policy gaps, the managers selected the top areas as Digital payment systems; Digital skills development; Techno Entrepreneurship support; Competition from new products and services and Cyber Security.

The managers were also asked to identify based on their experience with digital products, which institutions should be responsible for the development of these policies. Their responses indicated that this should be a joint effort between the Fintech companies, Banks, Insurance companies and the regulators. Respondent R11, responded is illustrated in the quote below

> *"…It is the ICT sector and then product specific sectors for example the ministry of Agriculture, or transport. Or Mining, or health and many more"*

When asked if there were any challenges experienced in the development of digital policy, both respondents indicated the major challenge was non-inclusion of the relevant stakeholders in the policy development process. Respondent R12s response is illustrated in the quote below

> *"Yes. The cost of implementing these policies in the ecosystem should be considered from a cost of business and continuity level. Government support to the businesses and public should be a part of the implementation to help is the compliance challenges"*

Fischer et al. (2014) study concur with these sentiments. The study indicated that the feedback and expertise of key interested parties is necessary can be most competently integrated into the creation and adoption of policies. This they noted however, is dependent on variables that create barriers contrary to analyzing the standard of the expert advice, as well as personal options and prejudices of the creators of the stakeholder.

When asked what interventions can policymakers and regulators adopt and rethink their approaches to policy formulation for the digital economy, both managers agreed that collaboration with solution providers was key to better policy. Respondent R11s response if illustrated in the quote below

> *"…They should consider the rails and infrastructure requirement to get the policies effectively adopted. Period of compliance should include much training and getting the buy in for the users"*

When asked how does the association supports in the development of these policies the managers indicated that they actively try to ensure that they are at the forefront of each policy development.

Respondent R12 indicated that

"…We work with the partners by participating in the policy formulation discussions. We participate in panels and other ecosystem platforms to create. Awareness to the public and communities at large."

CHAPTER FIVE: SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter includes the summary of the study's findings, conclusion, and contributions based on the primary goal of the study, in addition to topics proposed for further investigation by future scholars.

5.2 Summary of Findings

This study looked at the digital transition enablers and they gap their influence in the policy change in Kenya. The study had four objectives which were; to determine how digital transformation brought about by development in ICT infrastructure has affected policy change in Kenya; to determine how the change in human capital needs brought about by digital transformation has influenced policy change in Kenya; to determine how increased competition from new digital products and services has influenced policy change in Kenya; and to determine how progress in technologies in the digital economy influences policy change in Kenya. The study focused on four digital transformation drivers as the variables that include; ICT infrastructure development, human capital needs, development of new products and services and progress in technologies.

Results from the study indicate that, for digital solution providers, the digital economy has had a substantial influence on their services. There was an indication of major improvements in products and services, enhanced access to employees and consumers, and more innovation and job opportunities.

The study found that ICT infrastructure development is a key digital transformation driver and has had a significant impact on the development economy and resulted in policy change. It has facilitated the development of innovative digital products and services for both organizations and individuals. The use of mobile services has been significant as it has led to digital payment solutions providing opportunities for service providers to reach a large customer base and tap into dormant markets. With improved ICT infrastructure, there is no boundary in the extent to which services can be provided. Policy development change has been particularly significant in the digital payments infrastructure that has been subject to new regulation regulators. The developed solutions have subsequently led to new policy changes, especially in lending services. It has been indicated that tech-enabled digital solutions will continue to be developed as the infrastructure expands. Policy will have to change to address emerging issues.

The study also showed that human capital needs are also changing as a result of digital transformation. It was indicated that there is a growing need for employees to learn new digital skills and train users to facilitate them to use their products. The definition of work was also indicated to also be changing with human resources now defining new terms of engagement with experts to facilitate hiring and retaining of skills. Employees who do not update their skills as indicated have a risk of being left out of the job market. New skills, that are scarce in the market are also becoming on demand with new job dentitions. There however is little information on the macro policy changes on skills development in the country. Companies have however been identified to be changing their internal human resources policies to suit the trends in

skills requirements. The study also concludes that there is a high demand in skills from emerging technologies especially Artificial Intelligence and machine learning. There has also been an increase in the number of technology entrepreneurs who are taking advantage of the opportunities brought about by available infrastructure to develop products and services. However, support for these entrepreneurs especially to facilitate and regulate investment in digital products is not clear and has not been sufficient to facilitate them to succeed.

The study results indicated that quite a number of products have emerged from the digital economy especially those that are targeted to young people and the unbanked and leverage on mobile technology. These products provide cheaper alternative solutions to already existing services by using digital platforms. The products have been indicated as easy to use, efficient and faster to deploy as compared to legacy products. Information on whether these new products have led to competition policy is not sufficient.

The study also found that digital solutions developers are leveraging similar available new technologies like Open Application Programming Interfaces to develop solutions for the market. The research data indicated that almost all digital service providers have their applications listed on the App marketplace whose policies are regularly updated. The solution developers rely on these policy regulations to guide the development of their products and services. The study indicated that these new technologies have however required new regulations and policies to for regulating the confidentiality of data, and cyber threats. The government was indicated to have taken a small step forward in providing regulation for these threats, especially with data

protection and cyber security laws. The effort by the government, however, was reported not to be enough, and more regulation is required to protect service providers and users.

5.2 Conclusion

Kenya had been indicated to be a leader in digital transformation in Africa. This transformation requires adoption of new technology and development of new digital products and services. The study concluded that ICT infrastructure and technological advancements have had a substantial visible impact on policy change and growth in Kenya. ICT infrastructure, particularly the usage of mobile services and digital payments, allows for the development of new products and services, necessitating new regulations. These new items have also raised competition for legacy products that have long dominated that market. There is little information however to indicate that this rivalry has resulted in changes in competition policy.

Human capital requirements have also altered significantly, with a growing need for digital skills among both service providers and customers. Emerging technologies have resulted in new service patterns, necessitating the creation of new skills and the retraining of staff. The study however concludes that there is limited evidence of national policy changes for skill development in the country. Evidence indicates however that corporations are beginning to recognize this change in skill requirements and organizational human resource strategies are being modified to suit these new skill demands.

The use of available new technologies such as online platforms like App marketplaces is popular among digital service providers. The use of these new technologies has greatly increased but has not been supported by sufficient policies to regulate the use of these new technologies. The government was reported to have made a few attempts to drive legislative reform, but much more needed to be done, particularly to help technology entrepreneurs market their products and services. The state has fallen behind entrepreneurs in the digital technology space.

5.3 Recommendations

The study has shown that the digital transformation in Kenya is rapidly expanding with a number of products and services being available in the market. However, as the products increase, subsequent regulation needs to be put in place to support the implementation of these digital products. The focus of digital services frameworks should not only be on taxation but other elements of service delivery like control of data. The government needs to adopt a faster model of technology adoption in order to facilitate faster policy change. There is a need to include more technology experts in digital policy development. The rise of lobby groups like the Associations of Fintechs in Kenya is necessary to support and government in the development of digital policy. This will help digital entrepreneurs have a significant in the local market. There is a need to define which government institutions are responsible for which policies so that entrepreneurs can now which organizations to approach when they need assistance from regulators. The government regulating bodies also need to share relevant information with technology entrepreneurs to enable them to develop better products and have guidelines within which they can operate.

5.4 Areas for further research

From the research report, it is recommended that similar research be carried out with other technology startup groups and can also focus on other sectors such as Agritech and Health Tech solutions in Kenya. The current research used ICT Infrastructure, human capital, increased competition, and progress in technologies as the determinants of policy design change. It can be duplicated using other digital transformation drivers as variables since the digital transformation space is evolving rapidly in Kenya and globally. More studies on the impact of recent digital products need to be done to provide the relevant data to solution developers.

The study also used qualitative research. It would be good to run the same research using mixed method research.

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APPENDICES

Appendix 1: Interview Guide For Association Of Fintech Startups Members

Consent Declaration:
This study seeks to look at digital transformation drivers and determine their effect on policymaking in Kenya. In order to complete my study, I request your assistance. Please provide open, truthful responses to the questions. The responses provided in this interview will be used purely for academic purposes and the data collected will be treated with utmost confidentiality and will not be shared or used for any other use purpose outside this research.

Date of Interview _____
Name of Interviewee_____

Section I: Information About the Interviewee

1. What is the name of your Startup?
2. What digital product/service do you provide in the market?
3. Number of years you have been in operation?
4. Number of years you have been an active member of the Association of Fintech Startups?

Section II & III: Digital Transformation Drivers and Policy Gaps

1. With reference to your work, what role does ICT infrastructure play in the adoption and implementation of digital technology products?
    a) Has increased internet access for users supported your work? With increased internet use, are you aware of any change in policy that has been required?
    b) Does your work involve the use of digital payments?
    If yes, based on your experience, can you identify any policy gaps or changes in policy formulation that have been brought about by the increased use of digital payment systems?
2. In your opinion, how has the adoption and implementation of digital technology products changed human capital needs?
    a. What new skills are required in your work?
    a) Are there any new policies required that you can identify that are required to facilitate these new skills, and their development to ensure that individuals are equipped to produce and use digital products?
    b) Would you say that digital transformation in Kenya has resulted in the rapid increase of technology entrepreneurs?
    Do you consider yourself a technology entrepreneur?
    c) In your experience, what are the existing policy gaps in the support of technology entrepreneurs?
3. With reference to your work, what new products and services have emerged in Kenya as a result of digital transformation?
        a) In your experience how have these new products changed the nature of competition?

b) Are you aware if this change in competition has influenced a review of competition policy? If yes, how?

4. In your opinion what specific new technologies have facilitated your work in the development of digital products?
   a) Has the adoption of these new technologies in your work affected current policies? If yes, give examples.
   b) Is your product listed on an App marketplace?
      If yes,
      In your experience have App marketplaces undergone policy changes to address evolving challenges?
   c) In relation to your work, have the increasing threat of cyberattacks and data breaches prompted governments to develop and strengthen cybersecurity policies and regulations? If yes, how? Or give examples?
5. What has been your experience on how digital economy has affected your work/your payment/the government systems?

Appendix II: Interview Guide for Association of Fintech Startups Management

Consent Declaration:
This study seeks to look at digital transformation drivers and determine their effect on policymaking in Kenya. In order to complete my study, I request your assistance. Please provide open, truthful responses to the questions. The responses provided in this interview will be used purely for academic purposes and the data collected will be treated with utmost confidentiality and will not be shared or used for any other use purpose outside this research.

Date of Interview _____
Name of Interviewee_____

Section I: Information about the interviewee

1. Brief description of the Association?
2. What is your role in the association?

Section II Policy Recommendations for The Digital Innovation

1. With reference to your mandate as an association, has digital transformation changed how policies are developed in Kenya?
   If yes,
   -in what ways has this change occurred?
2. In your opinion, what gaps exist in the formulation of policies to support the development of digital products in Kenya?
3. Which areas would you say have the most policy gaps?
   - Access to the internet
   - Digital payment systems
   - Digital skills development
   - Techno Entrepreneurship support
   - Competition from new products and services
   - App marketplaces
   - Cyber Security
4. Based on your experience with digital products, which institutions would you indicate should be responsible for the development of these policies?
5. In your opinion, are there any challenges you have identified in the development of digital policy?
6. What interventions can policymakers and regulators adopt and rethink their approaches to policy formulation for the digital economy?
7. How does your association support in the development of these policies?

Appendix III: Introduction Letter

To: The Chairperson
Association of Fintechs in Kenya
3rd Floor, Utumishi House
Mamlaka Road, Nairobi, Kenya
P.O. Box 21605-00505
Nairobi

Dear Sir,

REQUEST FOR PARTICIPATION IN RESEARCH STUDY

I am a student pursuing a course in Masters of Arts in Public Policy and Administration at Kenyatta University. I am undertaking research on **"Digital transformation drivers and their effect on policy-making in Kenya"**.

It is my experience that the rapid digital transformation in Kenya has changed not only the way we develop and implement policy but has also left gaps in the development of policies for digital solutions. The fintech industry in Kenya has been highly affected due to the rapid growth of solutions.

Based on the experience of tech entrepreneurs who are operating in a new environment that requires new policy and regulation development, I would like to interview the Startup founders who are members of your Association on their experience. I also take note that your Association has played an active role in lobbying for better digital policy in Kenya and would appreciate your feedback on the same.

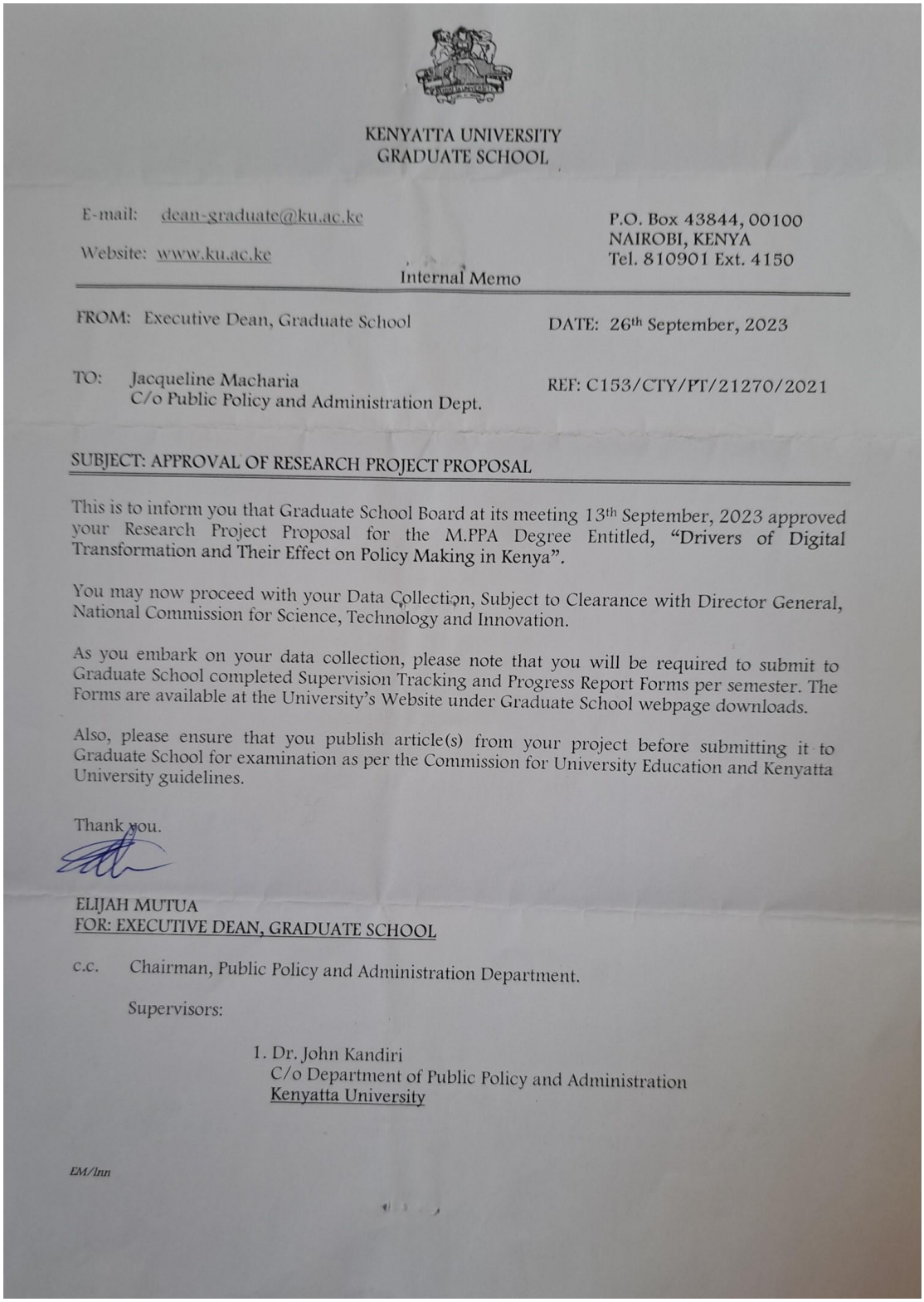
The study is expected to contribute towards better support in streamlining associated implementation policies and procedures by assisting policymakers in understanding the elements that lead to rapid digital transformation and how to tackle them. I, therefore, request your support in this research.
Throughout the research process, confidentiality will be strictly maintained. The interviews can be done online at the convenience of the members.

Your response is highly appreciated

Yours Sincerely,

Jacqueline Macharia
Email: Jamasha@gmail.com

Appendix IV: Research Approval Letter



KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 810901 Ext. 4150

Internal Memo

FROM: Executive Dean, Graduate School

DATE: 26th September, 2023

TO: Jacqueline Macharia
C/o Public Policy and Administration Dept.

REF: C153/CTY/PT/21270/2021

SUBJECT: APPROVAL OF RESEARCH PROJECT PROPOSAL

This is to inform you that Graduate School Board at its meeting 13th September, 2023 approved your Research Project Proposal for the M.PPA Degree Entitled, "Drivers of Digital Transformation and Their Effect on Policy Making in Kenya".

You may now proceed with your Data Collection, Subject to Clearance with Director General, National Commission for Science, Technology and Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking and Progress Report Forms per semester. The Forms are available at the University's Website under Graduate School webpage downloads.

Also, please ensure that you publish article(s) from your project before submitting it to Graduate School for examination as per the Commission for University Education and Kenyatta University guidelines.

Thank you.

ELIJAH MUTUA
FOR: EXECUTIVE DEAN, GRADUATE SCHOOL

c.c. Chairman, Public Policy and Administration Department.

Supervisors:

1. Dr. John Kandiri
C/o Department of Public Policy and Administration
Kenyatta University

EM/lnn

Appendix V: Research Authorization Letter

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 43844, 00100
NAIROBI, KENYA
Tel. 8710901 Ext. 57530

Our Ref: C153/CTY/PT/21270/2021

DATE: 26th September, 2023

Director General,
National Commission for Science, Technology
and Innovation
P.O. Box 30623-00100
NAIROBI

Dear Sir/Madam,

RE: RESEARCH AUTHORIZATION FOR JACQUELINE MACHARIA – REG. NO. C153/CTY/PT/21270/2021

I write to introduce Jacqueline Macharia who is a Postgraduate Student of this University. The student is registered for M.PPA degree programme in the Department of Public Policy and Administration.

Jacqueline intends to conduct research for a M.PPA Project Proposal entitled "Drivers of Digital Transformation and Their Effect on Policy Making in Kenya".

Any assistance given will be highly appreciated.

Yours faithfully,

PROF. ELISHIBA KIMANI
EXECUTIVE DEAN, GRADUATE SCHOOL

EM/lnn