

**DIGITALIZATION AND OPERATIONAL PERFORMANCE OF
INSURANCE FIRMS IN KENYA**

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DECLARATION

This research project is my original work and has not been presented for the award of any diploma or degree in any university.

Signed:



Date: 30th November 2023

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D68/10575/2018

This research project has been submitted for examination with my approval as the University supervisor.

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DEDICATION

I have some special people who have been at the Centre of my life and have filled me with so much joy, hope and love.

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ABBREVIATIONS AND ACRONYMS

AKI	Association of Kenya Insurers
IRA	Insurance Regulatory Authority
OP	Operational Performance
RBV	Resource Based View
SC	Supply Chain
SCM	Supply Chain Management
TAM	Technology Acceptance Model
TOC	Theory of Constraints

ABSTRACT

Digitalization has transformed firms and helped them attain higher levels of competitive advantage due to enhanced service delivery and reduction of waste and operation related costs. This study was aimed at determining the extent of implementation of digitalization and the effect that digitalization has on operational performance of insurance firms in Kenya. This study was anchored on the technology acceptance theory and the resource-based theory. A cross-sectional descriptive research design involving all the 61 insurance firms that were operating in Kenya was used. Operations Managers in the different insurance firms in Kenya were the respondents of the study. In the first objective, descriptive statistics were used to establish the extent of digitalization in the insurance firms. Multiple regression analysis was used for the second objective to determine the relationship between digitalization and operational performance of insurance firms in Kenya. The research findings indicated that insurance firms in Kenya have implemented digitalization in their operations to a moderate extent. Moreover, there was a positive correlation between implementation of digitalization and operational performance of insurance firms in Kenya. From the results, 84.2% of operational performance for the insurance firms in Kenya is attributable to digitalization of policy administration and procurement functions. However, four aspects namely claims, underwriting, peer to peer and customer on boarding were found not to be significant in the relationship. This may be attributed to lack of appropriate systems to facilitate full automation of the business processes. Since the study was restricted to insurance companies, there is need for a similar study in other industries.

Key words; *Digitalization, operational performance, insurance firms in Kenya*

CHAPTER ONE : INTRODUCTION

1.1 Background of the Study

During the past two decades, digitalization has grown tremendously in day-to-day life from a concept seen as one that is futuristic to one that has much power to transform ways of doing things and has reshaped everything (Weill & Woerner, 2015). There has been a rise in modern technologies over the years like use of artificial intelligence, big data and use of robots which has increased the levels of digitalization in the world (Bughin & Schwab, 2017). Despite all this, firms need to manage their resources well in order to achieve high levels of performance and competitiveness. To achieve this, firms need to understand the current trends in the environment and the impact of such mega trends. It is important that firms utilize the innovative technologies and understand the impact it has on performance. Digitalization has a major impact on the ways that firms serve their customers. For example, implementation of digitalization of a firm's operation helps improve the way it offers services and minimizes on costs (Weill & Woerner, 2018).

This research used both the theory of constraints (TOC) formulated by Goldratt (1984) and the technology acceptance model (TAM) developed by Davis (1989). The theory of constraints asserts that managers should meticulously identify existing constraints within these systems and take corrective measures to enhance overall performance. The use of both the theory of constraints and the technology acceptance model was aimed to offer a comprehensive understanding of organizational processes, addressing both systemic constraints and the factors influencing technology acceptance. Adoption of modern technology through digitalization may lead to growth which will be tailor- made to suit each firm differently as per the circumstances under which each insurance company operates (IRA, 2018). Competition in the market, dynamics in the external environment, ever changing customer needs have led to increase in investment in technology in the insurance industry. Loss of sales through fraud, expensive insurance claims, high manual and unstandardized processes, long cycle times in underwriting of claims have led to the need for digitalization of insurance firms (Karr, 2012).

1.1.1. Digitalization

Digitalization entails leveraging digital technologies and digitized data which helps improve and leverage processes. Digitalization facilitates development of new products, upgrading of products and production methods, processes and systems that are a requirement in market adaptation, technologies and models of competition which captures value in these processes (Bultum, 2014). The process of transforming existing products or services into digital variants that create immense benefits is what is termed as digitalization (Schildt, 2017).

Digitalization helps in the improvement of productivity levels, reduces transaction costs, and leads to higher levels of flexibility and lower lead times in the order placements and delivery of goods (Rouse, 2016). It has improved connections that have helped in the reconfigurations of the manner in which products and services are designed for example: production processes, distribution processes in the supply chain and outsourcing strategies adopted by firms (Hildebrandt, Handelt, & Kolbe, 2015). There are various forms of digitalization in firms; however, the major forms of digitalization in the insurance industry include the use of e-procurement, e-claims management, e-customer onboarding, e- underwriting, onboarding of e-policy administration and e-peer review.

1.1.2 Operational Performance

It is a measure that helps ascertain how effective and efficient the firm's daily operations are undertaken to achieve set goals and objectives (Chan, 2005). How timely goods are delivered, aspects of productivity, and the rate at which firms respond to varying customer needs in terms of flexibility are the major ways operational performance is measured. According to Schoenher (2012), operational performance evaluates timeliness in deliveries of goods by the firm, the rate at which the firm is able to respond to varying customer needs by having flexible processes, how productive it is and how lean it is in its operations. To measure operational performance key indicators like the costs, the level of productivity, the speed, how flexible the firm is and quality are used.

In insurance firms, operational performance measurement include the use of the average costs per claim and the expenses incurred in the processing of a claim (Elliot, 2015). Time as a measure helps in ascertaining the number of days an underwriter takes to process a policy application from

the time the insurance application form is filled by the customer and submitted to an underwriter to when a decision is made. There is order cycle time as another measure of operational performance in insurance firms which entails the length of time it takes for a firm to settle insurance claims for each policy that a firm offers. This measure is important for customer retention because it becomes more favorable whenever the cycle time is shorter and hence services are delivered timely to customers. Reliability is also a measure of operational performance in insurance industry. Reliability in insurance industry entails the ability of an insurance company to pay claims on time and consistently over time. It entails the level at which an insurance firm can be in a position to meet varying customer needs (Karr, 2012). In relation to digitalization, measures such as reliability of the form of digitalization adopted, the cost associated with digitalization of insurance processes and the duration involved in the carrying out of various transactions will be evaluated.

1.1.3 Insurance Firms in Kenya

Insurance is the transfer of uncertain risks to an insurance company against possible loss. There are different types of insurance companies in Kenya; namely general insurance companies, long term insurance companies and composite insurance firms which offer both general and long-term insurance services. Insurance Regulatory Authority (IRA) is the body with responsibility of governing all insurance firms in Kenya. The IRA is tasked with standardization, offering guidance and development of insurance industry. The insurance industry is represented by The Association of Kenya Insurers (AKI), which emphasizes on regular education on corporate governance and to better the operations of the Kenya's insurance industry. There are 61 insurance companies in Kenya (Association of Kenya Insurers, 2022). There are two major insurance products; life assurance and general insurance under which there are products like health policies, education policies, benevolent policies, car insurance, and property insurance among others.

The insurance industry has over the years embraced the use of information technology, research and innovation to increase the capacity (AKI report, 2018). With modern technology, it has made expansion of insurance services to all parts of the country and even beyond the borders (Muthuiya, 2004). Over the years, the contribution of the insurance industry to the economy has been immense through job creation, income from many insurance policies taken by citizens and protection of

people from losses and risks. However, despite this increase, the insurance firms are faced with various challenges in their operations: fraud is the major challenge faced by insurance firms followed by high competition that has resulted in reduction in prices charged for the services (AKI report, 2019). Hence there is need for transparency in their operations, efficiency in operations to achieve improved performance (Sosinky, 2011). Insurance firms are important due to their roles in the provision of covers and insurance services. Digitalization is key in improvement of the efficiency of insurance services. This is the driving force in ascertaining the scope of digitalization of implementation in Kenyan insurance companies and the effect it imposes on operational performance.

1.2 Problem Statement

Despite the widespread shift to digitalized service provision observed in many firms, the full adoption of these digital methods is hindered by various constraints like limited resources, resistance to change among others (Grance, 2011). The positive impact of digitalization on overall business performance is acknowledged; however, it is noteworthy that there exists a research gap in empirically exploring the intricate relationship between digitalization and key operational performance factors. Understanding how the adoption of digital methods directly influences operational efficiency, resource utilization, and other operational dimensions remains an area that warrants deeper investigation (Levallet, 2018).

Insurance companies in Kenya are adversely affected by the dynamics that exists in the external business environment. Over the years, there has been a surge in terms of new entrants in the industry, a combination of high competition and a very dynamic external environment has affected the insurance industry adversely. Operations in the insurance companies in Kenya is highly constrained by various challenges they face (Kiarie, 2018). In the face of resource constraints and a highly competitive insurance market, there is need for implementation of digitalization to enhance service quality.

Previously many studies have been undertaken on digitalization both locally and internationally. Globally, Agboola, Awobanjo, Akinbonde and Ugunwa (2019) researched on the impact that digitalization has on banks performance in Nigeria. The study used both purposive and simple random sampling method. The outcome was small correlation between digitalization and banks

performance. Martin, Lopez and Garrizo (2020) in their research on what effect servitization and digitalization have on performance focusing on Spanish manufacturing firms. While acknowledging certain limitations in their research such as the exclusive use of Spanish firms in the sampling frame, the researcher viewed this contrast as an opportunity. Our study focused on Insurance firms in Kenya thus expanding the scope and relevance of the findings. Hallikas, Immonen and Brax (2021) researched on digitalization of procurement and the relation between data analytics and performance in supply chain. Their approach specifically centered on the digitalization of procurement, examining how data analytics within this domain influences overall supply chain performance. Locally, Katua (2019) researched on the effect of digitalization of tax administration on compliance by SME's in Nairobi. The results indicated that digitalization of tax administration had a positive impact on tax compliance of SME's in Nairobi though the study only focused mostly on SMEs in Nairobi and the effect of digitalization on tax administration. In contrast, the existing research focused on the outcome of digitalization on operational performance of Kenyan insurance firms.

From the studies carried out previously, there was no clarity on the correlation between digitalization and operational performance of insurance firms. The research therefore was aimed to fill this gap by answering these research questions: To what extent has digitalization been implemented in insurance firms in Kenya? What is the effect of digitalization on operational performance (OP) of insurance firms in Kenya?

1.3 The Study Objectives

1.3.1 General Objective

To establish the relationship between digitalization and operational performance of insurance firms in Kenya.

1.3.2 Specific Objectives

- I. To establish the scope in which digitalization has been applied by insurance companies in Kenya
- II. To establish the correlation between digitalization and operational performance of insurance firms in Kenya.

1.4 Value of the Study

Insurance firms will find this study of importance in identifying the activities that can be digitalized and as a result achieve improved firm's productivity. This study will help a firm in recognizing to what extent digitalization in insurance firms has been implemented and how this affects operational performance. They will improve their operations by investing more resources in digitalization of their services. Besides, they will benefit from knowledge on the impact that digitalization implementation has on OP.

The policy makers will use the results of this study in understanding the role that digitalization has on operational performance. Besides they will understand challenges faced in the implementation of digitalization in insurance firms. Results from this study will be used by the policy makers in the various insurance firms in developing policies that will make it important to adopt digitalization in their processes enhance timeliness in delivery of service, the level of flexibility given and general performance.

Scholars and other future researchers will use the results to build their literature review from the results of this study. They will be in a position to identify the research gaps that exists in this study and help better fill the research gaps by doing more research.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

In chapter two, theories correlated to the research, an in depth literature review on the study, operational performance and factors affecting implementation of digitalization in insurance firms are outlined.

Furthermore, a detailed presentation of the conceptual model is provided, elucidating the key elements and their interconnections within the context of the study.

2.1 Theoretical Literature Review

This study will be guided by Theory of costs (TOC) and Technology acceptance model. In order to understand it better, the most relevant theory is the TOC because adoption of digitalization helps facilitate the firm's ability to minimize on constraints in the systems that causes delays in the procurement process. These theories are as discussed below:

2.1.1 Theory of Constraints

Goldratt developed theory of Constraints (TOC) in the year 1984. The TOC ascertains that for a firm to improve its performance, there is need to focus on the impeding weak points in its system. To survive in the global markets, firms need to ensure that much emphasis is put on getting to understand their structures and processes Goldratt (1984). Based on the TOC, processes tend to be looked at as being rings of the same chain rather than being independent yet more emphasis should be put on the bottlenecks that occur in the firm and what correlation exists between them. A bottleneck exists in any firm and they are the major reason why a firm's system is unable to get to the desired levels of performance (Goldratt, 1990)

The TOC underlines the rationale that is behind digitalization on the concept of looking at a firm as a system. There is need for top management to ensure that they evaluate where the various problems that cause losses emerge from and then find solutions to those problems. Digitalization facilitates a firms' ability to solve the existing problems in the supply chain that cause bottlenecks that causes delays, losses, lack of customer satisfaction, poor quality of goods and poor overall performance. Implementation of TOC helps firms use digitalization to eliminate the existing constraints that are in the supply chain and get improved systems and performance.

2.1.2 Technology Acceptance Model

Technology acceptance Model introduced by Davis (1986), states that new users of technology perceive how new technology is in terms of its usefulness and its adaptability and this affects the manner and level of its acceptance in the firm. This theory helps in the measurement of the difference that exists between Perceived Usefulness (PU) and perceived ease of use (PEOU). This is based on the thoughts and belief one has on the use of a new technology whereby one perceives that by using a new technology, they can better the operations of the firm and overall performance (Lule, Omwansa & Waema, 2012). Perceived ease of use (PEOU) entails a perception put across by new technology users believing that when they use the new technology, they are in a position to use lesser efforts in working. It helps in the assessment of how easy the new technology is used and whether it's use will help in the supporting of not only short term goals but also long term goals of a firm (Lim & Ting, 2012).

In relation to the current study, this theory is used in exploring the general attitudes individuals have towards adoption of technology (Lule, 2012). It explains why a firm may accept or reject a certain new technology or digitalization as a whole. It is used in evaluating the probability that firms and individuals may receive some specific innovation (Mojtahed, Nunes & Peng, 2011). TAM helps in explaining digitalization in insurance firms in Kenya through clarifications on what variations exists behaviors displayed by consumers especially in the use of relate digital insurance services (Lim & Ting, 2012).

2.3 Digitalization in the Insurance Industry

Digitalization entails improvement and enhancement of processes by use of digital innovations and technologies (Gassman, 2016). There are various types of digitalization in various firms. However, the forms of digitalization in the insurance industry include:

2.3.1 E-Customer Onboarding

E- Customer Onboarding entails use of set websites with insurance applications that help facilitate logging in by customers whenever they need to make claims, check the status of their policies or any other application on insurance platform (Mell, 2011). This platform helps ease up the process of policy applications by customers since they can access various policy documents, upload various documents and view their applications online. This has helped cut on use of paper work

and facilitated reduced time in application of policies or accessing customer information (Leroy, 2018). There are more customer insights through the connection that exists between insurance systems, data and people, brokers. By so doing the rate at which applications are carried out improves and this results to creation of a holistic view of their clients hence resulting in provision of tailored services and communications that pave way to creation of long term relations between the partners (Marinescu, 2018).

2.3.2 E-Underwriting

E- Underwriting is one the most crucial and important insurance process, which to a large extent depends on customer information and historical data. The system stores contract details from clients thus facilitating effective risk management (Kimming, 2020). Based on the length of time that has elapsed, insurance firms tend to keep such information in disparate systems. Users need to check such data in instances that they need to ascertain whether they can receive a policy or not policy (Urback, 2016). Use of e-underwriting helps facilitate the firm's ability to get access to information about clients from long periods of time. It facilitates storage of information in one database which can be easily accessed by clients hence speeding up and improving the level of efficiency in issuing of policies (Lundek, 2018).

2.3.3 E-Claims

E-Claims entails making of claims on policies held by insurance holder on various policies. It needs much information and hence there is need for adequate data that is valuable which is to be sought from the resources available at that time and in the long run use it for improving the customer experience (Marinescu, 2018).

By adopting digital process and connecting firm's systems, it helps in the streamlining of the workflows, helps in the processing of claims more efficiently and help in the deployment of automation capabilities which improves a team's productivity customer satisfaction (Shin, 2007). Besides digitalization of claims helps in detection of fraud and provides transparency and secure view of data that cuts on profitability of the insurance's revenue (Statista, 2019).

2.3.4 E-Policy Administration

E- Policy Administration is the core to the insurance digitalization since it acts as a system of record for core processes (Eling &Lehmann, 2018). It entails use predictive analytics and machine

learning in the insurance system which helps minimize on risks incurred in real-time. It helps firms be compliant to regulations despite challenges experienced in trucking all moving parts within the administration process in policy implementation. Through policy administration automation, the firm is in a position to record all the risks encountered and data used. Besides it facilitates compliance to the internal and external policy guidelines together with regulations (Leroy, 2018). Large volumes of data that are complex in nature can easily be analyzed very fast through automation in policy administration which improves the number of decisions across firms (Sedkaoui, 2018).

2.3.5 E-Procurement

E-procurement is the process of using modern technology in the purchasing of goods and services from pre-qualified suppliers (Egbu, 2003). It entails prequalification of suppliers, sourcing, negotiation, ordering, receipt, and post-purchase review of goods and services through use of modern ICT (Croom & Brandon-Jones, 2004). Here all goods are ordered and procured to the final customer through the system and approvals for payments and documentation is done through the system. E-procurement helps curb the poor services, costly procedures, lack of flexibility, long procedures and time consuming characteristics of the traditional purchasing.

2.3.6 E-Peer Review

E – Peer review is a very important component of the underwriting process, which previously was carried out face to face. Based on this approach, there was a big challenge in the auditing since there was no evidence of compliance from the insurance parties. This makes it a challenge even to the regulators who have to continuously scrutinize insurance claims (Hall, 2017). Automation of a workflow helps in minimization of the time spent in the process of peer review since they avoid cross-checking documents across numerous separate databases and systems. There is promptness, transparency and timely decisions since there is an automatic email sent to all the users spelling out any tasks that might have not been completed. With this, the management is in position to work on cases and have a review of those that are pending and those that need immediate action (Eling & Lehmann, 2018).

2.4 Digitalization and Operational Performance

Implementation of technology in procurement and thus e-procurement altogether helps in the integration of procurement functions that creates interfaces that facilitate fast and cost friendly execution of all the procurement processes (Manrodt et al., 2005). The rate at which transactions are done is usually speeded up by automating processes used by a firm, (Egbu, Vines & Tookey, 2000). Implementation of modern technologies like big data in insurance facilitates access to a large pool of data. Besides the system is able to collect and carry out analysis of large pool of information (Lehmann 2018; Kotalakidis, 2016). According to Owadally (2019), use of modern technology facilitates faster claims process that in the end improves the level of performance operations of the firm (Eling & Lehmann 2018).

Digitalization of the claim processes minimizes costs involved in the processing of claims hence better performance of the firm. In addition, the time taken in processing a claim is reduced greatly. By digitalization of the claims management process, the refund payments to the customers are to a larger extent hastened. Adoption of modern technologies like block chains minimizes the time spent in data entry and new customer's verifications is reduced and the costs incurred too are minimal. Digitalization of insurance processes helps in accurate underwriting processes, which eases the purchasing process by customers and truck speed at which policies grow (Venkatesh, 2019). Besides there is higher competitive advantage of the firm due to easy availability of data and faster creation of claims. Digitalization helps improve the speed of processing claims, computations information storage. The insurance firms are in a position to maintain proper documentation of all claims. According to Heo and Grable (2017), through use of apps on mobile phones, the processing times for claims is cut immensely. It helps minimize on fraud, minimize on costs and improve operational performance.

2.5 Empirical Literature Review

Digitalization and performance correlated positively as observed by Michelle (2016) in her study in banking industry in Kenya by ascertaining how performance of the banks was affected by having financial digitalization, established that implementation of digitalization resulted to improved performance. Questionnaires were the data collection tool from a population of forty-three banks.

The study used descriptive statistics in the research methodology. The study however used a small population that could no longer be used to draw conclusions about the banking sector.

Hin and Ho, (2021) researched on how firm's overall firm performance was affected by adopting digitalization. The research implemented exploratory research design. The results indicated implementing digitalization had a positive effect on performance. Agboola, Awobanjo, Akinbonde and Ugunwa (2019) researched on the impact that digitalization has on banks' performance in Nigeria. The research results digitalization and operational performance in the banks were positively correlated. Data was collected by use of questionnaires. The study however, used purposive sampling method that cannot be used to make inferences.

While studies by Hallikas, Immonen and Brax (2021) who researched on digitalization of procurement and what impact it had on SC performance. Where SC performance was improved by digitalization of procurement function to a small extent. Besides this study was on digitalization of procurement function alone. Martin, Lopez and Garrizo (2020) while studying impact of digitalization on SC performance in Spanish manufacturing firms established that there was little impact on performance through servitization and digitization in Spanish manufacturing firms. A number of studies were done on digitalization and the role it has on performance. However, the findings have been contradictory and thus indicating a number of knowledge gaps

2.6 Conceptual Framework

Digitalization is regarded as the independent variable that is operationalized by e-customer onboarding/registration, e-underwriting, e-claims management, and e-policy administration, e-procurement and e-peer review. The dependent variable is operational performance where reliability, cost and speed/time are the variables used for measurement of operational performance. This is as shown in figure 2.1 below:

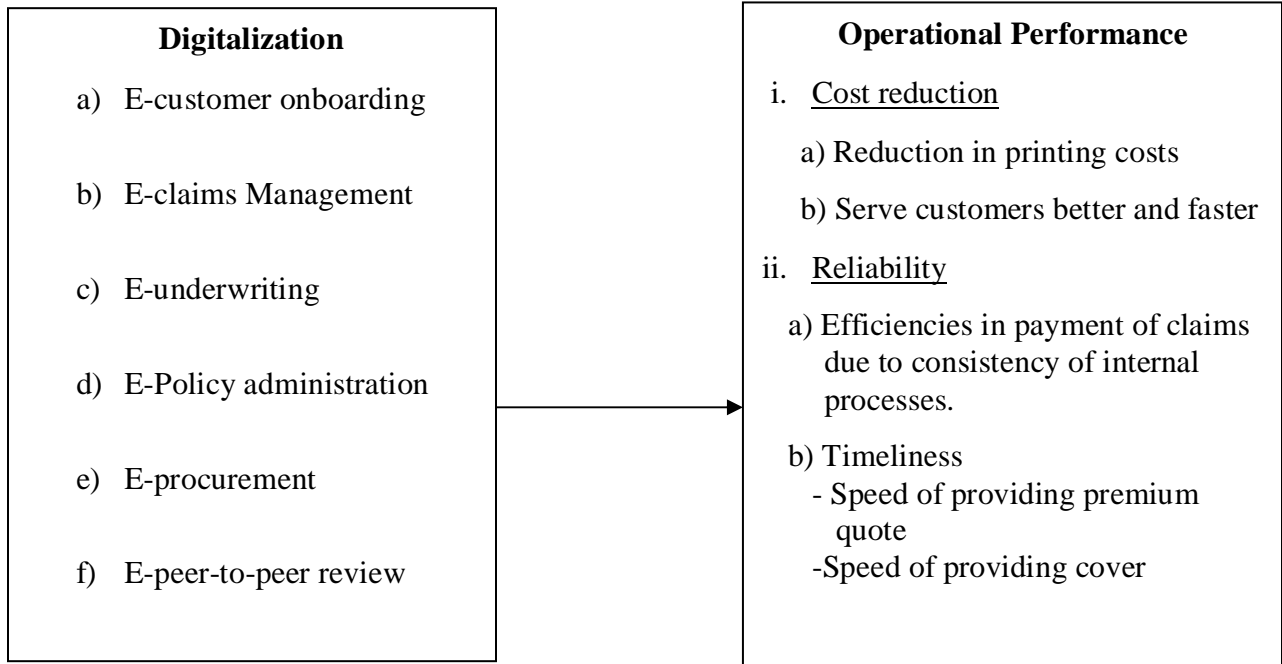
Figure 2.1: Conceptual Model

Independent Variable

Dependent Variable

Digitalization

Operational performance



CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The methodology used in the research is defined. Top on the list is the study design followed by a discussion of the population and then data collection methods. The chapter ends with a presentation of techniques of data analysis.

3.2 Research Design

This study implemented a cross-sectional descriptive research structure. Cross sectional analysis entailed collection of data at a specific point in time (Cooper & Schindler, 2006). This methodology was well suited for the research as it helped in data collection to explore the relationship that exists between the study concepts. The main aim of descriptive study structure is to give data on features of a population (Mugenda & Mugenda, 2003)

3.3 Population of the Study

The study population comprised of sixty-one (61) insurance firms that had been licensed and were operating in Kenya in 2023. As the study population was moderately insignificant, a survey was done. A list of the insurance firms in Kenya is provided in Appendix B.

3.4 Data Collection

Questionnaire was used to collect the primary data for the study that was administered electronically to one respondent in each of the firms. The questionnaire was administered to the Operations Managers or their equivalent in the various insurance firms. The questionnaire had structured sections. Background information and the extent of implementing digitalization in insurance firms in Kenya was in the first part whereas the effects of digitalization on OP in insurance firms was in the second and last part.

3.5 Data Analysis

Before embarking on data analysis, data coding was systematically undertaken on the collected data. The analysis of data was carried out through regression analysis and descriptive statistics. Descriptive data was used in analyzing the data collected on objective one which aimed to assess the extent of digitalization in insurance firms. For the second object, regression analysis was

implemented to institute the correlation between digitalization and operational performance of insurance firms in Kenya.

The regression equation:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \epsilon \text{ Where:}$$

Y= Operational performance

X1= E-customer onboarding

X2= E-claims

X3= E-Underwriting

X4=E-Policy administration

X5=E-Procurement

X6=E-Peer to peer review

ϵ=error term

CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND INTERPRETATION

4.1 Introduction

The chapter outlines the findings of the research regarding the relationship between digitalization and operational performance of insurance firms in Kenya.

4.1.1. Response Rate

Out of a total of 61 questionnaires that were administered, 57 were dully filled resulting to a 93% response rate. Mugenda and Mugenda (2003) noted that the response rate of greater than 70% is very good.

4.2 Respondents' Demographic

4.2.1 Distribution of the Respondents by Gender

Table 4.1 results shows that 63% of respondents were male, 33% were female and 4% did not provide this information. Thus, there was representation of both male and female participants in the research.

Table 4.1 Distribution of Respondents by Gender

Gender	Frequency	Percent
Male	36	63
Female	19	33
Not indicated	2	4
Total	57	100

Survey Data, 2023

4.2.2 Distribution of Respondents by Age

The study outcome summarized in Table 4.2, all the respondents was above 25 years, 32% were between 26-30 years of age, 42% were between 31-35 years while 26% were above 40 years. Thus, the respondents were able to understand and give feedback to the survey questions accordingly.

Table 4.2: Distribution of Respondents by Age

Age	Frequency	Percent
Below 25 years	-	0
26-30 years	18	32
31-35 years	24	42
Above 40 years	15	26
Total	57	100

Survey Data, 2023

4.2.3 Distribution of Respondents by Education

Table 4.3 outcome shows that 4% of the participants were holders of certificate education, 82% were undergraduates, 14% had master’s level. This educational diversity illustrates that the staff employed by the insurance firms in Kenya are expected to be knowledgeable and should have expertise of their firm's operations and service delivery thus playing a crucial role in obtaining reliable survey data.

Based on education level, the responses are as illustrated below:

Table 4.3: Distribution of Respondents by Education

Highest Education Level	Frequency	Percent
Certificate	2	4
Undergraduate level	47	82
Master’s level	8	14
Total	57	100

Survey Data, 2023

4.3 Extent of implementation of Digitalization

In order to establish the extent to which digitalization was implemented by insurance firms in Kenya, cross-sectional descriptive statistics was used on all the digitalization variables like the e-claims, e-underwriting, e-policy administration, e-procurement, e-customer onboarding and e-peer-peer review. The study participants were asked to show their agreement or disagreement level on the level to which digitalization has been implemented by insurance firms in Kenya. A scale of 1-5 where 1-very small extent, 2-small extent, 3-moderate extent, 4-large extent and 5-very large extent was adopted. The results were analysed using mean and standard deviations as shown in Table 4.4.

Table 4.4 Extent of Digitalization

	Independent variables	Mean	SD
1	E-claims		
	Customers are in position to lodge claims through an online system	2.90	1.36
	In our firm, evaluation of insurance claims is automated	2.90	1.27
	The firm processes customer payments using digital platforms like electronic funds transfers and mobile money payments	4.10	1.21
	Mean	3.30	1.28
2	E-underwriting		
	Analysis of insurance applicant's information is undertaken by an automated system.	2.79	1.41
	Acceptance of insurance business is made by use of an ICT system	1.41	1.47
	Mean	2.10	1.44
3	E-policy administration		
	The policy administration process is automated	3.38	1.34
	The company keeps all insurance core processes digitally for easy future references or retrieval	3.50	1.24
	Customers are able to access their statements, policy documents by use of USSD	2.64	1.43

	Independent variables	Mean	SD
	Mean	3.17	1.34
4	E-procurement		
	The company undertakes prequalification of suppliers electronically	3.02	1.22
	The company prepares purchase documentation electronically by use of an automated system	2.81	1.18
	The company has automated procurement process and procedures	2.83	1.17
	Mean	2.89	1.99
5	E-peer to peer		
	The firm has automated peer to peer review in underwriting of insurance policies	2.81	1.19
	The firm has automated all underwriting and reviews processes	3.02	1.12
	It is easy to audit the firms' policies due to availability of information online	2.95	1.23
	The firm has automated workflow processes	3.14	1.16
	Mean	2.98	1.18
6	E-customer on-boarding		
	In our firm, customers make insurance applications through the use of online forms	3.05	1.21
	The firm has a website/Portal where customers can log in to apply for the required policy	3.41	1.52
	Customer are enabled to upload their application forms through website and mobile applications	2.98	1.22
	The firm is able to receive premium payments through the digital platforms like electronic bank transfers and mobile money	4.29	0.92
	The firm has a system of sending policy document to customers	3.55	1.38
	Mean	3.46	1.25

	Independent variables	Mean	SD
	Overall mean	3.07	1.20

Survey Data, 2023

Table 4.4 results show that the activities carried out in the insurance firms in Kenya have been digitalized moderately with an overall mean of 3.07 and standard deviation of 0.30.

E-customer on boarding is the most digitalized aspect in the insurance industry with an overall mean score of 3.46 and standard deviation of 0.22. The respondents indicated that in their firms, customers made insurance applications through the use of online forms as shown by a mean of 3.05 and standard deviation of 1.21. Also moderately, the respondents agreed that their firms had a website/Portal where customers logged in to apply for the required policy as shown by a mean score of 3.41 and standard deviation of 1.52. The respondents also indicated that their customers were enabled to upload their application forms through website and mobile applications as shown by a mean of 2.98 and standard deviation of 1.22. To a large extent, the respondents indicated that the firms were able to receive premium payments through the digital platforms like electronic bank transfers and mobile money as supported by Mean of 4.29 and standard deviation of 0.92. To a large extent as well, the respondents showed that their firms had a system of sending policy documents to their customers as shown by the mean of 3.55 and standard deviation of 1.38.

Ranking number two in the level of digitalization was E-claims where respondents indicated that customers are in position to lodge claims through an online system to a moderate extent (m =2.90, SD=1.36). To a moderate extent, the respondents also indicated that the evaluation of insurance claims was automated (m =2.90, SD=1.27). To a large extent, the respondents also indicated that their firms process customer payments using digital platforms like electronic funds transfers and mobile money payments as supported by a mean of 4.10 and standard deviation of 1.21. This is the second best digitalized aspect with an overall mean score of 3.30 and standard deviation of 1.28.

On E-procurement, the study also showed that to a moderate extent, the respondents agreed that their companies undertook prequalification of suppliers electronically with a mean response of

3.02 and a standard deviation of 1.22. To a moderate extent, the respondents also agreed that the company prepared purchase documentation electronically by use of an automated system (m =2.81, SD=1.18). To a moderate extent, the respondents also agreed that the company had automated procurement process and procedures as supported by a mean of 2.83 and a standard deviation of 1.17. This variable was the second least digitalized among all the six variables with an overall mean score of 2.89 and standard deviation of 0.03.

The least digitalized was on E-underwriting, where the respondents agreed that the analysis of insurance applicant's information is undertaken by an automated system. (m =2.79, SD=1.41). To a very small extent, the respondents agreed that acceptance of insurance business was made by use of an ICT system (m =1.41, SD=1.47). To a moderate extent, the respondents also agreed that the policy administration process was automated (m =3.38, SD=1.34). On the same note, to a large extent, the company kept all insurance core processes digitally for easy future references or retrieval as supported by a mean of 3.50 and standard deviation of 1.24. To a moderate extent, customers were able to access their statements, policy documents by use of USSD as supported by a mean of 2.64 and standard deviation of 1.43.

4.4 Effect of Digitalization on Operational Performance

To create the correlation between digitalization and Operational Performance of insurance firms, multiple regression analysis was used and the results are as follows.

4.4.1 Regression Model

To institute the effects of digitalization on operational performance of the insurance companies in Kenya, Multiple regression analysis was carried out. The model summary is shown in Table 4.5.

Table 4.5 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.927 ^a	0.859	0.842	0.191

Survey Data, 2023

a. Dependent Variable: Operational performance

b. Predictors: E-claims, e-underwriting, e-policy administration, e-procurement e-peer to peer review e-customer on-boarding.

The relationship between digitalization and operational performance is supported by R squared value of 0.842 indicating that 84.2% of the variations in operational performance can be attributed by the variation in the independent variables which are e-policy administration, e-procurement. The remaining unexplained variation is approximately 15.8% which is a representation of those variables which were not in the model or happen by pure chance occurrences or factors. From the results in the model summary, e-procurement and e-policy administration emerged as statistically significant variables for elucidating the impact of digitalization on operational performance within the insurance firms in Kenya.

4.4.2 Regression Coefficients

Table 4.6 Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t.	Sig.
Constant	4.558	0.251		18.182	0.000
E-claims	0.078	0.050	0.117	1.552	0.127
E-underwriting	0.084	0.056	0.143	1.483	0.144
E-policy administration	0.177	0.045	0.364	3.945	0.000
E-procurement	0.202	0.034	0.586	5.978	0.000
E-peer to peer review	0.009	0.040	0.013	0.230	0.819
E-customer on-boarding	0.003	0.049	0.005	0.060	0.952

Survey Data, 2023

a. Dependent Variable: Operational performance

b. Predictors: E-claims, e-underwriting, e-policy administration, e-procurement e-peer to peer review e-customer on-boarding.

$$Y = 4.558 + 0.177X_3 + 0.202X_4 + \epsilon$$

A parameter is statistically significant if $t > 1.96$ or if $p < 0.05$ or 5%. Therefore, as per Table 4.6 on the basis of significance criteria reveals the following:

E-policy administration (X_3) and operational performance are statistically significant ($t=3.945$, $p=0.000$). Hence an implementation of e-policy administration will result to a related increase in the operational performance by 3.945.

E-procurement (X_4) is also statistically significant ($t=5.978$, $p=0.000$) thus an implementation of e-procurement results to a related increase in the operational performance by 5.978.

All parameters (X_3 and X_4) are therefore statistically significant to operational performance.

Analysis of Variance (ANOVA)

Table 4.7 Analysis of Variance (ANOVA)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	11.155	6	1.859	50.862	.000 ^b
	Residual	1.828	50	0.037		
	Total	12.982	56			

Survey Data, 2023

a. Dependent Variable: Operational performance

b. Predictors: e-claims, e-underwriting, e-policy administration, e-procurement e-peer to peer review e-customer on-boarding

From the results, a p value of 0.000 shows the model was generally significant being less than 5%. Hence the independent variables are suitable predictors of operational performance. The results of the second objective ascertained that there existed a positive correlation between digitalization and operational performance. The overall model used was significant from the p-value of 0.000 sought

in the results and thus concluding that from the regression analysis results, there is a positive correlation between digitalization and operational performance in insurance firms in Kenya.

4.5 Discussion of Findings

The aim of the research was to establish the scope in which Kenyan insurance companies have implemented digitalization. The study further determined the correlation between digitalization and operational performance of Kenyan insurance firms. The study outcomes established that there was a favorable and substantial correlation between e-policy administration and operational performance in the insurance firms in Kenya ($t= 3.945$, $p=0.000<0.05$). Also, e-procurement was statistically significant ($t=5.978$, $p=0.000<0.05$).

The findings of this research are consistent with the conclusions drawn in the earlier study by Hin and Ho (2021), which suggested a positive impact of digitalization implementation on performance. The researcher's findings also agree with Murrey (2016) who concluded that technology adoption in form of digitalization enhances customer satisfaction, repeat purchase of products and services thus transforming the customer experiences positively.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Introduction

The main aim of the research was to institute the magnitude of digitalization in insurance companies in Kenya and the consequence of digitalization on operational performance of Kenyan insurance companies.

5.2 Summary

The aim of the study was to determine the degree of implementation of digitalization and the effect that digitalization has on operational performance of Kenyan insurance firms. This study was anchored on the technology acceptance theory and the resource-based theory. A cross-sectional descriptive research design involving all the 61 insurance firms that were operating in Kenya was used.

On the first objective, insurance firms were found to have adopted digitalization moderately having a standard deviation of 1.20 and mean of 3.07. E-customer on-boarding was the most digitalized aspect in the insurance industry with an overall mean score of 3.46, e-claims was the next most digitalized in the industry scoring a mean of 3.30 while the least digitalized aspect was e-underwriting with a mean score of 2.10. On the second objective, both e-procurement ($t=5.978$, $p=0.000$) and e-policy administration ($t=3.945$, $p=0.000$) were statistically significant meaning that firms that had digitalized policy administration and procurement had registered a favorable correlation between operational performance and digitalization which was found to be positive for both e-procurement and e-policy administration.

5.3 Conclusion

In regards to the outcome of the study, it is therefore established that digitalization is the way to go if the insurance firms in Kenya must reap the operational performance benefits. Implementation of digitalization by insurance firms helps achieve improved levels of performance in a big way. The adoption of digitalization helps firms in the attainment of high levels of cost savings in their operations due to improved efficiency in operations, transparency in operations, low costs of maintenance, lower costs of transportation and inventory management, lowered costs in packaging and enhanced value of commodities in the organisation. Firms have

incorporated digitalization in their operations and this has facilitated the attainment of favorable performance levels.

Conclusively, the insurance firms in Kenya have adopted digitalization to a moderate extent where the insurance firms have created user-friendly and technologically advanced front-end interface but have failed to fully automate or streamline the processes back-end thus creating a delay in turnaround time among others.

There is need for top management support, more training of the staff and availing of adequate resources in the attainment of the full effect of the implementation of digitalization. There is need for top management to offer training and support to the other employees in the focal firm to attain higher performance of their firms with the use of digitalization. The firm needs to ensure that the various stakeholders inside the firm work towards ensuring that they counter any challenges likely to be faced like resistance to change by employees. The level of performance affected by digitalization was high hence there is need for collaborations based on technological ecosystems in order to attain high reliability, improved quality of goods and general performance of the firm.

5.4 Practice and Policy Recommendations

From the outcome of the study, 84.2% of operational performance was affected by digitalization and therefore, there is need for adequate training by those insurance firms that have not implemented digitalization to the fullest. In order to implement digitalization better, there is need to get top management support and avail adequate resources for the implementation to attain better operational performance from the implementation of digitalization.

Implementation of digitalization to a large extent needs adequate resources and this should be facilitated by the management of the respective insurance firms in Kenya. This can also be facilitated by close and adequate collaborations with relevant stakeholders to achieve the best out of digitalization. Digitalization should be incorporated in the organizational framework so that the firms can achieve the best out of digitalization. There is high regulation of the insurance companies thus there should be a striking balance between fostering innovation and protecting consumer interests.

5.5 Study Limitations

There were a lot of shortcomings that deterred information access for the study. The approached participants were unwilling to give the required information in view of the Data Protection Act, 2019 in place. To solve the shortcoming, the participants were assured that the data will be anonymous and will be handled with lot of confidentiality through presenting a University introduction letter that stated the purpose of data as academic

5.6 Further Research Suggestions

The research revolved around Kenyan insurance firms thus providing valuable insights into the impact of digitalization on their operational performance. By incorporating all facets of the financial services sector including banking, investment, and other financial institutions will provide a holistic perspective. This expansion will not only enhance the depth of the study but also offer a more understanding of the interplay between digitalization and operational performance across the entire financial services sector landscape.

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APPENDICES:

Appendix A: Research Questionnaire

This questionnaire seeks to collect data on the digitalization and operation performance of insurance firms in Kenya. Kindly fill in the questionnaire. Any information availed will be treated with utmost confidentiality and shall be used for academic purposes only. Your identity shall not be revealed.

SECTION A: GENERAL INFORMATION

1. Gender:

Male () Female ()

2. Your age bracket

Below years 25 years () 26-30 years () 31-35 years () above 40years ()

3. Highest level of education

Certificate () diploma () First degree () Masters Level () PHD ()

4. How long has the business been in operation?

1-5 years () 6-10 years () 11-15 years () 16-20 years () above 20years ()

SECTION B: EXTENT OF IMPLEMENTATION OF DIGITALIZATION (Tick where appropriately)

To what extent has Digitalization been implemented in your firm? Kindly indicate on a scale of 1 to 5 where:

Key: (1) very small extent (2) Small Extent (3) Moderate Extent (4) Great Extent (5) Very great Extent

Digitalization		Scores				
		Very small extent	Small Extent	Moderate Extent	Great Extent	Very great extent
E-customer onboarding						
1	In our firm, customers make insurance applications through the use of online forms					
2	The firm has a website/Portal where customers can log in to apply for the required policy					
3	Customer are enabled to upload their application forms through website and mobile applications					
4	The firm is able to receive premium payments through the digital platforms like electronic bank transfers and mobile money					
5	The firm has a system of sending policy document to customers					
E-Under writing						
6	Analysis of insurance applicant's information is undertaken by an automated system.					

7	Acceptance of insurance business is made by use of an ICT system					
E-claims management						
8	Customers are in position to lodge claims through an online system					
9	In our firm, evaluation of insurance claims is automated					
10	The firm processes customer payments using digital platforms like electronic funds transfers and mobile money payments					
E-Policy administration						
11	The policy administration process is automated					
12	The company keeps all insurance core processes digitally for easy future references or retrieval					
13	Customers are able to access their statements, policy documents by use of USSD					
E-procurement						
14	The company undertakes prequalification of suppliers electronically					
15	The company prepares purchase documentation electronically by use of an automated system					
16	The company has automated procurement process and procedures					
E-Peer to peer review						
17	The firm has automated peer to peer review in underwriting of insurance policies					

18	The firm has automated all underwriting and reviews processes					
19	It is easy to audit the firms' policies due to availability of information online					
20	The firm has automated workflow processes					

SECTION C: OPERATIONAL PERFORMANCE (Tick where appropriately)

To what extent has digitalization affected operational performance in insurance firms? Kindly indicate on a scale of 1 to 5 where:

Key: (1) very small extent (2) Small Extent (3) Moderate Extent (4) Great Extent (5) Very great Extent

Operational Performance Indicators	Scores				
	Very small extent	Small Extent	Moderate Extent	Great Extent	Very great extent
The company incurs fraud related costs					
The company has experienced reduced costs from digitalized underwriting processes					
Digitalized Claims function has seen reduction in costs related to compensation processes.					
Standardization of company policies has been achieved through digitalization of insurance processes.					
Company expenditure on printing and related stationary has reduced due to digitalization of insurance processes.					
Claims settlement turnaround time has improved due to digitalization of claims processes					

There has been an improvement in the Underwriting processes turnaround time due to digitalization.					
The claims cycle in the standard operating procedure has shortened due to digitalization of the processes.					

Appendix B: List of Insurance Firms In Kenya

- 1 CIC Life Assurance Limited
- 2 Direct line Assurance Company Limited
- 3 GA Insurance Limited
- 4 Kenya Orient Insurance Limited
- 5 Kenya Orient Life Assurance Limited
- 6 ABSA Life Assurance Kenya Limited
- 7 APA Insurance Limited
- 8 APA Life Assurance Company Limited
- 9 Britam General Insurance Company (K) Limited
- 10 Britam Life Assurance Company (K) Limited
- 11 Capex Life Assurance Company Limited
- 12 CIC General Insurance Limited
- 13 Corporate Insurance Company Limited
- 14 Fidelity Shield Insurance Company Limited
- 15 First Assurance Company Limited
- 16 GA Life Assurance Limited
- 17 Geminia Insurance Company Limited
- 18 Geminia Life Insurance Company Limited
- 19 ICEA LION General Insurance Company Limited
- 20 ICEA LION Life Assurance Company Limited
- 21 Intra Africa Assurance Company Limited
- 22 Invesco Assurance Company Limited
- 23 Jubilee Allianz General Insurance (K) Limited
- 24 Jubilee Health Insurance Limited
- 25 Jubilee Life Insurance Limited
- 26 Kenindia Assurance Company Limited
- 27 Kuscco Mutual Assurance Limited
- 28 Liberty Life Assurance Kenya Limited
- 29 Madison General Insurance Kenya Limited
- 30 Madison Life Assurance Kenya Limited
- 31 Mayfair Insurance Company Limited
- 32 Metropolitan Cannon General Insurance Company Limited
- 33 Pacis Insurance Company Limited
- 34 Pioneer Assurance Company Limited
- 35 Pioneer General Insurance Limited
- 36 Prudential Life Assurance Kenya Limited
- 37 Resolution Insurance Company Limited
- 38 Sanlam General Insurance Company Limited

- 39 Sanlam Life Insurance Limited
- 40 Takaful Insurance of Africa Limited
- 41 Tausi Assurance Company Limited
- 42 AAR Insurance Company Limited
- 43 Africa Merchant Assurance Company Limited
- 44 AIG Kenya Insurance Company Limited
- 45 Allianz Insurance Company of Kenya Limited
- 46 Continental Reinsurance Limited
- 47 East Africa Reinsurance Company Limited
- 48 Kenya Reinsurance Corporation Limited
- 49 Metropolitan Cannon Life Assurance Limited
- 50 MUA Insurance (Kenya) Limited
- 51 Occidental Insurance Company Limited
- 52 Old Mutual Life Assurance Limited
- 53 Takaful Insurance of Africa Limited
- 54 Tausi Assurance Company Limited
- 55 The Heritage Insurance Company Limited
- 56 The Kenyan Alliance Insurance Company Limited
- 57 The Monarch Insurance Company Limited
- 58 Trident Insurance Company Limited
- 59 UAP Insurance Company Limited
- 60 UAP Life Assurance Company Limited
- 61 Xplico Insurance Company Limited

Source: (Association of Kenya Insurers, 2022)

Appendix C: Data Collection Letter



UNIVERSITY OF NAIROBI
FACULTY OF BUSINESS AND MANAGEMENT SCIENCES
OFFICE OF THE DEAN

Telegram: "Varsity",
Telephone: 020 491 0000
VOIP: 9087/9008
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Email: fbm-graduatestudents@unbi.ac.ke
Website: business.unbi.ac.ke

Our Ref: D88/10575/2018

July 19, 2023

TO WHOM IT MAY CONCERN

INTRODUCTION LETTER- FLAVIA NAGGAYI

The above named is a registered Master of Science (Operations and Technology Management) student at the Faculty of Business and Management Sciences, University of Nairobi. She is conducting research on "Digitalization and Operational Performance of Insurance Firms in Kenya"

The purpose of this letter is to kindly request you to assist and facilitate the student with necessary data which forms an integral part of the thesis.

The information and data required is needed for academic purposes only and will be treated in **Strict-Confidence**.

Your co-operation will be highly appreciated.



Prof. Florence Mulndi
Ag. Associate Dean, Graduate Business Studies & Research
Faculty of Business and Management Sciences

FM/ep

Appendix D: Research License

 REPUBLIC OF KENYA	 NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
Ref No: 976736	Date of Issue: 26/September/2023
RESEARCH LICENSE	
	
<p>This is to Certify that Miss. Flavia Ngunyi of University of Nairobi, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2015 (Rev.2014) in Nairobi on the topic: DIGITALIZATION AND OPERATIONAL PERFORMANCE OF INSURANCE FIRMS IN KENYA for the period ending : 26/September/2024.</p>	
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