

**INNOVATIONS AND THE PERFORMANCE OF FINANCIAL TECHNOLOGY
COMPANIES IN KENYA**

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**A Research Project Submitted to the Graduate School in Partial Fulfillment of the
Requirements for the Master of Business Administration Degree of Egerton
University**

EGERTON UNIVERSITY

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DECLARATION AND RECOMMENDATION

Student Declaration

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

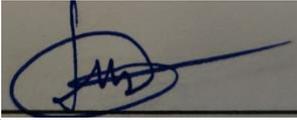
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Supervisor Declaration

This research project has been submitted with my approval as the University Supervisor.

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DEDICATION

This project is dedicated to my beloved parents Naftal Nyantika Nyamao and Hellen Gesare Nyamao who have been a source of encouragement and continued motivation in my pursuit of higher studies. I also dedicate the project to my dear wife Lucky Moraa and children Jessie Miyogo, Kate Mwangi, Tatyana Kwamboka and Naftal Nyamao who have stood by my side even as I put in long hours to make this a reality. Last but not least, I dedicate this project to my siblings Geoffrey Ombaso, Samuel Nyachwaya and Rose Magoma, we are a team and have always challenged each other to keep going up.

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ABSTRACT

Innovations have continued to be the driving force of organizational performance of companies operating globally and locally. The general objective of the study was to determine the effect of innovations on the performance of financial technology companies in Kenya. The study also sought to establish the effect of process innovation on performance of financial technology companies in Kenya; determine the effect of product innovation on performance of financial technology companies in Kenya; and determine the joint effect of product innovation and process innovation on performance of financial technology companies in Kenya. The study adopted an explanatory research design to determine the problem under investigation. Target population of the study was the financial technology companies that are license by the Central Bank of Kenya to operate in Kenya. Because the population is small, a census was conducted in this study. The questionnaire was the primary tool in data collection. Validity of the research instrument was determined by using industry experts like lecturers and experienced employees working with financial institutions while reliability of the research instrument was tested using Cronbach's Alpha that stipulates that items of the instrument are deemed to be reliable if they meet the threshold or reliability coefficients of more than 0.7. Reliability was achieved by conducting a pilot study. Data was analyzed using inferential statistics such as simple regression and multiple regression. Descriptive statistics were used to summarize and characterize variables which were gathered from the administered questionnaires. Simple and multiple regression analysis were used to find out the effect between variables of the study. Regression analysis was conducted at 0.05% significance level. The analyzed data was presented using tables. The study found that there is a positive relationship between the implementation of process innovations and the performance of financial technology companies in Kenya. The study also revealed that there is a positive and significant relationship between implementation of product innovations and the performance of financial technology companies in Kenya. The findings of the study also indicated that product and process innovations jointly are a key determinant of the performance of the financial technology companies in Kenya. The study concluded that process and product innovations have a significant effect on the performance of the companies. The study recommends that financial technology companies in Kenya should embrace and implement process and product innovations in order to drive their performance and also grow their market share and also improve their performance.

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LIST OF ABBREVIATIONS AND ACRONYMS

AI:	Artificial Intelligence
ANOVA:	Analysis of Variance
ATMS:	Automated Teller Machines
CBK:	Central Bank of Kenya
CEO :	Chief Executive Officer
CICD:	Continuous Integration Continuous Deployment
CRMS:	Customer Relationship Management System
FINTECH:	Financial Technology
GRM:	Global Reference Model
IMF:	International Monetary Fund
IT :	Information Technology
NACOSTI:	National Commission for Science, Technology and Innovation
PSP :	Payment Service Provider
R & D :	Research and Development
SI :	Strategic Innovations
SPSS :	Statistical Package of Social Sciences

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Innovation is a strategic tool that can be used to align the firm's resources and capabilities with opportunities in the external and internal environment in order to enhance survival and ensure long term success of the organization (Adam et al., 2014). One of the ways an organization can secure itself from surprises in the marketplace and equally improve on its productivity while staying relevant to its customers is through innovations.

Innovation is critical for firms that are in pursuit of improved performance and their reward is often an increase in their profits and their market share (Palmer & Kaplan, 2007). The motivating factors that stimulate innovation in organizations is due to constant changes in demographics globally that lead to a combination of three variables that are who, what and how that strategic innovators need to consider as they innovate. Innovation will relate to products, processes, markets and the organization as a whole. This will entail new products, new processes of production, new sources of supply, new markets and new ways in which the businesses carry out their various activities. There are four different types of innovations; production innovation, process innovation, marketing innovation and organizational innovation (OECD, 2005).

With the unpredictable, dynamic and turbulent business environment, companies have opted to strategically innovate their products, processes and markets in order to enhance efficiency and effectiveness (Hitt et al., 2012). Innovation is regarded as the application of ideas that are new and useful in organizational activities. The ability of workers to improve existing products, services and develop new products can result to enhanced organizational performance. The spirit of innovation in any organization is reflected in organization offerings such as a product, service, process or experience (Hayes et al., 2010). Enhancing the innovative ability in organizations is one of the most important levers to increasing profitability and growth in organizations (Dobni, 2010).

Firm's performance is the appraisal of prescribed indicators or standards of effectiveness, efficiency, and environmental accountability such as productivity, cycle time, regulatory compliance and waste reduction. Performance also refers to the metrics regarding how a certain request is handled, or the act of doing something effectively; of performing; using knowledge as

notable from just possessing it. Firm performance is the result of all of the organization's operations and strategies (Venkatraman & Ramanujam, 2001).

Financial technology is an industry composed of companies that use new technology, designs and innovations with available resources in order to compete in the market place of traditional financial institutions and intermediaries in the provision of financial services. Financial technology companies consist of both startups and established financial and technology companies trying to replace or enhance the usage of financial services of incumbent companies.

Daft (2010) suggested that organizational performance is the ability of an organization to utilize its resources to achieve organizational goals in effective and efficient way. According to Federico and Magdalena (2011), performance can be defined as the way the organization carries its objectives into effect. In order to measure organizational performance, it can be seen from two perspectives, either financial or non-financial performance. Dimensions of financial performance can range from profitability, market value and also growth of organization. While, satisfaction of customer, employee satisfaction, innovation, quality and reputation are some aspects to measure non-financial performance of a company (Davidson, 2011).

Norton and Kaplan (2010) asserted that performance management is commonly used today to describe a range of managerial activities designed to monitor, measure and adjust aspects of individual and organizational performance through management controls of various types meant to ensure that the company is able to measure its performance on a regular basis.

Performance management integrates the management of organizational performance with the management of individual performance. Organizational performance perspectives suggested by Norton and Kaplan include; financial perspective, that entails measuring whether the organization is generating profits from its core businesses; Customer perspective, that entail measuring the customer satisfaction from goods and services offered by the company; Internal business processes, that involves continuous improvement of services offered by an organization using modern technology and finally innovation and learning, that entails ability of organizations to develop new products and services through team learning and co-partnerships in the industry (David, 2011).

Profitability is the main financial measure used to determine organization performance since it is an indicator of both efficiency and effectiveness of organization operations (Bora & Bulut, 2008). The other main measure of organization performance is market share. It's one of the primary indicators that tells how a company is doing Vis a viz its competitors. Market share is the percentage of business or sales a company wields out of total business or sales by all competitors combined in any given market or industry.

1.1.1 Innovation

Organizations can adopt different innovations in a bid to fend off competition and even to be able to survive in an economy that is becoming much more flat and much more competitive. In the study, the innovation strategies included product innovation and process innovation strategies.

Product innovation strategies involve the presentation of a decent or an administration that is new to the market or has been altogether enhanced in connection to its attributes or employments. These incorporate critical enhancements in mechanical determinations, segments and materials, joined, or ease of use among different capacities (Tavassoli & Karlsson, 2015). Product innovation strategies are majorly driven by advances in technologies, ever changing customer taste and preferences, shortening item life cycles and expanding rivalry in the marketplace.

An innovative product can cut through a stagnant market and meet customer needs in new, exciting ways. At its heart, innovation allows businesses to stay relevant and drive growth. It's important to understand what innovative opportunities exist, and how to execute them with your current capabilities. As a business leader, it can be challenging to foster innovative thinking within you. For a company to come up with innovative products, it's important to be aware of new entrants emerging into your market, as well as opportunities for your business to disrupt other markets or other industries. By understanding the bigger picture, you can prepare for disruption and seize new opportunities as they arise, knowing you have the internal necessities and competencies in place to execute your strategy (Cote, 2022).

Today's companies gain their competitive advantage and economic benefits largely from innovation. Product innovation's contribution to company output can be measured by sales and profits contributed by new products/ services and change in market share. Also product innovation may increase companies' knowledge stock. Product innovation contributes in reducing production costs and time of production process and that leads to an increase in investment returns and

production efficiency. Product innovation contributes also in improving products quality and makes products more competitive in both home and external markets. Companies can also realize customers' needs with new characteristics through creating new product pattern with determined measures and features which are not found and realizing the continuance of customer's fidelity. Product innovation also provides solutions to production problems and creates new opportunities to use new resources or existing resources in a different and more optimal way.

Tavassoli and Karlsson (2015) also analyzed innovation strategies of firms in Sweden for the period around 2002 and 2012 utilizing sixteen advancement techniques, which were made out of Schumpeterian four sorts of developments (process, item, advertising, and authoritative) in addition to different blends of the four sorts and found that organizations are not homogenous in picking advancement systems; rather, they have an extensive variety of inclinations with regards to advancement procedure. The specialists additionally found that organizations likewise hold on to have such a different development procedure inclinations.

Henderson and Clark (1990) point out that, to make a product normally requires two distinct types of knowledge, namely, component and system knowledge. Component knowledge which is knowledge of each of the components that performs a well - defined function within a broader system that makes up the product. This knowledge forms part of the 'core design concepts' embedded in the components. System knowledge which is knowledge about the way the components are integrated and linked together. This is knowledge about how the system works and how the various components are configured and made to work together.

Product innovation is closely related to a scientific base and scientific knowledge growth. Technological opportunities emphasizes the importance of organized activities of Research and Development in companies. According to Baldwin and Sabourin (1999) organized research and development activities are more important for product innovation, they found that the probability that companies with R&D departments will introduce innovations in products is 59% whereas for companies that do not have R&D departments the probability is 37%.

The continuance and the persistence of any company depends on its capacities to maintain its market place and face the competition which spreads rapidly and aggressively with the globalization and the expansion of the new technologies, and while product reflects the company's image its whole success depends also on the product success through realizing consumers desires

and needs, and developing new products. The impact of innovation on firm profitability seems to vary with different types of innovation. Firms that engaged in product and process innovation usually have higher profit than those that do not engage in innovation based on the studies that were carried out among the manufacturing firms in UK (Geroski & Machin, 1993). Product innovation's contribution to company output can be measured by sales and profits contributed by new products/ services, change in market share, also product innovation may increase companies' knowledge stock; Product innovation contributes in reducing production costs and time of production process and that leads to an increase in investment returns and production efficiency.

Companies oriented to customers are responsive to their final needs, measure their satisfaction level and improve the processes in order to satisfy them. In the context of product innovation, Hippel's (1988) approach based on customers' needs emphasized that companies, in their innovative efforts, have to turn to users' needs. Christensen (2003) emphasized that focus on existing customers can limit a company aptitude to innovate because managers are not keen on serving new users. However, focusing on existing customers is not the same as to be completely market oriented. Verhees et al. (2004) carried out a research in Holland on the role that customers have regarding radical product innovation in small companies. They proved the hypothesis that expressed needs of existing customers for radical product innovations influence positively on radical product innovation acquisition in small companies, however, in the case of expressed needs of potential customers the hypothesis has not been proved.

According to Roozenburg and Eekels (1998) product innovation process consists of six main stages which are: product planning, product policy, idea finding, strict development, the technical development process and the commercial development process. A company which does not make a profit cannot last in the long run. Therefore, product development ought to fulfill a business economic goal as well as a material goal. Contrary to the material goal (a product's function), which is worked out during the process of product development, the business economical goal is given prior to the development process, as part of the product policy.

Process innovation strategies, on the other hand, include execution of new or essentially enhanced creation or conveyance techniques. Process innovation is about designing and implementation new and significantly improved business processes. Whether in the production process or delivery process its focus is on improving the process, productivity and reducing waste. Basic process

advancement procedures incorporate changes in strategies or hardware. Forms in a firm can be intended to diminishing unit expenses of generation or conveyance to increment/enhance efficiency or administration conveyance quality. Prepare advancement methodologies are formed by the securing of epitomized information which goes about as a key system for countering the association's frail inner abilities. Process innovation strategies may include; adopting the supply chain concept, enterprise engaged consultants such as from Deloitte international and implementation of the global reference model (GRM) (Tavassoli & Karlsson, 2015).

Process innovation involves the use of new methods or tools to help enterprises satisfy consumer needs. Innovating processes requires a combination of skills, facilities and technologies to boost efficiency. When done right, it leads to cost and time savings without compromising the quality of products or services and thereby increase customer satisfaction. An improved process on how a company carries out certain processes improves company performance (Baer, 2012).

Process innovations strive to increase performance. They occur internally and, therefore, are invisible to the customer. However, the outcomes are tangible and reflect how well an enterprise executed the innovation strategy. Using process innovation, a company can reassess and reimagine its processes to be more adaptable to its customers' needs and wants, and develop new ways of developing and delivering products and servicing those customers. In turn, process innovation can optimize a workforce and combine people and bots for improved efficiency and engagement. Process innovation can also be a competitive differentiator, by making company's operations stand out for unique and superior customer engagement, service and experience (Baer, 2012).

To realize the promise of automation, financial technology companies need to transcend technology myopia, focus on end-to-end business function innovation, and proactively address essential security challenges and risks. The automation should cover internal processes of service deployment as well as the technological processes that the company goes through prior to the delivery of a product or service. Process innovation happens when an organization solves an existing problem or performs an existing business process in a radically different way that generates something highly beneficial to those who perform the process, those who rely on the process or both. For example, the introduction of a completely new sequence to an existing production process that speeds production by 100%, thereby saving the organization money and time, could be considered a process innovation. Organizations today often bring in new

information technology systems or find ways to use older in new ways at the forefront of their process innovation efforts (Pratt, 2015).

Process innovation is different from incremental innovation in both scope and size. Whereas incremental or continuous improvements generate limited value, innovation generates improvements that increase value by upward of 50%, 100% or even more. Some describe process innovation as creating radical or game-changing shifts. In addition to the introduction of a radically new approach or technology, process innovation generally requires a longer planning time and support from high-level management. It's also riskier than incremental improvements and requires a higher level of cultural and structural change. Process innovation also typically impacts a broader portion of an organization than do incremental improvements (Pratt, 2015).

One of the factors of successful deployment of innovations in organizations is described as the human side of innovation management. The human side of innovation management focuses on leading and organizing the very people that are carrying out innovative endeavors in the organizations (Verona, 1999). It is people who plan and carry out innovation projects to implement these ideas (Baer, 2012). It is people who bring new products and services to market and sell the products (Feurer et al., 2019). It is also people who envision and advocate strategies for future directions of innovative efforts to investors, customers and fellow organization members to make the organization more competitive.

Successful innovation results in new products and services, gives rise to new markets, generates growth for enterprises, and creates customer value. Innovation improves existing products and processes, thereby contributing to higher productivity, lower costs, increased profits and employment. Firms that innovate have higher global market share, higher growth rates, higher profitability and higher market valuation. Customers of innovative products gain benefits in terms of more choices, better services, lower prices and improved productivity. As innovations are adopted and diffused, the "knowledge stock" of the nation accumulates, providing the foundation for productivity growth, long-term wealth creation and higher living standard.

1.1.2 Organization Performance

Organizational performance can be measured either using subjective or objective pointers (Harris, 2001). Several firm performance indicators exist including total income, profitability,

efficiency in production, return on assets among others. We also have non-financial measures of organizational performance and they include market share, customer satisfaction and employee satisfaction. Similarly, the size of a firm can also play a role in its performance. No single metric is sufficient in measuring organizational performance. Performance measurement refers to quantitative or numerical indicators that can be used to show how well the objectives of an organization are being met. Performance measurement includes both financial and non-financial objectives that in turn influence organizational performance (Richard et al., 2009).

Firm's performance is the appraisal of prescribed indicators or standards of effectiveness, efficiency, and environmental accountability such as productivity, cycle time, regulatory compliance and waste reduction. Performance also refers to the metrics regarding how a certain request is handled, or the act of doing something effectively (Ngugi & Karina, 2013). Many researchers maintain that various initiatives and programs improve the performance of organizations. Nevertheless, many of these assertions have not been assessed. Indeed, even the optimal definitions or measures of performance remain controversial. Practices that improve the commitment and attitudes of employees do indeed enhance many financial indicators of workplace performance (Gong et al., 2009).

The way performance is defined depends on the type of firm under consideration, whether it is a production or service firm. Performance measurement plays a key role in developing, implementing and monitoring a strategic plan. Performance management enables managers to evaluate whether organizational objectives have been achieved, and is further used to develop and compensate the company management. It helps managers monitor whether the company is moving in the direction they want it to go or not (Teeratansirikool et al., 2013).

Performance measurement has several components; first, it ensures that organizational mission and operational goals are specified, understood, and accepted across the organization. Second, the specification of performance targets and measures ensures the strategy, and how it is implemented tactically and operationally, is continually assessed. Third, the clear specification of objectives and their understanding across the service areas permits devolution of control to line managers who can make local decisions based on the wider organizational mission and goals. Fourth, serious deviations from the plans that surpass the local scope and resources are communicated to top management and the corrective action is applied in the organization (Walker, 2014).

Financial performance recognizes the financial strengths and weakness of an organization by instituting connections between the items of financial position and statement of comprehensive income as noted by Jabeen (2014). According to Khan (2015), a firm measures its financial performance using financial and non-financial methods. The financial measures include turnover, gross profit margin, current ratio, leverage, return on equity and profit before tax while nonfinancial measures include brand preference, customer retention and churn, customer satisfaction and customer recommendation rates, delivery time, waiting time, innovation, market share and employee turnover. All these are key for identifying the company performance.

Organizations have an important role in our daily lives and therefore, successful organizations represent a key ingredient for developing nations. Thus, many economists consider organizations and institutions similar to an engine in determining the economic, social and political progress. Continuous performance is the focus of any organization because only through performance organizations are able to grow and progress (Gavrea et al., 2011).

Organizational performance plays vital role in human resource management as well as in talent management practice. Since it can be achieved through performance of talented employees then, organizational performance is the most important and dependent variable of this study. Strategic planners, finance, legal operators and organizational developers constitute an array of many experts interested in organizational performance. Previously many organizations have endeavoured to manage organizational performance deploying the different methodology where performance is tracked and measured in multiple dimensions (Karunathilaka et al., 2016).

1.1.3 Financial Technology Companies

Financial technology companies are any businesses that use technology to modify, enhance, or automate financial services for businesses or consumers. Financial technology companies are on the cutting edge of technology. Technology is ever changing and this poses a real challenge to such companies since they have to keep running to catch up with the dynamic environment in which they are operating. The flattening of the global marketplace is not doing them any favors since they are getting competition from all the corners of the world. As a result of the great dynamism, such companies need to innovate for them to remain relevant and even survive. Their use of technology has allowed them to lower the cost of financial intermediation and also increased access to financial services in the Kenyan market thus increasing financial inclusion. Financial

technology companies simplify financial transactions for consumers or businesses, making them more accessible and generally more affordable.

Financial technology companies and services utilizing AI, big data, and encrypted block chain technology to facilitate highly secure transactions amongst an internal network. Fintech strives to streamline the transaction process, eliminating potentially unnecessary steps for all involved parties.

The number of players in the financial technology space in Kenya continues to grow by the day and distinguishing the products and services of one company from the other is going to be a challenge. One of the easiest ways of overcoming this challenge is through innovation. The focus of the study is to establish the effect of innovation on the performance of financial technology companies in Kenya.

1.2 Statement of the Problem

With increased competition, changing technology, changing consumer needs and influence of globalization, most of the companies operating in the global and local business environment have continued to recognize numerous innovations as a measure of improving their performance in the turbulent business environment (Shisia et al., 2014) Despite the fact that innovation contributes to enhanced organization productivity, it is noted that majority (73 percent) of companies operating in developing countries in multiple sectors and more especially in Kenya are experiencing deteriorating performance due to lack of innovation (Ngugi & Karina, 2013). By extension, it is observed that innovations pursued by majority of organizations are not fully implemented in organizations due to structural and management issues (Hayes et al., 2010).

Innovation is considered to be a critical requirement for the growth and profitability of organizations. For private sector organizations operating in increasingly competitive markets, innovation is often a condition for survival. The capability to innovate is viewed as the single most important factor in developing and supporting competitive advantage (Tidd, 2001).

Despite the acknowledged fact that financial technology companies operating in Kenya have significantly contributed to social economic developments, a number of challenges are experienced when it comes to implementation of strategic innovations (Moturi, 2010). A lack of innovation has resulted in rather homogenous products and services being offered by the financial

technology companies that are literally indistinguishable one from another. This makes it difficult for consumers to choose one from the other.

According to the CBK (2021) Survey, 79% of banks and 50 % of financial technology companies introduced an innovative product during the period January 1 to December 31, 2021. There was a decline in financial technology companies that introduced an innovative product in 2021, compared to 2020, where 72 % of the financial technology companies introduced a new product. This was a second consecutive year-in-year decline. This clearly indicates that the companies are falling behind in their innovative efforts and this is likely to have an adverse impact on their customer service and even financial performance.

Limited studies which have been conducted internationally and locally clearly indicate conceptual and contextual gaps. For instance, a study by Matevu and Kerongo (2015) was confined to different variables like internet and mobile banking but not product innovation and process innovation, which are the variables in this study. Further, it was noted that the study focused on commercial banks but not financial technology companies operating in Kenya. Another study by Mwendwa et al. (2016) was limited to technological innovations among commercial banks in Meru town. A study by Adhiambo (2014) was limited to product innovation and failed to address process innovation. Ngugi and Karina (2013) also was limited to innovation strategies on commercial banks. A study by Ghikas (2013) focused on business process outsourcing strategy in Standard Chartered Bank Kenya Limited.

Based on the foregoing, this study sought to address the effect of innovations on performance of financial technology companies in Kenya.

1.3 Objectives

The study was guided by general and specific objectives as are outlined below.

1.3.1 General Objective

The general objective of the study was to determine the effect of innovations on the performance of financial technology companies in Kenya.

1.3.2 Specific Objectives

- i. To establish the effect of process innovation on performance of financial technology companies in Kenya.
- ii. To determine the effect of product innovation on performance of financial technology companies in Kenya.
- iii. To determine the joint effect of product innovation and process innovation on performance of financial technology companies in Kenya.

1.4 Research Hypotheses

The research hypotheses of the study were:

- H₀₁** Process innovation has no significant effect on the performance of financial technology companies in Kenya.
- H₀₂** Product innovation has no significant effect on the performance of financial technology companies in Kenya.
- H₀₃** There is no significant joint effect of product innovation and process innovation on the performance of financial technology companies in Kenya

1.5 Justification of the Study

The findings of the study will help the management of financial technology companies develop strategies that will enhance performance of their companies in terms of market share, customer satisfaction as well as financial performance. Strategies that range from redesigning the process to minimize costs, developing new products and services, diversification and establishment of new markets will be enhanced.

The findings of the study will help the financial technology companies have insights on how to develop new ideas and work towards organizational goals. The information of the study will enhance creativity and innovation culture among the financial technology companies in Kenya thus increase their efficiency, effectiveness as well as competitiveness. The findings will also help policy makers working with financial institutions like Central Bank of Kenya, World Bank and International Monetary Fund (IMF) develop frameworks that will enhance stability and growth of financial technology companies in Kenya. The findings of the study will help investors interested

in financing the financial sector to determine drivers that will enhance performance of their firms despite dynamics of the sector and changes in technology.

The findings will help academicians and researchers to develop new frameworks of enhancing organization performance. New theories are likely to emerge from the findings of this study and help future researchers improve their frameworks of research. The findings of this study will reveal areas which need to be studied and provide an opportunity to academicians to conduct studies to unfold issues that affect organizational performance.

1.6 Scope and Limitations

1.6.1 Scope of the Study

This study was conducted in Nairobi and involved drawing responses from the leadership of the 36 financial technology companies in Kenya. The study only covered the effect of innovations on the performance of financial technology companies in Kenya. The study focused on the effect of product and process innovation on the performance of the financial technology companies in Kenya. Data was limited to find out the effect of product and process innovations on the performance of the financial technology companies in Kenya.

1.6.2 Limitations of the Study

Though innovation is a wide area of study, the researcher was limited to process and product innovations. To overcome this limitation, the researcher recommended further research into other types of innovations. The researcher encountered several limitations that hindered access to information sought to facilitate the study. The respondents were reluctant to share information for fear that the shared information may be used against them and their company or end up painting their company in bad light. The researcher had to make a commitment to the respondents that the responses given would remain confidential and only used for the academic research study. The respondents were assured of anonymity. The study also only focused on financial technology companies in Kenya and not any other part of the world. This limits the scope of the generalization of the results to within the country of Kenya. Some respondents lacked interest in filling in questionnaires and some respondents were not available due to a busy work schedule. However, the researcher booked appointments in advance and where possible emailed a soft copy of the

questionnaire for the respondents to fill in at their convenience. Frequent follow up via email and telephones were done to ensure higher response rate.

1.6.3 Assumptions of the Study

The study proceeded on the assumption that the respondents of the study would be willing to give the intended information to facilitate the study. Further, it was the assumption of the study that the various stakeholders like employees of the financial technology companies would use the information from the study to formulate policies that would enhance the performance of their organizations. The other assumption of the study was that the respondents would give honest and comprehensive feedback about their respective companies.

1.7 Operational Definition of Terms

Innovation	Innovation is the creation of value by using relevant knowledge and resources for conversion of an idea into a new product, process, or practice, or improvements in an existing product, process, or practice. It's an organization's practice or long term initiative that is integrated in the system to enhance overall efficiency and effectiveness. It entails initiatives an organization can put in place in order to remain competitive in the changing business environment.
Financial Technology	Is an industry composed of companies that use new technology and innovations with available resources in order to compete in the market place of traditional financial institutions and intermediaries in the provision of financial services.
Process Innovation	Involves the extent to which companies dedicate their efforts in improving customer services by introducing new techniques, equipment and technology. It entails the degree to which a company can minimize costs and maximize profits using new methods.
Product Innovation	Involves the degree to which the company can improve or develop new products that conform or exceed consumer needs. It entails the

nature of continuously upgrading products or services to meet the changing trends of consumers.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter outlines theoretical foundation of the study, empirical review, and critique of existing literature, research gaps and conceptual framework.

2.2 Theoretical Foundation

Current theoretical contributions on strategic innovations focus on the resource-based view of the firm, entrepreneurial theory and knowledge based theory. The resource based theory sees the firm as a bundle of resources. It is these resources and the way they are combined that make firms different from one another (Shisia et al., 2014). The theories that will inform this study include the following: Resource based-view Theory, Dynamic Capability Theory and Schumpeter Theory of Innovation. All these theories are discussed below.

2.2.1 Resource-Based View Theory

Resource Based View Theory emerged in the 1980s after the works published by Wernerfelt (1984) cited by Bustinza et al. (2010). According to resource-based theory, organizations wish to maintain a distinctive product (competitive advantage) and will plug gaps in resources and capabilities in the most cost-effective manner (Chakrabarty, 2015). This theory emphasizes that resources internal to the firm are the principal driver of a firm's profitability and strategic advantage. It rejects traditional economic assumptions that resources are homogeneous and perfectly mobile. Instead, it argues that resources are heterogeneously distributed across firms and are imperfectly transferred between firms. Further, the theory proposes that resources can be categorized into three groups: physical resources such as plant, human resources and organizational resources (Ghikas, 2013).

The Resource Based View's basic premise is that internal idiosyncratic resources and competencies, not external variables like industry and market structures, are the most important drivers of business success. The Resource Based View believes that each company is a unique collection of internal distinctive resources and competencies (Wernerfelt, 1984). Its appeal seems to be based on the idea that businesses can better manage their own distinctive resources and capabilities than they can control their industry (Rumelt, 1984).

According to Federico and Magdalena (2011) resources enable a firm to conceive of and implement strategies to improve its efficiency and effectiveness. Organizations can obtain above-normal returns if they can use their existing resources to sustain competitive advantage by exploiting opportunities in the market or neutralizing threats from competitors' strategic resources (Ghodeswar & Vaidyanathan, 2011). Resources might be imperfectly imitable if they involve unique history, causal ambiguity, or social complexity. Similarly, resources are non-substitutable if another organization is not able to implement the same strategies by using alternative resources (Gilley & Rasheed, 2013).

The Resource-Based view of the firm provides one of the most powerful frameworks for explaining the reasons for business process outsourcing (Hayes et al., 2010). This approach suggests that an organization must invest in the activities comprising its core competencies and outsource the rest. The exchange of organizational routines and skills between the company and the specialist can give it the competitive advantage since their combined capabilities can generate additional rents. In this sense, business process outsourcing certain operations that do not generate core competencies can generate additional rents for the business when performed by a specialist supplier that has an advantage in those operations (Hitt et al., 2012).

The applicability of this theory in this study is based on the fact that financial technology companies operating in Kenya are likely to perform better in comparison with firms in the same industry if they adopt strategic innovations like product innovations, process innovations and continuous quality improvement innovations that then offer the company a competitive advantage. This implies that the company makes a better use of the resources at its disposal through the use of innovations than its competitors.

2.2.2 Dynamic Capability Theory

Dynamic Capability Theory was founded by Teece (1977) and was defined as the ability of the firm to combine, develop and reconfigure external and internal expertise in order to respond to speedily changing environment. Previous research has provide significant definition on dynamic capabilities. The theory seeks to explain how companies achieve two contradictory imperatives. They must be both stable enough to continue to deliver value in their own distinctive way and

resilient and adaptive enough to shift on a dime when circumstances demand it. This is a key survival strategy.

Eisenhardt and Martin (2000) define dynamic capabilities as the process of use resources to create new resources that can create market change. Market is change when the market is evolve, emerge, split or even die. Apart from that, dynamic capabilities is the results of the alteration of resources that have been acquired, integrated and recombined that develop and result in creation of new strategies by an entity (Grant, 1996).

Dynamic capability is a capability which propels a company into gaining competitive advantage by focusing on the one things it does exceptionally well. Developing of the capability is a time-consuming and generally resource intensive process. Therefore, it might be quicker and cheaper to find a partner who already has certain capabilities (Hayes et al., 2010). Dynamic Capability theory argues that a firm has an opportunity to gain competitive advantage by outsourcing non-core activities to firms and individuals who already have the expertise. Dynamic capabilities are unique to each company and rooted in the company's history. The dynamic capabilities are captured, not just in routines of the company but in the business models that go back decades and are difficult to imitate, otherwise referred to as signature processed (Smith, 2010).

Utterback and Abernathy (2010) concurred that a firm can gain and sustain competitive advantage by accessing its key resources in a way that spans the boundaries of the firm. Competitive advantage can be embedded in a set of relationships across the boundaries of the firms, rather than residing inside an individual firm (Vani & Meenakshi, 2010). Relational theories are important for the study of business process outsourcing, as the clients and the service providers that make relation-specific investments and are able to combine resources in unique ways to generate relational rents, can gain competitive advantage over the business process outsourcing clients and service providers that are unable to do so (Supo, 2015). This theory is applicable in this study based on the notion that financial technology companies should recognize the need for responding to business dynamics for their competitiveness. Adoption of the new approaches in service delivery and continuous improvement of processes and products will result in enhanced performance and the ability to meet customer expectations.

The relationship between dynamic capabilities and organizational performance indicated a positive relationship based on empirical studies (Hung et al., 2010). For example, Danneels (2002) conducted a study on five high-tech firms and found that product innovation capabilities increase the firm competencies and performance. Apart from that, Zott (2003) identified how the different dynamic capabilities of the firm can influence the performance and the study further identified that even in small different of dynamic capabilities between the firm, it can create significantly divergence in firm performance. From international business perspective, Luo (2000) discovered that the exploitation of dynamic capabilities can increase the firm expansion in international market and simultaneously increase firm performance.

On the other hand, other researchers debated on the direct link between dynamic capabilities and firm performance. For instance, Eisenhardt and Martin (2000) argue that dynamic capabilities alone does not guarantee the firm's competitive advantage, but the arrangement and the positioning of the firm's resources created by dynamic capabilities is more skillful than competition. This also supported by Zott (2003) mentioned that modification and the alteration of the firm's resources through dynamic capabilities influence the firm performance and not the dynamic capabilities stand alone. Additionally, Eisenhardt and Martin (2000) proposed that the firm that has dynamic capabilities will have an advantage towards their competitor who does not have that capabilities while Zott claim that the firm that has distinguished dynamic capabilities may develop different kind of resources and as a results produced differentiated performance levels.

In the turbulence and fast growing market, the firm resources must be dynamic and the managers need to know how to adjust the strategy with the environment in order to create new skills that can meet the dynamic of the market (Monteiro et al., 2017). This study is relevant to the study because it outlines the need for a firm to ensure that it's able to combine, develop and reconfigure external and internal expertise in order to respond to speedily changing environment. Part of the clear ways of responding to the market using the external and internal resources is through product and product innovations.

2.2.3 Schumpeter Theory of Innovation

The Theory was established by Schumpeter (1934) who argued that organizations operating in the modern business environment should engage managers or workers with entrepreneurial skills. The ability of the workers in any organization to think differently and independently is a driver of organization competitiveness. The spirit of research and development in any system is promoted by employees with common mental models. Changing strategies of the organization and ability of workers to adapt to changes in the business environment automatically stimulates organizational productivity. Schumpeter (1934) emphasized the role of entrepreneurship and the seeking out of opportunities for novel value generating activities which would expand and transform the circular flow of income, but it did so with reference to a distinction between invention or discovery on the one hand and innovation, commercialization and entrepreneurship on the other hand.

Schumpeter, in his work, examines the economic cycles in four separate stages as welfare, recession, depression, and booming (Aydoğmuş et al., 2009). In addition, according to Schumpeter, it is not realistic to consider that there are a few of economic cycles. Capitalist society experiences three different types of fluctuation. The first of these is Kitchin waves lasting 3-4 years; the second, Juglar waves lasting 7-10 years; and the third, Kontradief waves lasting 50 – 60 years. Each cycle has its implications on the firm (Tekeoğlu, 1993).

The long cycles approach of Kondratieff constitutes the frame of Schumpeter's work called Business Cycle. In spite of similar points in his analyses, about the causes of economic cycles, the fundamental differences release. In the analysis of Schumpeter, the innovations are handled as the most important factor (Dolanay, 2009). Schumpeter, in his analysis, accepted the waves of Kondratieff in general sense and argued that long termed fluctuations caused the innovations. In capitalist society, economic development is synonymous with change. Economic structure is not motionless. Producing the new goods or manufacturing the existent ones cheaper are major driving force of advancement in the modern era (Özgüler, 2006).

According to Schumpeter, economic fluctuation is not, in fact, something than adapting process of economy itself to the innovations. Even though economic system is in the position of turning to balance state, the innovations expose this tendency to be ceased. Hence, the process providing the economic development also creates conjectural fluctuations (Savaş, 2007).

The separation of invention and innovation suggested in the theory marks out the typical nineteenth century institutional model of innovation, in which independent inventors typically fed discoveries as potential inputs to entrepreneurial firms. He further observed that innovations are perpetual gales of creative destruction that are essential forces driving growth rates in many systems. Furthermore, from Schumpeter thinking perspective, it is noted that innovations are evolving in nature and organizations should regard them as a dependent component that is exceptional and based on individuals/entrepreneurs willing to take on exceptional hazards as an act of will. Therefore, the applicability of this theory in this study describes the capability of organizations achieving their goals based on a combination of strategic innovations that range from product, process and continuous quality improvement innovations.

2.3 Process Innovations, Product Innovations and Performance of Organizations

This section, reviewed related studies conducted by other researchers relating to innovation and performance of various organizations.

2.3.1 Product Innovation and Performance of Organizations

Onikoyi (2017) conducted a study titled “Impact of Product Innovation on Organizational Performance (A Survey of Nestle Nigeria Plc)” whose objective was to investigate the impact of product innovation on organizational performance. The data was collected from the production department, research and development department, sales department, marketing department, and quality and control department, which have been involving greatly in product innovation process. A total of 340 copies of useable questionnaires were completed. The results of the study were interpreted using SPSS package for the analysis of some appropriate statistical methods such as regression and correlation. The findings show that the impact of product innovation on organizational performance was higher in the company when consumers perceive product innovation as stronger, more favorable and more unique. Creativity/quality of the innovation process exerts a positive influence on product and organizational performance. It was recommended that creative/quality innovations should be maintained continuously to develop appropriate product continually and increase the organizational performance. The limitation in this study is that it only looked at one variable in this study and only focused on one company (Nestle) in Nigeria that is in a different industry from the industry focused on in this study.

Nakato et al. (2021) conducted a study entitled “Effect of product innovation on performance of printing SMEs in Kampala Central District” whose objective was to establish the effect of product innovation on performance of printing SMEs in Kampala Central District. The study adopted an explanatory research design. The study conducted a census on a target population of 125 printing SMEs operating in Kampala Central district. Data were collected using semi-structured questionnaires that were self-administered to managers of printing SMEs. Data analysis was conducted using SPSS software program v 25.0 where both descriptive and inferential statistical analyses were done. In particular, frequencies, percentages, mean scores, standard deviation and correlation analyses were used and the resultant presentation was done using figures and tables. The study established that product innovation positively affected performance of printing SMEs. The study also revealed that use of graphic designs, digital printing and polymer sheets were among the major product innovations. While this study looked at innovations and performance, its focus was on printing SMEs in Uganda which is a different industry and geographical location from the focus of this study which is financial technology companies operating in Kenya.

Wolff and Pett (2004) conducted comparative research for the effects of product and process innovations on firm performance. They indicated that particular product improvements are positively associated with firm growth. Product innovations will thus enable the banks to increase their brands or products in the market hence create competitive advantage for the organizations; market innovation enables the banks create new markets hence increasing the competitive advantage; process innovation enables the running of the banks’ operations thus increasing effectiveness and efficiency while technology innovation will encourage ease of flow of information and fast delivery to the intended persons. While this study looked at product and process innovations, its focus was on a different industry from the one which is the focus of this study.

Mutevu and Kerongo (2015) conducted a study titled “Effects of Innovations on Financial Performance of Commercial Banks in Kenya: A Case Study of Equity Bank of Kenya” whose objective was to investigate the effect of technological innovations on financial performance of commercial banks in Kenya. The researchers used a descriptive research design. The study established that in today’s global and dynamic competitive business environment, product

innovation is becoming more and more relevant despite competition, fragmented and demanding markets, and diverse and rapidly changing technologies. The study also revealed that banks realize significant financial performance in comparing the financial before and after the adoption of internet banking. It was also revealed that despite the benefits associated with product innovation like increased profits, it was equally difficult for most of the organizations to innovate their products in Kenya. For instance it emerged that most of the companies and more especially Commercial Banks in Kenya were facing challenges in adopting appropriate technologies. Structural and employee resistance were some of the factors that hindered product innovation. The study recommended that for banks to be highly competitive, they need to employ modern technological innovations. While this study looked at innovations, it focused on commercial banks in Kenya while the core of this particular study is the financial technology companies in Kenya.

Mwendwa et al. (2016) conducted a study titled “Influence of Technological Innovation on Bank Performance in Meru Town, Kenya”. The researchers used a descriptive research design and indicated they indicated that it fit their study since it allows flexible data collection and the respondents are not manipulated. The study revealed that with the emergence of new technologies, most of the companies operating in developing countries and more especially in Kenya have significantly increased their productivity by 41 percent compared to traditional methods which are costly and of less value. It emerged that with new technologies, organizations have a potential of developing new products, enhancing customer experiences and minimizing costs by 50 percent. Despite the challenges associated with new technologies like consumer resistance due to social values and complexity, it was concluded that no company can survive in the changing business environment without strategic innovations. However, it was noted that the study was confined to technological innovations only and focused on banks in Meru town but failed to address the variables in this study, that is, process innovation and product innovation in the financial technology companies in Kenya

Adhiambo (2014) conducted a study titled “The Effects of product Innovation on Financial Performance of Commercial Banks in Kenya”. The researcher used explanatory research design since the objective of the study was to know and understand the trait and mechanisms of the relationship between the independent and dependent variables. The study ascertained that product innovation is one of the competitive practices that has resulted to enhanced customer loyalty.

Companies that do not innovate regularly have continuously recorded a decline in profits. Consumer research on products and services provided by companies in the market has remained to be the driving force of performance. It emerged that companies that fail to innovate their products are likely to lose their customers to potential competitors with alternative offerings. Subsequently, it established that companies that were ranked top in the world were driven by product innovation culture. It was concluded that companies both large and small should continuously invest in product research as a strategic approach of attracting and retaining customers. However, it was noted that the study was limited to a single independent variable and focused on financial performance.

Ngugi and Karina (2013) conducted a study entitled “The Effect of Technological innovation strategies on Performance of Commercial Banks in Kenya”. The study established that innovation is considered to be a critical requirement for the growth and profitability of organizations. Achieving organizational growth and sustaining performance is based on innovative practices and creativity among workers. It was also established that product replacement and repositioning generally contributed to profitability of organizations. The study concluded that overall firm productivity was stimulated by product innovation and continuous improvement of process of production and distribution. Without product innovation in an organization, most of the firms may find it difficult to sustain themselves in the changing business environment. Firms should dedicate their efforts in improving and developing new products to remain relevant in the international and local marketplace. However, it was noted that the study was limited to strategy innovations among commercial banks in Kenya but not strategic innovation on the performance of financial technology companies in Kenya.

2.3.2 Process Innovations and Organization Performance

Peter et al. (2021) conducted a study titled “Effect of process innovation strategies on performance of tier one commercial banks in Kenya”. The study sought to establish the effect of process innovation strategies on the performance of tier one commercial banks in Kenya. The study adopted a descriptive survey research design. The target population consisted of 494 senior, middle and lower management staff from the 8 Tier One Commercial Banks. A sample size of 221 was reached using stratified random sampling technique Primary data was collected using structured questionnaires distributed to all management staffs of the tier one commercial banks in

Nairobi. Secondary data on the other hand was collected from journals and published financial statements within the period of 5 years from 2014 to 2019. Frequencies and percentages as well as measures of central tendency (means) and dispersion (standard deviation) were used. The regression and correlation analysis were used to determine both the nature and the strength of the relationship between two variables. Data was presented using tables. The study found that improved queuing; electronic funds transfer; and number and distribution of ATMs had improved the financial performance of the banks to a great extent. The study also concluded that process innovation strategies have a positive and significant effect on the performance of tier one commercial banks in Kenya. While this study handled process innovations as one of its variables, the study focused on tier one commercial banks in Kenya while the focus of this present study is on the financial technology companies in Kenya.

Mbocho (2020) conducted a study titled “Effect of Strategic Innovation on Performance of Manufacturing Industry in Kenya: A Case Study of Bamburi Company”. The study sought to establish the effects of strategic innovation on performance of manufacturing companies in Kenya. The study was guided by three specific objectives including; to assess the effect of process innovation on performance of Bamburi Cement Company, to establish the effect of social innovation on performance of Bamburi Cement Company and to evaluate the effect of technological innovation on performance of Bamburi Cement Company. This study used a descriptive research design to examine and provide a clear report with target population of 300 employees at Bamburi Cement. This study used stratified random sampling technique with a sample size of 171 respondents. Primary data was collected using questionnaires. Descriptive statistics was carried out on the data to measure percentages and frequency, while inferential statistics was carried out through correlation and multiple regression analysis, to evaluate the relationship between the dependent and independent variable. This study concluded that process innovation, social innovation and technological innovation have a significant effect on organizational performance. Process innovation helps an organization gain competitive advantage, social innovation promotes an organizations ability to take care of human interactions and environmental needs of the society and Technological innovation enables organization to develop new products and services from creative ideas as well as improve existing ones. While the study looked at process innovations, it never covered the other variable in this study and it focussed on

Bamburi cement which is a company in a different industry from the financial services sector which is the industry explored in this study.

Wambui et al. (2018) conducted a study titled “Innovation strategies and organizational performance: a case study of Telkom Kenya limited”. The study sought to investigate the influences of innovation strategies on organizational performance, a case study of Telkom Kenya Limited. The specific objectives were to evaluate the process innovations and administrative innovations strategies influence on firm performance. A descriptive case study research design was adopted. The study established that process innovation and administrative innovation strategies have a positive effect on organizational performance as indicated by the respondents. The management needs to focus on administrative innovations like innovations hub development, feedback platforms, automation of processes and culture change initiatives in order to fully equip employees with skills thus giving them ability to grow. The findings of the study showed that process innovation has the highest positive influence on organizational performance. Process innovations assist companies to improve on quality of their products and services through better use of technologies, equipment’s resulting to operational efficiency, effectiveness brand image improvement, sales growth and market rank performance. The study recommended that management of organizations need to seriously consider the investigated innovation strategies and implement them in their organizations if they are pursuing an improvement in the levels of their organizational performance. While the study looked at process innovations and administrative innovations, it never looked at the other variable of this study which is product innovations. The study also focused on one company that is in another industry distinct from the industry focussed on in this study which is financial technology industry.

Yusufu (2013) established that process innovation is the fundamental driver of organizational efficiency and effectiveness. It emerged that process innovation is the implementation of a new or significantly improved production or delivery method. It entails significant changes in techniques, equipment and information technology. Effective integration of information technology into an organization's business processes has become increasingly crucial to prosperity. The major intent of process innovation is to decrease unit costs of production, increase quality and general product improvement. However, it is noted that the study focused on different variables like technology and leadership while this study looked at product and process innovation.

Moturi (2010) on the other hand established that process innovation was one of the strategic innovation practices that enhanced performance of government ministries. Despite challenges of implementing technology, the IT quality function should focus on broad, cross-functional quality issues that are high priority and critical in nature to resolve. From an IT perspective, the scope should include such areas as application development, networking, databases, data centers and end-user support. From a business perspective, the function's responsibilities should include virtually the entire organization because most business areas will likely have some sort of IT infrastructure or application.

Sullivan and Dooley (2009) aver that process innovation is that act of making changes that contribute to significant improvement in the process of producing the products or services. Crucially, process innovation is all about operational activities in order to attain competitive advantage by enhancing the quality of offerings and efficient delivery method than competitors. Dobni (2010) on the other hand concurs that process innovation is considered as the introduction of new management approaches, new production methods and technology to improvise the production and management process. Adhiambo (2014) suggests that process innovation can help the organization to reduce the cost of production, enhance quality features and also reduce distribution costs. These can enable the organization be more competitive.

Ramadani and Gerguri (2011) ascertained that process innovations can result to enhanced partnerships among organizations and customer service delivery. Automated processes are likely to produce better results compared to conventional methods of operation which are bureaucratic in nature. It was concluded that there is positive correlation between process innovation and organizational performance. Organizations cannot achieve competitive edge if they put little effort towards improving production, distribution and procurement processes. However, it was noted that the study was confined to innovation principle but failed to address strategic innovations on performance of technology financial companies.

All the above gaps among others clearly indicate that conceptual, contextual and methodological gaps do exist. Limited studies which have been conducted locally, none of them specifically addressed variables of this study and context. For instance, most of the studies conducted adopted different variables including leadership, technology, system automation, and employee training mobile banking, internet banking and partnerships but failed to address variables of this study.

Further it was noted that some empirical studies used various sampling techniques like cluster and stratified. Data collection instruments used by some empirical studies proved to be inconsistent. Interview guides, observation forms and electronic questionnaires were inconsistent with data collected compared to questionnaires that will be employed by this study. Finally, data analysis methods adopted by some studies were factor analysis, discriminant analysis and cluster analysis but not multiple regression analysis method which will provide an opportunity to test the hypothetical relationship between variables. Therefore, it is on this background that this study will seek to find out the effect of strategic innovations on performance of financial technology companies in Kenya.

From the findings of previous empirical studies carried, it can be concluded that issues in this area of study have not been fully exhausted by researchers. Limited studies which have been conducted still have not fully addressed the effect of innovations on performance of financial technology companies in Kenya. Therefore, it is on this background this study is geared towards determining the effect of product innovation and process innovation on the performance of financial technology companies in Kenya.

2.5 Conceptual Framework

The conceptual framework outlined below shows the effect of strategy innovation on performance of financial technology companies in Kenya. A general conceptualization diagram as shown below illustrates that firm's performance as a dependent variable and strategy innovations are the independent variables and the government policy is an intervening variable.

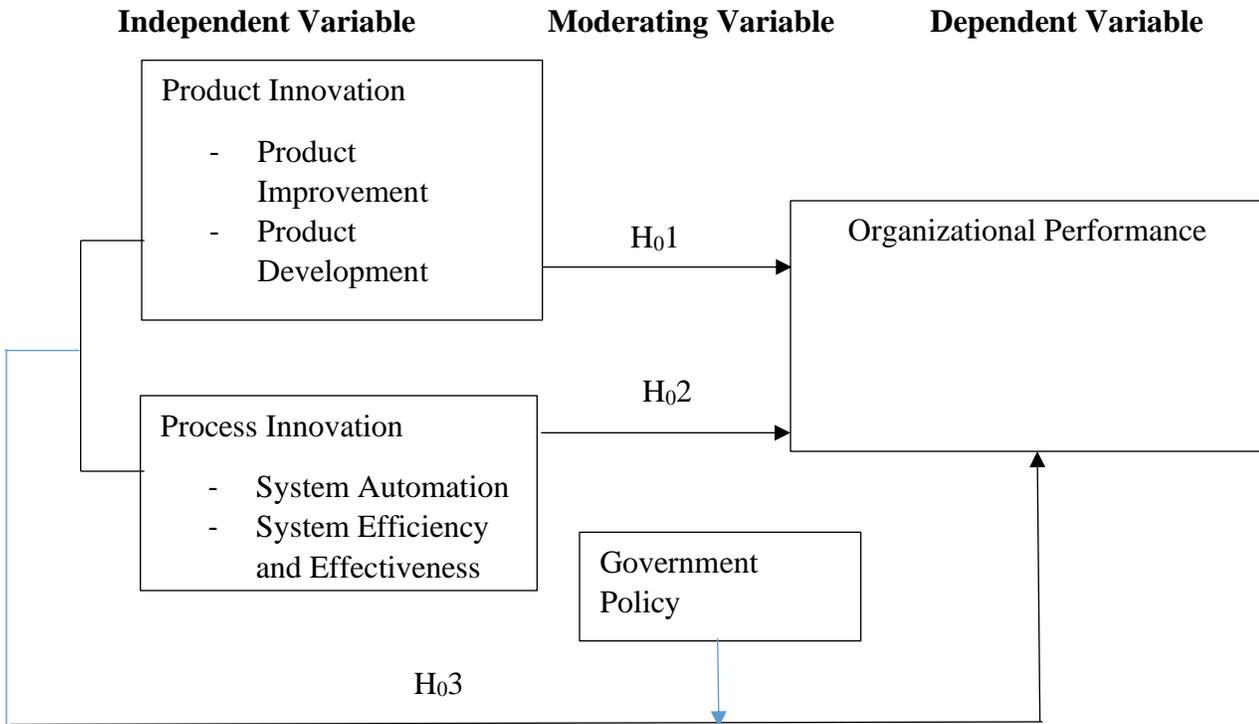


Figure 2. 1

Conceptual Model of Relationship Between product Innovations, Process Innovations and Performance

As illustrated in Figure 2.1, it is conceptualized that Financial Technology Companies operating in Kenya are likely to experience significant improvement in their performance by improving and developing new products and services regularly. Automation of process activities together with system efficiencies and effectiveness will result to enhanced service delivery to customers. Based on consumer research and value addition to products and services, it is possible to boost the organization productivity and performance.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter describes the research design adopted by the researcher, the target population, sample size and sampling procedure, data collection, collection procedure, validity and reliability, data analysis and ethical considerations.

3.2 Research Design

The function of a research design is to ensure that the data obtained during the data collection process is adequate in answering the initial questions as unambiguously as possible (Mugenda & Mugenda, 2011). The study adopted an explanatory research design to establish the effect of innovations on the performance of financial technology companies in Kenya. Bajpai (2011) regards the research design as an arrangement of conditions for collection and analysis of data in a manner that aims to combine relevance to the research purpose and economy in procedures. Creswell (2014) describes it as a type of research that depicts the state of affairs as they exist, where the researcher has no control over the variables and can only report what has happened or what is happening and attempts to discover causes when they cannot control the variables. The explanatory study method was appropriate for this study because it explores and describes the relationship between process and product innovations and the performance of financial technology companies. Explanatory research design does not manipulate the variables and only reports them as they are. The study seeks to explain how the product innovations and process innovations are impacting the performance of the financial technology companies in Kenya. The explanatory study aims at obtaining information that can be analyzed, patterns extracted and comparison made for the purpose of clarification and provision of basis for making decisions. Crowther and Lancaster (2012) acknowledges the importance of explanatory research design especially when the intent is gaining broader understanding of the context of the research and processes being enacted. Moreover, they argue that the design has considerable ability to generate answers to the questions of why, where, what and how.

3.3 Target Population

Target population is the specific population about which information about the problem under investigation is drawn (Fisher, 2010). A population is a well-defined item or set of people, services, elements, events, group of things or households that are being investigated (Collis & Hussey, 2014). The study targeted the thirty six financial technology companies in Kenya as at June 2022 and since the target population is small, the study was a census where all the members of the population were considered.

3.4 Data Collection Instrument

The study relied on primary data which was collected through structured questionnaires with closed-ended questions. Questionnaires were the main instruments of data collection based on the fact that they provide an opportunity to collect data systematically and analyze it for strategic decision making. Fisher (2010) avers that questionnaires are appropriate because they provide opportunities of anonymity which encourages frankness from the respondents especially in sensitive issues like governance and/or management. On the other hand Guest (2012) concurs that questionnaires are preferred because they will ensure a high response rate as they are distributed to respondents to complete and collected by research assistants. They also offer the possibility of anonymity because subjects' names are not required on the completed questionnaires and they have less opportunity for bias as they are presented in a consistent manner. In coding the questionnaire, a Likert scale was developed and used to scale the responses. The scale was from 1 to 5 described as follows: 1 (Strongly disagree); 2 (Disagree); 3 (Neutral); 4 (Agree); 5 (Strongly agree).

3.5 Data Collection Procedures

The researcher sought permission from relevant authorities before questionnaire administration. Permission from management of the financial technology companies in Kenya and Egerton University was sought before data collection as well as permission from National Commission for Science, Technology and Innovation (NACOSTI). As proposed by Mertler and Vannatta (2010), it is ethical to seek consent from relevant authorities or parties when collecting data for scientific analysis. Relevant stakeholder that the study was to affect were informed about the objectives of the study and confidentiality of the information was assured. The questionnaires were distributed through 'drop and pick' method. There were follow-up to ensure that questionnaires were collected on time. Follow-up calls were also made to ensure that the

questionnaires are dully filled within a reasonable period of time. This was done to ensure that the information gathered was valid, reliable and suitable for this study.

3.6 Validity and Reliability of the Research Instrument

According to Frankel and Wallen (2006) validity is the accuracy and meaningfulness of inferences based on research results. It is the ability of the instrument to measure well what it purports to measure. It is the ability of a measurement instrument to measure what it is supposed to measure. Reliability is the degree to which a research instrument yields consistent results or data after repeated trials. This section seeks to address how the validity and reliability of the research instruments was determined.

3.6.1 Validity of the Research Instrument

The validity of the instrument was determined by the researcher through seeking opinions of experts in the field of study especially the researcher's supervisor and industry experts. Their recommendations were used to improve the instrument with a view to making it more valid. Validity entails the appropriateness, meaningfulness and usefulness of inferences a researcher makes based on the data collected (Mertler & Vannatta, 2010). An appropriate inference is one that is relevant to the purpose of the study while a meaningful inference is one which says something about the meaning of the information obtained through the use of the instruments. The questionnaire was tested in order to check its content, construct and face validity. Content validity was done to ensure it contains adequate domain of content it was supposed to represent. Face validity dealt with formatting the instrument and included aspects like clarity of printing, font size and type, adequacy of workspace, and appropriateness of language among others. Construct validity determined the nature of psychological construct or characteristics measured by the instrument. Experts and peers in research were engaged to ensure the instrument accurately measured the variables it was supposed and expected to measure.

3.6.2 Reliability of the Research Instrument

According to Novikov and Novikov (2013) reliability involves a measure of the degree to which a research instrument yields consistent research or data after repeated trials. Kasomo (2006) recommended a test of reliability of instruments in order to ensure dependability. The researcher used Cronbach's alpha coefficient to test the reliability of the questionnaire. Cronbach's alpha was

used to estimate internal consistency reliability by determining the manner in which different items of the instrument relate to each other and to the entire instrument. A Cronbach's alpha coefficient of 0.7 and above is considered adequate to confirm the reliability of the instrument (Mertler & Vannatta, 2010). Therefore, the study considered all alpha coefficient greater than 0.7 to be reliable in this study. The pilot study was conducted on five Financial Technology companies headquartered in Kampala, Uganda.

Table 3. 1

Reliability Result

Variables	No. of items	Cronbach's Alpha Coefficient(α)
Strategic innovations	8	0.852
Product innovations	8	0.850
Performance of the companies	8	0.799
All Questionnaire Items	28	0.899

Table 3.1 shows the mean Cronbach's alpha as calculated through SPSS. Mean Cronbach alpha of 0.899 was obtained which is more than the recommended threshold of 0.7 therefore the instrument was considered reliable and it is on that basis that the researcher proceeded and adopted the instrument for the study.

3.7 Data Analysis

The data collected was analyzed using descriptive statistics (measures of central tendency and measures of variations). Once the data was collected, the questionnaires were edited for accuracy, consistency and completeness. However, before final analysis was performed, data was cleaned to eliminate discrepancies and thereafter, classified on the basis of similarity and then tabulated. The responses were coded into numerical form to facilitate statistical analysis. Quantitative data was analyzed using Statistical Package for Social Sciences (SPSS version 21) based on the items of the questionnaires. In particular mean scores, measures of frequency and standard deviations were used to summarize the responses. Simple and multiple regression methods were adopted to determine the effect between variables. Regression method was conducted at 95% confidence level

and 5% significance level. Results were presented in form of tables. Specifically the regression models were of the forms indicated below.

To test hypothesis H_{01} which states that process innovations have no effect on the performance of financial technology companies in Kenya simple regression analysis was used. The following model was used:

$$Y = \beta_0 + \beta_1 X_1 + \varepsilon$$

Where;

Y = Performance of Financial Technology Companies in Kenya

β_0 = Y intercept

β_1 = regression coefficient

X_1 = Process Innovations

ε = Error term

To test hypothesis H_{02} which states that product innovations have no effect on the performance of financial technology companies in Kenya simple regression analysis was used. The following model was used:

$$Y = \beta_0 + \beta_2 X_2 + \varepsilon$$

Where;

Y = Performance of Financial Technology Companies in Kenya

β_0 = Y intercept

β_1 = regression coefficient

X_2 = Product Innovations and

ε = Error term

To test Hypothesis H_{02} which states that there is no joint effect of product innovation and process innovation on the performance of financial technology companies in Kenya multiple regression analysis was used. The model was used to conduct the analysis:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \varepsilon$$

Where;

Y = Performance of Financial Technology Companies in Kenya

β_0 = Y intercept

β_1 to β_2 = regression coefficients

X_1 = Process Innovations

X_2 = Product Innovations and

ε = Error term

To test for co-linearity between the independent variables, Pearson correlation coefficients were used to explore the relationship between the independent variables. It was used to ensure that the independent variables do not affect each other and hence the result. Strength of the model was tested using a significance level of 5% as well as use the coefficient of determination R^2 .

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents data analysis, presentation and interpretation and discussion of the research findings. The chapter highlights the profile and demographics characteristics of respondents, statistical analysis of the effect of product innovation on performance, effect of process innovation on performance and joint effect of product innovation and process innovation on performance. The chapter details the simple and multiple regression results and discusses them. The chapter also details the results of the tests on the hypotheses of this study. The chapter documents the data collection procedure, statistical analysis and findings made that are consistent with the objectives set for the study.

4.2 Response Rate and Demographic Characteristics

This section discusses the studies' response rate and an analysis of the demographics of the respondents in the study.

4.2.1 Response Rate

Table 4.1 represents the response rate of this study.

Table 4. 1

Response Rate

Response	Total	Percentage
Returned Questionnaires	34	94.45
Unreturned Questionnaires	2	5.55
Total	36	100

The researcher prepared and sent out 36 questionnaires and out of which, 34 questionnaires were completed and returned accounting for 94.45% of the population which was deemed an acceptable response rate for data analysis.

4.2.2 Profile of Respondents and Demographic Characteristics

Table 4.2 presents the age of the respondents

Table 4. 2*Summary of Respondents Age*

Age	Frequency	Percent
Below 25 years	0	0.0
26-35 Years	13	38.2
36-45 Years	7	20.6
Above 45 Years	14	41.2
Total	34	100.0

From Table 4.2, 41.2 % were above 45 years of age, 38.2% were between 26 and 35 years of age 20.6% were between 36 and 45 years of age while no participant was below the age of 25 years. The respondents in this study were Chief Executive Officers, Chief Technology Officers and Chief Finance Officers of their respective companies. This result shows that a majority of the participants are senior in age and this is consistent with the fact that to be senior within an organization, it takes some years and this shows with the age.

Table 4.3 presents the gender of the respondents.

Table 4. 3*Summary of Respondents Gender*

Gender	Frequency	Percent
Male	24	70.6
Female	10	29.4
Total	34	100.0

When it comes to gender as per Table 4.3, 70.6 % of the respondents were male while 29.4% of the respondents were female. This finding is consistent with the current setup where a majority of those in senior management of most companies are male.

Table 4.4 presents the length of stay in the company by respondents.

Table 4. 4*Summary of Respondents Stay in Company*

Duration in Company	Frequency	Percent
Between 2 and 6 Years	9	26.5
Between 7 and 11 Years	20	58.8
Above 12 Years	5	14.7
Total	34	100.0

As relates to respondent period of stay in the company as per Table 4.4, 58.8% of the respondents had stayed for between 7 and 11 years, 26.5 % between 2 and 6 years and 14.7 % above 12 years. This finding shows that the majority of the respondents were senior and had stayed with the companies long enough to make important strategic decisions on behalf of the company.

4.4 Descriptive Statistics on Product Innovation

This section presents the descriptive statistics of the responses on product innovation and organization performance. A five point Likert scale where 1= Strongly Disagree, 2= Disagree, 3=Uncertain, 4= Agree and 5= Strongly Agree was used to establish respondent's perception of product innovation strategies in their companies.

Table 4.5 presents the results of the descriptive statistics of responses on product innovations

Table 4. 5*Results of descriptive statistics of responses on Product Innovations*

Product Innovation Items	N	Mean	Std. Deviation
My organization continuously improves products and services to conform to changing customer needs	34	4.65	0.77
My organization conducts consumer research before developing new products	34	4.62	0.65
My organization offers a variety of products customized to client needs	34	4.53	0.79
My organization replaces non-performing products with performing products in order to increase revenue	34	4.47	0.83
My organization develops and improves products based on information collected from consumers	34	4.59	0.66
My organization produces products cost effectively	34	4.35	0.50
My organization develops products based on consumer demands	34	4.59	0.66
Overall Mean	34	4.54	0.69

From Table 4.5, the statement “My organization continuously improves products and services to conform to changing customer needs” had a mean of 4.65 and a standard deviation of 0.77. A majority of the respondents strongly agreed that their companies improve their products and services to conform to the changing customer needs. The statement “My organization conducts consumer research before developing new products” had a mean of 4.62 and a standard deviation of 0.65. The respondent strongly agreed that the majority of the time, their companies conduct research before developing new products. The statement “My organization develops products based on consumer demands” had a mean of 4.59 and a standard deviation of 0.66. The respondents strongly agree that their companies/ organizations develop their products based on the consumer demand for those products. The statement “My organization develops and improves products based on information collected from consumers” had a mean of 4.59 and a standard deviation of 0.66. The responses from the respondents confirm that indeed their respective companies develop

and improve their products based on information that they gather from their respective customers. The statement “My organization replaces non-performing products with performing products in order to increase revenue” had a mean of 4.53 and a standard deviation of 0.79. The respondent strongly agreed that their companies do offer a variety of products customized to client needs. The statement “Customers are oriented on new products regularly” had a mean of 4.47 and a standard deviation of 0.83. The respondents strongly agreed that their respective companies do make a point of regularly orienting their customers on any new products that they launch. The statement “My organization produces products cost effectively” had a mean of 4.35 and a standard deviation of 0.50. The responses to all the constructs show that the respondents agree that their respective companies generally produce their products in a cost effective manner.

The average mean for the responses to the various questions is 4.54 and the average standard deviation is 0.69. These averages clearly indicate that the respondents all generally agree that product innovations has a significant effect on the performance of the financial technology companies in Kenya and that therefore it is important for them to implement product innovations so that they can see improvements in their performance. These findings are consistent with the findings by Ngugi and Karina (2013) who concluded that overall firm productivity was stimulated by product innovation and continuous improvement of the process of production and distribution. He continued to aver that without product innovation in an organization, most of the firms may find it difficult to sustain themselves in the changing business environment. He further concluded that firms should dedicate their efforts to improving and developing new products to remain relevant in the international and local marketplace.

4.5 Descriptive Statistics of Responses on Process Innovations

Table 4.6 presents the descriptive statistics of responses on process innovations

Table 4. 6*Results of Descriptive Statistics of Responses on Process Innovations*

Process Innovation Items	N	Mean	Std. Deviation
My organization’s systems are computerized to improve efficiency and effectiveness	34	4.59	0.61
Our organization regularly re-engineers its business processes to enhance efficiency and effectiveness	34	4.44	0.75
Employees respond to customer queries through Customer Relationship Management systems	34	4.68	0.54
Company employs the latest software development methodologies to ensure quick delivery of solutions to customers	34	4.62	0.70
My organization has implemented Continuous Integration Continuous Deployment (CICD) software methodology to enhance solution delivery	34	4.38	0.89
To ensure quick consultation and action, most meetings are conducted using teleconference	34	4.47	0.90
Employees are trained on how to interact with systems	34	4.59	0.78
My organization has reliable processes that exceed customer expectations	34	4.65	0.65
Overall Mean	34	4.55	0.72

From Table 4.6, the statement “Employees respond to customer queries through Customer Relationship Management systems” had a mean of 4.68 and a standard deviation of 0.54. This indicates that the respondents strongly agreed that their respective companies have their employees respond to customer queries Customer Relationship Management Systems that are efficient in being able to track a customer issue until its resolved while noting any delays that may arise during resolution.

The statement “My organization has reliable processes that exceed customer expectations” had a mean of 4.65 and a standard deviation of 0.65. These statistics show that the respondents strongly

agree that their organizations have reliable processes that exceed their customer expectations. The statement “Company employs the latest software development methodologies to ensure quick delivery of solutions to customers” had a mean of 4.62 and a standard deviation of 0.70. This clearly indicates that the respondents strongly agree that their respective companies are adopting the latest software development methodologies that can then see them quickly deliver innovations to their customers in the shortest time possible while also meeting the customer expectations. The statement “My organization’s systems are computerized to improve efficiency and effectiveness” had a mean of 4.59 and standard deviation of 0.78 in terms of the respondent feedback. Lack of computerization hampers the effective delivery of services. This indicates that majority of the respondents strongly agree that their organizations/ companies have computerized systems meant to improve their efficiency and effectiveness. The statement “Employees are trained on how to interact with systems” had a mean of 4.59 and a standard deviation of 0.78. The analysis of the responses based on these statistics shows that the respondents strongly agreed that all their employees are trained on how to interact with systems. The statement “To ensure quick consultation and action, most meetings are conducted using teleconference” had a mean of 4.47 and standard deviation of 0.90. The respondents, based on the statistics, strongly agree that most of the company meetings are conducted using teleconference in a bid to improve efficiency, save time and also make use of available technologies. The statement “Our organization regularly re-engineers its business processes to enhance efficiency and effectiveness” had a mean of 4.44 and a standard deviation of 0.75. This indicates that the respondents strongly agreed that their companies regularly re-engineer their processes to enhance efficiency and effectiveness. Re-engineering ensures that any processes that are no longer useful are done away while new useful processes are incorporated in line with the existing market and business needs. The statement “My organization has implemented Continuous Integration Continuous Deployment (CICD) software methodology to enhance solution delivery” had a mean of 4.38 and a standard deviation of 0.89. These statistics show that the respondents strongly agreed Continuous Integration and Continuous Deployment software methodology has been implemented by their respective companies. CICD is important as it ensures increased customer satisfaction, smaller backlog, transparency and accountability and test reliability.

The average mean for the responses to the various questions is 4.55 and the average standard deviation is 0.72. These averages clearly indicate that the respondents all generally agree that

process innovations has a significant effect on the performance of the financial technology companies in Kenya and that therefore it is important for them to implement process innovations so that they can see improvements in their performance. These findings are in line with the findings by Wambui et al. (2018) who avered that process innovations have the highest positive influence on organizational performance. They further concluded that process innovations assist companies improve on quality of their products and services through better use of technologies, equipment's resulting to operational efficiency, effectiveness, brand image improvement, sales growth and market rank performance.

4.6 Descriptive Statistics of Responses on Performance of Financial Technology Companies in Kenya

Table 4.7 presents descriptive statistics of responses on performance of the information technology companies in Kenya

Table 4. 7

Results of Descriptive Statistics of Responses on Performance of the Information Technology Companies in the Study

Performance Items	N	Mean	Std. Deviation
Customers are highly satisfied	34	4.82	0.32
Costs of operation have reduced significantly	34	4.79	0.48
Employee motivation has increased	34	4.88	0.39
Customer numbers have increased	34	4.94	0.28
Company market share higher than others	34	4.65	0.65
Overall Mean	34	4.82	0.42

From Table 4.7, the statement “Customer numbers have increased” had the highest mean scores of 4.94 and a standard deviation of 0.28 which means that most respondents agree that their companies have seen customer numbers increase in the recent past attributed to product and process innovations implemented by their companies. The statement “Employee motivation has increased” had a mean of M=4.88 and a standard deviation of 0.39 meaning the respondents agreed that the employee motivation is been seen to be increasing due to the implementation of process

and product innovations. The statement “Customers are highly satisfied” had a mean response of 4.82 and a standard deviation of 0.32 meaning that the respondents strongly agreed that their companies’ customers were highly satisfied as a result of the implementation of process and product innovations. The statement “Costs of operation have reduced significantly” had a mean of 4.79 and a standard deviation of 0.48 meaning respondents strongly agreed that their cost of operation had significantly reduced and this can be partly attributed to the implementation of process and product innovations. The statement “Company market share higher than others” had a mean of 4.65 and a standard deviation of 0.65 meaning they have a great market share due to the implementation of process and product innovations. The average mean was 4.82 while the average standard deviation was 0.42 and these statistics confirm that all the respondents generally agree that the process and product innovations have a significant effect on the performance of their respective companies. It’s therefore critical for them to implement process and product innovations.

4.7 Hypothesis Testing

The study further assessed the effect of strategic innovations on the performance of financial technology companies using multiple regression analysis. Regression analysis is used to establish the relationship between variables and also explains the power of each of the independent variables in accounting for the variations in the dependent variable (Kothari, 2008). Multiple regression analysis was conducted between strategic innovations (Product innovation and process innovation) and the performance of financial technology companies and the results are below discussed. The three hypotheses sought to determine the influence of innovation strategies on the performance of Financial Technology Companies in Kenya. These hypotheses were tested using Pearson Correlation Analysis to determine the strength and direction of the relationship. The Pearson correlation coefficient ranges from 0 (if no relationship exists) to 1. (For a perfect relationship), correlation coefficients (in absolute value) which are < 0.35 are generally considered to represent low or weak correlations, 0.36 to 0.67 moderate correlations, and 0.68 to 1.0 strong or high correlations with r coefficients > 0.90 very high correlations (Field, 2005).

4.7.1 Process Innovation and Performance of Financial Technology Companies in Kenya

The study aimed to determine the effect of process innovation on organizational performance of financial technology companies in Kenya. This was the first objective of the study. To test the

hypothesis (H₀1) that process innovations have no effect on the performance of financial technology companies in Kenya, the study used simple regression analysis and the results are presented in Table 4.8.

Table 4. 8

Simple Regression Results on Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.513 ^a	.623	.332	.264

a. Predictor: (Constant), Process Innovation

From the model summary in Table 4.8, the R² was found to be 0.623. This suggests that process innovation explained 62% change in the performance of the financial technology companies in Kenya. The remaining 38% suggest that there are other factors that explained the variation of performance of the financial technology companies that are not process innovation.

Table 4. 9

Regression Results on Process Innovation

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig
		B	Std. Error	Beta		
1	(Constant)	2.433	.399		6.122	.000
	Process Innovation	.143	.111	.377	1.311	.021

a. Dependent Variable: Organizational Performance

From Table 4.9, the standardized beta coefficients ($\beta = .377$, $p = 0.021$) indicate that process innovation strategies are significant predictors of performance of financial technology companies in Kenya. These significant beta coefficients suggest that improving process innovations will lead to increased performance of financial technology companies in Kenya. Thus, hypothesis one which states that process innovation has no effect on the performance of financial technology companies in Kenya is rejected and the alternative hypothesis that states that process innovations have an effect on the performance of financial technology companies in Kenya is accepted. The results from the above analysis is consistent with the results from the previous studies reviewed in our literature review. The results are consistent with the studies by Peter (2021), Mbocho (2020),

Wambui et al. (2018), Yusufu (2013) as well as Moturi (2010). They had all concluded that process innovations have a significant effect on the performance of the respective companies and industries that they were studying.

Table 4. 10

ANOVA Results

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.921	2	.621	10.651	.000 ^b
	Residual	1.983	31	.052		
	Total	3.904	33			

The Analysis of Variance (ANOVA) results as shown in Table 4.10 also confirms that the model is appropriate for this data since p-value of 0.000 which is less than 0.05 and the F value is 10.651. The results indicated that the model was significant, that is, process innovations have an effect on the performance of the financial technology companies in Kenya (F=10.651, P value =0.000). Thus, hypothesis one which states that there is no significant effect of process innovations on the performance of financial technology companies in Kenya is rejected and the alternative hypothesis that states that there is an effect of process innovations on the performance of financial technology companies in Kenya is accepted.

4.7.2 Product Innovation and the Performance of Financial Technology Companies in Kenya

This study sought to determine the effect of product innovation on the performance of financial technology companies. This was the second objective of the study. To test they hypothesis H₀₂ that product innovations have no effect on the performance of financial technology companies in Kenya, the study used regression analysis and the results are presented in the tables below.

Table 4. 11*Simple Regression Analysis Model Summary*

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.640 ^a	.423	.391	.25356

Predictor: (Constant), Product Innovation

From the model summary in Table 4.11, the R² was found to be 0.423. This suggests that there was 42% change in the performance of the financial technology companies as a result of product innovations. The remaining 58% suggest that there are other factors that can explain the variation of performance of the financial technology companies.

Table 4. 12*Simple Regression Analysis*

Model		Unstandardized		Standardized	T	Sig
		Coefficients		Coefficients		
		B	Std. Error	Beta		
1	(Constant)	2.788	.432		6.456	.000
	Product Innovation	.207	.102	.333	2.025	.050

a. Dependent Variable: Organizational Performance

From Table 4.11, the standardized beta coefficients ($\beta = .333$, $p = 0.50$) indicate that process innovation strategies are significant predictors of performance of financial technology companies in Kenya. These significant beta coefficients suggest that improving product innovations will lead to increased performance of financial technology companies in Kenya.

Table 4. 13*ANOVA Results^a*

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.891	2	.667	10.771	.000 ^b
	Residual	1.927	31	.054		
	Total	3.918	33			

The Analysis of Variance (ANOVA) results as shown in Table 4.13 also confirms that the model is appropriate for this data since p-value of 0.000 which is less than 0.05 and the F value is 10.771. The results indicated that the model was significant, that is, process innovations have an effect on the performance of the financial technology companies in Kenya (F=10.771, P value =0.000).

Thus, hypothesis two which states that product innovations have no effect on the performance of financial technology companies in Kenya is rejected and the alternative hypothesis that states that product innovations have an effect on the performance of financial technology companies in Kenya is accepted. The results from the summary presented above are consistent with the findings from previous studies that were reviewed prior to the study. The results are consistent with the findings by Onikoyi (2017), Nakato (2021), Mutevu and Kerongo (2015), Mwendwa et al. (2016) and Ngugi and Karina (2013). In their respective studies, they found that product innovation had a significant impact on the performance of the companies and industries that they were studying.

4.73. Joint Effect of Product and Process Innovation on the Performance of Financial Technology Companies in Kenya

The study sought to find the joint effect of product and process innovation on the performance of financial technology companies in Kenya. This was the third objective of the study. To test the hypothesis H₀₃ that there is no joint effect of product innovation and process innovation on the performance of financial technology companies in Kenya, the study used multiple regression analysis and the results are presented in Table 4.14 and discussed below.

Before the regression analysis was carried out, Pearson's correlation analysis was conducted to ensure that there is no multicollinearity. Multicollinearity exists when there is a strong correlation

between two or more independent variables and this always causes problems when running multiple regression. According to Field (2009) multicollinearity exists when correlations between two independent variables are at or in excess of 0.80. In this study, the collinearity between product innovation and process innovation was 0.543 which clearly shows that there is no multicollinearity between the two independent variables in this study.

Table 4. 14

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.640 ^a	.410	.372	.25356

a. Predictors: (Constant), Product Innovation, Process Innovation

Multiple regression analysis was used to establish the extent to which the combined effect of process and product innovations affected the performance of the financial technology companies in Kenya. According to the results in the Table 4.14, around 41% of the company performance can be attributed to the process and product innovations implemented by the financial technology companies in Kenya while 59% of the change in performance is as a result of other factors. The standardized beta coefficients indicate that process innovations ($\beta = .396$, $p = 0.22$) and product innovations ($\beta = .333$, $p = 0.52$) were all significant predictors of performance of the financial technology companies in Kenya.

Table 4. 15

Multiple Regression Analysis

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig
		B	Std. Error	Beta		
1	(Constant)	2.788	.432		6.456	.000
	Process Innovation	.253	.105	.396	2.407	.022
	Product Innovation	.207	.102	.333	2.025	.050

From the summary in Table 4.15, the standardized beta coefficients indicate that process innovations ($\beta = .396$, $p = 0.22$) and product innovations ($\beta = .333$, $p = 0.50$) were all significant predictors of performance of the financial technology companies in Kenya. This implies that if the financial technology companies in Kenya can implement process and product innovations, they will see an improvement in their performance.

Table 4. 16*ANOVA Results*

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1.386	2	.693	10.778	.000 ^b
	Residual	1.993	31	.064		
	Total	3.379	33			

The Analysis of Variance (ANOVA) results as shown in Table 4.16 also confirm that the model is appropriate for this data since p-value of 0.000 which is less than 0.05. The results indicated that the model was significant, that is, process and product innovations have an effect on the performance of the financial technology companies in Kenya (F=10.778, P value =0.000). The unstandardized beta coefficient of process innovation is 0.253 while that of product innovation is 0.207. This implies that by taking all other independent variables at zero, a unit increase in the process innovation would lead to a 0.253 increase in the performance while a unit increase in product innovation would lead to a 0.207 increase in the performance of the financial technology companies in Kenya. Thus, hypothesis three which states that there is no significant joint effect of product innovations and process innovations on the performance of financial technology companies in Kenya is rejected and the alternative hypothesis that states that there is a joint effect of product innovations and process innovations on the performance of financial technology companies in Kenya is accepted.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The general objective of this study was to examine the effect of innovations on the performance of financial technology companies in Kenya. On the basis of the study objectives and the data collected and analyzed, this chapter presents a summary of the findings, conclusion as well as recommendations for further research. The findings are summarized as per each of the research objectives.

5.2 Summary of Findings

The study was conducted to examine the effect of strategic innovations on the performance of financial technology companies in Kenya. The study adopted an explanatory research design and the data was collected using questionnaires. The data was analyzed using descriptive statistics and the results presented in the form of tables.

The first objective was to establish the effect of process innovation on the performance of financial technology companies in Kenya. Based on the findings from the study, there is a positive correlation between the implementation of process innovations and the performance of financial technology companies in Kenya. This suggests that an increase in process innovations will result in an increase in the performance of the companies. The findings were also supported by a positive correlation which further suggested that an increase in the implementation of process innovations leads to an increase in the performance of the financial technology companies in Kenya.

The second objective of the study was to determine the effect of product innovation on performance of financial technology companies in Kenya. The results of the study show that there is a positive correlation between product innovation and the performance of financial technology companies in Kenya. This suggests that an increase in product innovations results in an increase in the performance of financial technology companies in Kenya. It also found that the product innovations lead to increased customer numbers and increased value for the shareholders. The findings were further supported by the positive correlation which further confirms that an increase in implementation of product innovations by the financial technology companies will see an increase in their performance.

The third objective of the study was to determine the joint effect of product innovation and process innovation on performance of financial technology companies in Kenya. The findings from the study clearly show that jointly, process and product innovations have an impact on the performance of the financial technology companies in Kenya. This implies that an increase in the implementation of both process and product innovations will see an increase in the performance of the financial technology companies in Kenya. The financial technology companies in Kenya should therefore endeavor to ensure that they constantly implement both process and product innovations in order for them to remain ahead of the curve as relates to their competitors.

5.3 Conclusions

The aim of the study was to determine the effect of process and product innovations on the performance of financial technology companies in Kenya as addressed by three specific objectives. From the research findings and the answers given to questionnaires, the researcher was able to arrive at some conclusions. Process and product innovations are key if the financial technology companies are to witness improvements in its internal processes and new products which lead to enhanced or improved performance. This was supported by the responses from the respondents and also the analysis conducted by the researcher.

The first objective of the study was to establish the effect of process innovation on the performance of financial technology companies in Kenya. Based on the findings from the study, implementation of process innovation has an impact on the performance of the financial technology companies in Kenya. The improved performance can be seen in the form of increased customer satisfaction, increased market share, increased staff satisfaction as well as increased financial performance. The regression results supported the fact that there is a positive relationship between the implementation of process innovations and the performance of financial technology companies in Kenya. It is therefore important for the financial technology companies to continue coming up with process innovations that will then be able to drive their competitive performance.

The second objective of the study was to determine the effect of product innovation on performance of financial technology companies in Kenya. The study concluded that the implementation of product innovations are also a key determinant of the performance of the financial technology companies in Kenya. The simple and multiple regression results indicated

that there is a positive and significant relationship between implementation of product innovations and the performance of financial technology companies in Kenya. It is therefore imperative that the financial technology companies in Kenya adopt and implement product innovations in order for them to get ahead of their competitors.

The third objective of the study was to determine the joint effect of product innovation and process innovation on the performance of financial technology companies in Kenya. The findings from the study concluded that product and process innovations jointly are a key determinant of the performance of the financial technology companies in Kenya. The multiple regression results indicated a positive and significant relationship between implementation of product and process innovations and the performance of financial technology companies in Kenya. So, for the financial technology companies in Kenya to get ahead and even survive the stiff competition, they must be able to embrace and implement process and product innovations.

The study therefore concluded that process and product innovations, as strategy innovations that financial technology companies in Kenya are implementing, have a significant effect on the performance of the companies. This therefore implies that the companies need to focus more on implementing these strategies so that they can enhance their performance both in terms of products and services delivery, market penetration and market share, customer numbers and even financial performance.

5.4 Recommendations and Policy Implications

The study found that process innovations have an effect on the performance of financial technology companies. The study therefore recommends that the financial technology companies in Kenya should embrace and implement process innovations in order to drive their performance and also grow their market share. Therefore, the financial technology companies can enhance their performance by continuous re-engineering of their processes, increased computerization, and use of customer relationship management software and implementation of the latest software development methodologies such as Continuous Integration Continuous Development (CICD).

The study also found that product innovations have an effect on the performance of financial technology companies in Kenya. The study therefore recommends that the financial technology companies in Kenya should at all times implement product innovations since it is going to result in an increase in their performance. They can achieve this by constantly improving their product offerings through integrating the feedback received from the consumers during consumer research,

customization of products based on customer needs and creating a feedback loop with the customers.

The study further revealed that process and product innovations jointly have an effect on the performance of financial technology companies in Kenya. This implies that an increase in the implementation of process and product innovations by the financial technology companies in Kenya will see an increase in the performance of the financial technology companies. It is therefore recommended that the financial technology companies full embrace and incorporate process and product innovations in their daily operations. Being a service industry, the impact on performance of these initiatives is significant as has been shown by this study. As the companies continue to grow and as the industry matures, process innovations take greater meaning as such improvements see a greater than normal increase in performance as the companies implement the process innovations.

5.4 Implications of the Findings to Management

The management of the financial technology companies in Kenya and companies of a similar nature need to recognize and appreciate the need to implement innovations, among them being the process and product innovations that were the focus of this study.

The management of the financial technology companies should implement process innovations and make it part of the culture of the company. This will see an improvement of service delivery to the customers and this leads to customer retention and increased sales performance. Implementation of process re-engineering, use of customer relationship management solutions and incorporation of the latest software development methodologies are some of the recommended process innovations that the management can adopt.

The management of the financial technology companies in Kenya should also consider implementing product innovations and make it part and parcel of the company operations. The product innovations will ensure that the company remains ahead of their competitors and most importantly, enable them better meet the needs of their clients. This they can achieve through regular consumer research and the insights gleaned can then be adopted to enhance the product offering. As the Management implement process and product enhancements and solutions, they keep in mind the customer and always find a way of incorporating the customer in the process and product discussions.

Any management team that does not embrace process and product innovations stands a great risk of losing ground to their competitors. They should embrace these innovations and find the fastest way to market for such innovations such as the implementation of Continuous Improvement Continuous Deployment (CICD) software development methodology. Speed is of essence in technology business and the financial technology companies are actually operating in the technology space.

5.5. Suggestions for Further Research

The study provided great insights into the effect of strategic innovations on the performance of financial technology companies in Kenya with a focus on process and product innovations. An in-depth study on the effect of the market innovations and organization innovation on the performance of financial technology companies is recommended.

It's also recommended that the study can be extended to the Eastern African market to see the impact of the process and product innovations on the performance of financial technology companies in the region. This will be great to study in order to highlight the current trends and what is happening in the region as far financial technology is concerned.

The study adopted an explanatory research design with the main research instrument being the questionnaire. Future studies can also use other research designs such as longitudinal research design or descriptive research design and other instruments such as interviews, focus groups discussions and collection of secondary data in order to glean further insights that can help financial technology companies adopt innovations in a bid to drive performance.

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APPENDICES

Appendix I: Questionnaire

SECTION A: BACKGROUND INFORMATION

1. Kindly indicate your Age?

- a) Below 25 years
- b) 26-35 years
- c) 36-45 years
- d) Above 45 years

2. Kindly indicate your Gender?

- a) Male
- b) Female

3. For how long have you been working in the Organization?

- a) Less than a year
- b) Between 2 and 6 years
- c) Between 7 and 11 years
- d) Above 12 years

4. How long has your company been operating in Kenya?

- a) Less than a year
- b) Between 2 and 6 years
- c) Between 7 and 11 years
- d) Above 12 years

SECTION B: INNOVATIONS AND PERFORMANCE OF FINANCIAL TECHNOLOGY COMPANIES

PART A: PROCESS INNOVATION

1. Indicate your level of agreement with the following statements relating to the effect of process innovations on performance of your company?

(Scale 1= strongly disagree, 2= disagree, 3 = Neutral, 4= agree, 5= strongly agree)

Statements	1	2	3	4	5
My organization's systems are computerized to improve efficiency and effectiveness					
Employees generate online reports regularly					
Employees respond to customer queries through online systems					
Employees serve customers on real time basis without delay using computerized systems					
All the company employees are IT literate					
Meeting are conducted using teleconference or videoconference facilities where in person meeting is not possible					
Employees are regularly trained on how to interact with systems					
My organization has reliable processes that exceed customer expectations but which are also regularly reviewed					

PART B: PRODUCT INNOVATION

2. Indicate your level of agreement with the following statements relating to the effect of product innovations on performance of your company?

(Scale 1= strongly disagree, 2= disagree, 3 = Neutral, 4= agree, 5= strongly agree)

Statements	1	2	3	4	5
My organization continuously improves products and services to conform to changing customer needs					
My organization conducts consumer research before developing new products					
My organization offers a variety of products customized to client needs					
My organization replaces non-performing products with performing products in order to increase revenue					
My organization develops and improves products based on information collected from consumers					
My organization produces products cost effectively					
My organization develops products based on consumer demands					

PART C: ORGANIZATION PERFORMANCE

3. Indicate your level of agreement with the following statements relating to performance of your company?

(Scale 1= strongly disagree, 2= disagree, 3 = Neutral, 4= agree, 5= strongly agree)

Statements	1	2	3	4	5
Customer are highly satisfied					
Our costs of operation have reduced					
Our employee motivation has increased					
Customer numbers have increased					
My company has a greater market share compared with its key competitors					

Appendix II: List of Financial Technology Companies in Kenya

The following is a list of the financial technology companies in Kenya as received from Central Bank of Kenya:

#	Financial Technology Company
1	Tendepay
2	Cellulant
3	Zipwallet
4	DPO
5	Mobicard Systems
6	EastPesa
7	Eclectics International
8	Inuka Pap
9	Jambopay
10	NCR Corporation
11	Lakt
12	Lipisha
13	Lipa Card
14	M-Pesa
15	Nomanini
16	Pesapal
17	Tangazoletu
18	Ipay
19	Lipaspot
20	IPSL
21	Popotepay
22	Sasapay
23	Kenswitch
24	Interswitch
25	Airtel Money
26	T Kash

27	Pay U
28	EFT Corporation
29	Gravity Payments
30	Ukheshe
31	Kocela
32	Mookh Payments
33	Jumia
34	Africa's Talking
35	Sapama
36	Jenga Payment Gateway

Source, CBK, Year 2022

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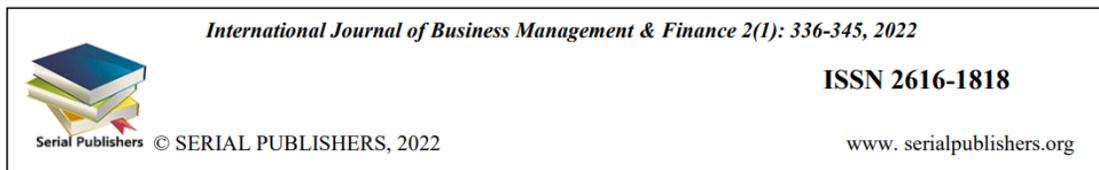
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Appendix IV: Research Publication

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PROCESS INNOVATIONS AND THE PERFORMANCE OF FINANCIAL TECHNOLOGY COMPANIES IN KENYA

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Abstract: Process innovations have continued to be the driving force of organizational performance of companies operating globally and locally. However, most of the financial technology companies operating in Kenya have continued to record deteriorating performance due to issues of process innovations. Despite the acknowledged fact that process innovations enhance performance of firms, still financial technology companies operating in developing countries and more especially in Kenya are underperforming. The study adopted descriptive research design to determine the problem under investigation. Target population of this study was the financial technology companies in Kenya. Because the population is small, a census was conducted in this study. A questionnaire was used in the collection of primary data. Validity of the research instrument was determined by using industry experts like lecturers and experienced employees working with financial institutions while reliability of

the research instrument was tested using Cronbach's Alpha that stipulates that items of the instrument are deemed to be reliable if they meet the threshold or reliability coefficients of more than 0.7. The Statistical Package of Social Sciences (version 21) was used to process and analyze the data. Data was analyzed using descriptive statistics and inferential statistics. Descriptive statistics such as frequency distributions, percentages, means, modes and standard deviations and frequency tables were used to summarize and relate variables which were attained from the administered questionnaires. Regression analysis was used to establish the effect between variables of the study. The results were presented in tables. The study found that process innovation had a positive and significant effect on the performance of financial technology companies in Kenya. An improvement in process innovation led to the performance of financial technology companies in terms of increased customer satisfaction, increased market share and increased staff satisfaction. It is therefore important for the financial technology companies to continue coming up with process innovations that will then be able to drive their competitive performance.

Key Words: Financial Technology, Process Innovation, Organizational Performance

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