SOFTWARE DEVELOPMENT QUALITY MANAGEMENT PRACTICES AND CUSTOMER EXPERIENCE IN KENYAN FINTECH FIRMS

BY

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DECLARATION

This project is my authentic work and has never been submitted for purposes of the award of any degree.

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D61/27603/2019

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I approve the submission of this project as the university supervisor.

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DEDICATION

I dedicate this to my loving parents who consistently prayed for me and encouraged me to continually improve my knowledge and capabilities and always chase my dreams and pursue my passion in life.

ABBREVIATIONS AND ACRONYMS

DevOps   Development and Operations

EDT   Expectation Disconfirmation Theory

FinTech   Financial Technology

PayGo   Pay-As-You-Go

SaaS   Software-As-A-Service

SMEs   Small and Medium Enterprises

TQM   Total Quality Management

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ABSTRACT

This study aimed at establishing the influence of software development quality management practices on Customer Experience by FinTech firms in Kenya. The objectives that guided the study were to determine the extent of adoption of software development quality management practices by FinTech firms in Kenya and to evaluate and determine the link connecting the concepts of software development quality management practices and Customer Experience by FinTech firms in Kenya. The study adopted a cross-sectional model and descriptive data was gathered and analyzed. The study focused on 187 sampled FinTech firms and simple and direct random sampling method was used with the aim to achieve the research objective. The primary data and field data was collected through an online self-administered questionnaire. However, the analysis was done using quantitative methods and the study used descriptive statistics (objective i) and regression analysis (objective ii). The outcome indicated that Product Focus, Continuous Learning and Data-Driven Decision-Making were adopted to a large extent while Customer Engagement was adopted to a moderate extent by the FinTech firms in Kenya. The findings also showed that software development quality management practices influence Customer Experience by FinTech firms in Kenya as indicated by the p value of lower than 0.05. More specifically, it was concluded that Product Focus, Continuous Learning, Customer Engagement and Data Driven Decision Making all had a positive and significant relationship with Customer Experience through Customer Satisfaction, Customer Retention and Customer Loyalty and Customer Experience in general. The study recommends that the decision makers of FinTech firms should adopt software development quality management practices (Product Focus, Continuous Learning, Customer Engagement and Data Driven Decision Making) if they want to enhance their Customer Experience (Customer Satisfaction, Customer Retention and Customer Loyalty). It is suggested that further studies can focus on software development quality management practices of FinTech firms in Kenya but measure the performance in other aspects of either operational, supply chain or even financial performance to see if the outcome can be the same.

CHAPTER ONE: INTRODUCTION

1.1 **Background**

The developments of Industry 4.0 have resulted in promising technology applications in the financial sector. Despite the growing anticipation of the resultant massive growth of Fintech, it has not received mainstream adoption rate overall and the mainstream banking institutions still dominate Ngoc et al. (2021). Ryu and Ko (2020) attributes this to a high unpredictability rate, data privacy concerns, and poor customer centricity as part of the constructs that drive customer hesitancy in adopting, accepting, and appreciating Fintech products and services and these constructs form part of important elements that should inform quality management practices to promote sustainable customer experience while using technology products to drive impactful customer value.

In conforming to the thoughts of Juran and Feo (2010), this research considers quality management trends and theories, with a view of promoting a holistic approach in quality management function across the entire organization for effective value creation and provide further development and insights to promote the current trends in changing quality culture to be aligned with value, that promote success in software development and operations. With effective product design and development, it is possible to achieve success and sustainable customer experience in firm's programs.

Given the dynamic nature of the technology operations and the intangible nature of service products and their role in enhancing service delivery to the end-user, it is necessary to carefully assess the inherent quality management issues, particularly those surrounding Fintech products, and utilize design thinking to promote product development anchored on customer value, product feasibility, business viability and product usability to effectively deliver value, which customers are willing to exchange with the specific product price as well as improve customer experience (Varga, 2017). These efforts will leverage customer service quality emphasized on driving customer trust towards Fintech adoption and acceptance and promote a steady and sustainable market growth and adoption of Fintech products.

1.1.1 Software Development

Software development is an elaborate process of developing computer applications that yield a usable software product to solve a particular problem and deliver a service. It involves a series of activities that starts with collecting business requirements for the intended features or requirements of the software product, planning, and conducting user research, designing the software product architecture, building, and implementation which involves actual coding, testing and verification, deployment, and product launch and eventually maintenance of the product while it is in the customer's hands. Incidentally, there exist various software development approaches, but all follow a methodological approach to manage the software development lifecycle. The approaches form an important aspect in the software product development lifecycle and are essential in ensuring that the customers get the right product at the right time which meets the specified acceptance criteria and conforms to the business requirements and user expectations (Dziuba, 2021).

The software product development is a journey, and just like any production process, there are some important aspects and thoughts that can help organizations to create high quality products, innovate new processes and develop new systems that will better manage and improve the firm's value proposition. One of the ways to achieve a consistent and desired level of product quality includes organizations adopting a total quality management approach, which is based on a total system approach that embeds a total and collaborative quality management culture in the organizational processes and across all the organization's value chains, carrying out sufficient stakeholder engagement and collaboration to be able to collect meaningful feedback, standardizing product quality process using competitive and dynamic quality benchmarks, the introduction of quality management activities early enough in the product development stages and asserting all the quality management activities to focus on creating customer value and sustainable customer experience (Anil & Satish, 2019; Conti, 2010; Gharakhani, Rahmati, Farrokhi & Farahmandian, 2013).

In addition, according to Dr. Juran's management theory (Juran & Feo, 2010), it is essential to holistically apply the concept of quality from the product perspective and expand its essence to take into account collaboration, engagement, and employee and manager training as the core drivers to a successful quality management approach that forms an invaluable aspect in the production process and particularly in this scope, the program evolution and growth process, as it expands the fundamentals of quality management beyond the existing processes and creates new paradigms that change the way an organization delivers value to its customers as well as forming a critical strategy that supports continuous and incremental improvement in employee knowledge and skillset as well as building an aligned organizational culture that is centered on customer-centric value creation and holistically centered on effective customer experience paradigm (Juran, 2020; Juran & Feo, 2010). The ability to develop ecperiences to customers in the Fintech context reflects the scope of software product usability, customer support system, data privacy, cyber security measures as well as speed, service, reliability, and flexibility of the software product itself with regards to the desired perceived value and service level expectations of the customer segment.

1.1.2 Quality Management Practices

The concept of quality relates to the degree of perfection as well as excellence in the management of operations. It is this quality model that drives product development consistency efforts and ensures that the product development sustainably meets desired customer satisfaction levels (Anderson, Rungtusanatham & Schroeder, 1994; Shammot, 2011). Given that quality represents a qualitative aspect of a product, with regards to its perceived usefulness or value towards satisfactorily or exceedingly solving a particular customer need or problem, it means that production processes must incorporate a deliberate quality management action to try to implement and manage certain activities that includes quality assurance, total quality management, benchmarking, and statistical process control, as part of the commitment to addressing production process standardization, monitoring, control and process improvements to meet the desired customer value perspective.

According to Spillner et al. (2007), the International Software Testing and Qualifications Board (ISTQB) elaborates that quality management includes all activities centered to control and manage product quality. It brings together quality planning and quality assurance which are related to setting the right processes for the achievement of product quality efficiently and effectively, quality control activities, which are concerned with the testing activities that implement the set processes to achieve the desired levels of product quality goals to achieve desired customer satisfaction levels and finally continuous improvement activities which ensures that the organization continuously seek for opportunities in their current processes and make them better.

1.1.3 Customer Experience

Today, the world is changing and customers from different parts of the world want to see things different through active engagement in operations. According to Bawack, Wamba and Carillo (2021), customers must be provided with well-defined and amazing experience to promote their level of success in firm operations. This is important to both the customers and the company. It is evident that companies which provide customers with unique experiences enjoy high performance. Customers amazing level of engagement can be done through sharing of information and important brand activities by the top management of companies. This means that firms in the technology industry have to focus on using new technology to socially and psychologically connect with their customers (Mai Chi, Paramita & Ha Minh Quan, 2022).

Moreover, effective customer's levels of engagement are what attract customers to buy products (Kuppelwieser and Klaus, 2021). All companies should seek ways of promoting value in the life and programs of the customers. Dalla Pozza (2022) opines that one of the important issues that can help companies achieve their goals within a short time is the promotion of customer value. It has been argued that customers can connect intuitively, socially, and cognitively with the company if everything is done to connect with them. With the modern technology, this is possible, and companies should seek ways to improve their customer's value (Gerea, Gonzalez-Lopez & Herskovic, 2021). The top managers must connect and consider the feelings, emotions, and viewpoints of the customers to achieve their greater long-term success (Zaid & Patwayati, 2021; Bawack,

Wamba & Carillo, 2021). Specifically, the marketing aspects within organizations must provide ways through which the firm will connect with their customers (Li, Ma & DiPietro, 2022). This is what expand the brand portfolio and help in promoting the general success and operations of the firm (Barbu, Florea, Dabija & Barbu, 2021). The digital technology space provides the best models of integrated and providing the best customer value in all regions (Bawack, Wamba & Carillo, 2021).

1.1.4 FinTech Industry in Kenya

Fintech is an acronym from financial technologies, widely viewed as the application of innovative technology to ease the way of doing business, improve service delivery and increase collaboration and engagement between the financial service firms and their customers while championing almost paperless transactions using software and software products. The Fintech industry brings together firms offering innovative modern technology solutions in financial and insurance sectors that supply efficient and scalable delivery, improvement, and automation of financial services across the divide from the banked, unbanked, underbanked, to un-bankable customers (Walden, 2020).

Some of the key areas where Fintech is creating disruption are in data analytics, artificial intelligence, cyber security, mobile applications, and robotic process automation that has yielded applications ranging from mobile banking, mobile loans, internet money transfers, mobile loan applications, among other solutions. According to an analyst-led global research company Tracxn (2022), as of 22nd February 2022, there were 354 fintech startups in Kenya, which includes the following key players; Safaricom's M-PESA, Kwara, MarketForce, M-KOPA Solar, Tala, Musoni, mTek, Apollo Agriculture, Twiga foods, Turaco, and Pezesha Africa Ltd, among others.

The global Fintech industry registered global funding of $132 Billion, in 2021, according to CB Insights, (2021), representing more than double growth from 2020.

Figure 1. 1.4 Fin-Tech Global Funding Growth Trends
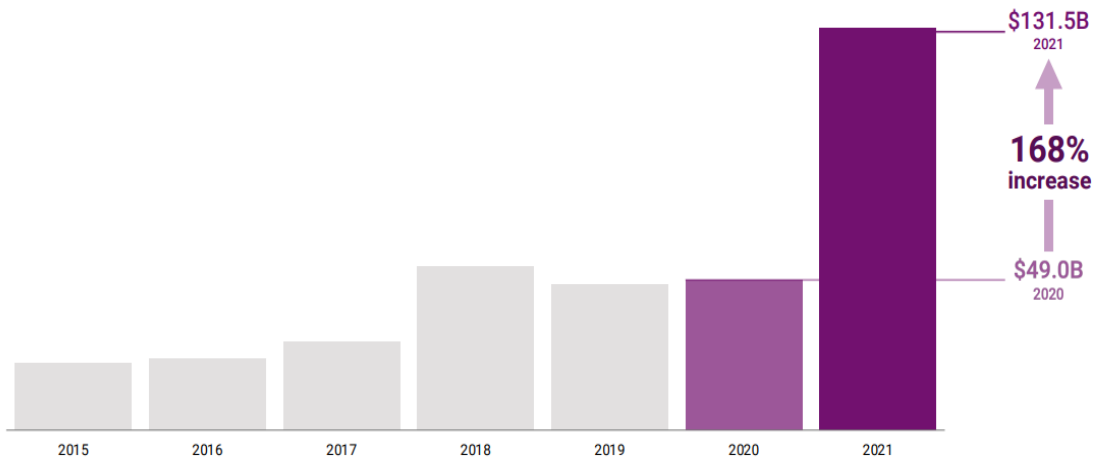
Source: CB Insights (2021)

1.2 **Research Problem**

Software quality management is embedded in the software development lifecycle, and it helps to put a check on the overall development process, to ensure effectiveness and efficiency in the software development process, leveraging a series of processes like quality planning, validation, verification, analysis, monitoring and control as a means of managing and maintaining product conformance to the business requirements and customer expectations and thus perpetuate a streamlined product and service delivery to the intended product users as well as ensuring that a firm can continuously develop and build the right capabilities in its development operations, which may include customer experience management, self-re-invention, business agility, and evolution which promotes continuous improvements in their system as well as improving on a firm's competitive advantage (Catlin, Scanlan & Willmott, 2015).

Robertson and Robertson (2012) hint that the most useful products need to be able to meet their intended functional requirements, use, and purpose to its users, and that these conditions are properly internalized and incorporated into the development process. Given the nature of Fintech software product associated with financial services, its sensitivity presents challenges related to strict conformance to key product features that promote precision and accuracy, app usability across various groups of people, high-

performance capabilities, data security protection as well as adherence to enhanced data privacy protection practices. These sensitive requirements mean that Fintech software development needs a robust software quality management system to support the software product development phases to ensure that the developed software product widely meets user experience, regulatory and business requirements.

Ngoc et al. (2021), elaborated on the contribution of quality management particularly concerning its contribution to the success of the deployment of industry 4.0 in emerging banking activities in Vietnam which included Fintech and other mainstream financial institutions. Okwiri (2012), analyzed the core quality management practices that could improve the operational excellence of a firm. His observations concluded that the application of effective design and quality planning systems such as development of new brands, performance metrics, clarity, and process compliance resulted in operational improvements as measured by reliability and timeliness drivers. He identifies an existing gap in understanding the clarity of those core practices' sole contribution to the positive operational outcomes.

Mäki and Alamäki (2019) and Ryu and Ko (2020) dived into the data privacy issues that arise during the customer journey because of the integration of services to digital operations. Their findings reinforce the results of a study of Ngoc et al. (2021) on the need for firms to further research on effective and efficient risk management systems as part of a quality management design approach to mitigate against such data privacy concerns while maintaining sufficient engagement levels to promote effective customer experience and value.

The views by Mele and Colurcio (2006), can be extended to build an inferred reasoning that there exists a "gap" between the quality management processes at a firm's operational and strategic levels. There is a need to advance the use of customer feedback, develop effective quality risk management strategy, integrate the needs and expectations of the customer into focus, and introduce quality management in the development phase, and across the span of the entire software development process. Hence, the study seeks to show how the current trends in quality management can be useful in holistically

breaching the gaps in software product development and dynamic delivery operations to effectively aid in sustainable customer experience and eventual customer value creation in Fintech applications.

Empirically, the study is about the effective use of customer service delivery expectations, pain points, and reviews (both positive and negative) to build an internal knowledge base that will form a basis for matching the organizational competencies to create value to the customers a firm serves. From a research perspective, this will offer new suggestions to existing ideas on holistic quality management, combining the system theory with proven practical and theoretical concepts in total quality management and the current trends in software production operations.

The discussions presented in the preceding sections, therefore, lead to the following research questions: What are the key software development quality management practices adopted in Fintech? How does the software development quality management practices affect customer experience?

1.3 **Research Objectives**

This research project explored the core quality management practices particularly among the Fintech firms that would help drive sustainable technology adoption, influencing the development of the right software products that can solve customer problems and effectively meet user expectations in a way that provide customer value while standardizing customer experiences with technology products.

The specific research objectives were:

i.   To determine the extent that software development quality management practices have been adopted in FinTech industry in Kenya.

ii.   To establish the relationship between software development quality management practices and customer experience among Fintech firms in Kenya.

1.4 **Value of The Study**

The results from this research will be quite useful to the management of the Fintech and other software firms, as it will present insightful practices that contribute to effective quality management and derive the convergence between quality management, customer value, and the customer experience. This will inform the quality policy formulation and structuring for better operational excellence. The results will also help in strengthening software product development operations using fluid, agile, and cross-functional communication, which promotes business adaptability, effectiveness in delivering the ultimate customer value and driving continuous improvement as well as providing valuable insights on key contemporary quality perspectives in Fintech software product development and delivery operations.

Additionally, this study will be particularly useful to Fintech startups in Kenya who have not successfully realized the full benefits of quality management. The analysis of the results will be valuable to managers in software development, product management, and software quality assurance since it will supply valuable insights that drive proactivity in quality management activities that focus on solving inherent customer problems and enhancing data-driven decision-making to inform their quality management improvement efforts.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

In Kenya, as of 2019, about 83% of adult population had at least one Fintech product (Collins, 2020). An economic survey estimates that mobile money transfers jumped up 20%. In early 2020, the value was more than 4 trillion and this increased to more than 5 trillion in late 2020, with e-commerce deals (including transactions due to services such as online shopping) hitting nearly Ksh 1630 billion (Munda, 2020). The trend delineates a great shift away from traditional financial services in which banking relied mostly on the customers having to visit different bank branches to have their issues addressed. According to Collins (2020), the growing integration of financial services with Fintech offerings has been a primary driver supporting the growing trend in the adoption of financial technology products and services. The success of this integration relies heavily on proper continuous quality management systems and processes adopted by the Fintech firms.

This section advanced some close analysis on various literature in quality function and subsequently attempt to discuss the need to adopt an organization-wide quality perspective, the core variables that inform technology product adoption, quality as an enabler to business excellence, and the need to integrate quality sense across all levels of business functions and consistently adopt a culture that persistently scans for the anticipated customer pain points, concerns, customer experience challenges, learning and the improvement opportunities to continually meet customer expectations on the product value.

2.2 Theoretical Framework

Several theories support product development and quality management research. Some of these theories suggest a need for an elaborate contribution of each stakeholder within the whole organization, towards managing and improving product quality, while some suggest a user-centric approach focused on a shared understanding of the desired customer expectations in product development efforts. This study borrowed insights from

Deming's quality management theory and complement those insights with other insights from other theories like the systems theory, technological acceptance model, and expectation disconfirmation theory (EDT).

2.2.1 Deming's Total Quality Management Theory

Deming suggests that to boost service quality, an organization ought to show a deeper connection and empathy on customer needs and focus their energies to align to customer-centric service delivery, which critically expects on key customer pain points, and deliberately adjusts to meet the customer value expectations (Anderson et al., 1994). This kind of quality orientation will increase organizational aggressive competencies and place the firm on a higher strategic positioning within the marketplace, especially now that organizations are working on a worldwide scale (Appelbaum & Batt, 2018).

This theoretical framework supports the application of agile product development and DevOps principles towards effective management of software development lifecycle to implement continuous improvement efforts and maximize efficiency, productivity, effectiveness, and agility in developing customer-centric software products and delivering value as regularly as possible (Ryu & Ko, 2020; Schneider, Wickert & Marti, 2017).

2.2.2 Systems Theory

Manz and Stewart (1997) holds the view that systems theory perceives an organization as a system with distinct functional units or sub-systems collaborating in distinct roles to deliver the goal of creating value to its customers and in turn fueling the competitiveness of the firm in its specific functional areas. These independent sub-systems have different responsibilities which are all aligned towards achieving the key business results as per the firm's set metrics. Such organizational functional modularity gives rise to various levels of quality issues arising on distinct levels of functional units and summing up to the experiences perceived by the end customer. The findings of Conti (2010) can be inferred to understand the overall contribution of aligning quality and systems thinking to generate and embrace customer value overall across all levels of business operations in

synergy. Schneider et al. (2017) extends a holistic view of promoting quality mindset in every part of the business, which can be aligned to open systems approach to leverage systemic interactions to share the different learning of diverse organizational groups with regards to the product effectiveness in creating desired customer value and converge the feedback from all levels of the business segments, especially from the front line staff that interacts with the customers directly to understand and project the customer pain points and problems in which the products should holistically aim to solve.

2.3 Software Quality Management Practices

Quality Management revolves around creating organizational excellence in value creation through a deliberate application of quality assurance and quality control processes on the product development throughout the development cycle (Anil & Satish, 2019; Juran & Feo, 2010; Lemon & Verhoef, 2016).

International Organization for Standardization (ISO, 2015) suggests seven core basic principles that are key to aligning quality management systems to achieve product development success in the scope of value proposition and customer focus. There is also the need for improvement leadership aspects, development of the human capital as well as programs and practices in the firm. This is what promote effective and evidence ways of decision making and effective relationship building among different groups in the firm. This study aspires to build on those core principles and derive an inference on the specific areas of interest affecting FinTech software product quality management practices in the context of product focus, continuous learning, customer engagement, and data-driven decision making as being eccentric to effective product development that creates sufficient FinTech customer experience as highlighted by Dow, Samson & Ford (1999).

2.3.1 Product Focus

In all regions, companies must aspire to change their value and operations. This is common in the product design and planning. According to Faraj et al (2021) and Awoke (2021), the product is what derive customers value and it must be amazing. The product

should be useful and easy or simple to use by different customers and this is what has been argued by Al-Maamari et al (2021). Customers are always dissatisfied if the organization they are loyal to do not meet their expectations by keeping their focus on the quality products and therefore gets detached from such organization. By focusing on the product and maintaining the right quality, the entity can maintain their clientele base as well as tap into the new markets (Olaleye et al., 2021). Continuously developing software and maintaining high quality is key in enhancing customer experience. Faraj et al (2021) note that this can only be achieved by maintaining the focus on the product and committing to the quality standards and goals of the entity. It is vital to deliver the product that meets the taste and preferences of the customers as the process of satisfying the client's needs starts with anticipation of what the customers might need and expect as concluded by Al Shraa et al (2021).

2.3.2 Continuous Learning

Learning is one of the ongoing processes in many firms and it is aimed at promoting success (Juran. 2020). This is simply because it results into achievement of new values, skills, and experiences. With learning and operations, firms can achieve new ways, and this is important in the brand management and reducing challenges in the firm operations (Ngoc Thach, 2021). It is through learning that new models are discovered, and the management can achieve brand loyalty and return customers. It is also true that learning is associated with easy and direct problem solving and ability of the management to come up with new solutions (Al Shraa et al., 2021). Through continuous learning and improvement, the entity can eliminate errors and be able to produce quality products and be able to make superior products than they previously did (Alzoubi et al., 2022).

2.3.3 Customer Engagement

The most important desire for most people at their workplace or the clients is the feeling of recognition and empowerment as observed by Ngoc Thach (2021). By engaging customers in the decision making of the product or service, they feel empowered and give feedbacks that can help in development of superior quality products and services. Engagement of customers is vital in managing and improving quality and it also aids in boosting the confidence of the customers on the products that the firm is producing

(Alzoubi et al., 2022). The firms can factor in the opinions and suggestions of the clients as well as carry out research and development in developing and enhancing quality of their software products. Customers can be properly trained in alignment with the quality functions in which way they can be useful and effectively be engaged and involved in decision making (Al Shraa et al., 2021). By customer engagement, the firm can minimize the errors as the firm is able to produce what the client's needs and prefers. Albloushi et al (2022) concludes that by engaging the clients, the firm is able to capture their needs and expectations with regards to the quality.

2.3.4 Data-Driven Decision-Making

Awoke (2021) asserts that the decision making is made on facts and trends and is solely dependent on the data and at an informed point of view. It is important that an entity develops a management information system that is regularly updated and with a strategic plan of ensuring that the system is well forecasted into the future while basing on all its strengths and opportunities (Faraj et al., 2021). This ensures that the entity has accurate and timely information in order to remain updated on the market thus retaining a competitive edge. This way from the data system in place, the firm can be able to make informed decisions based on the data and not on assumptions. Olaleye et al (2021) note that data-driven decision-making help reduce costs by minimizing the cycle time while reducing costs without affecting quality.

2.4 Customer Experience

Every business must strive to build the right products for its specific customer segment sufficient to create demand for those products in the respective markets (Barbu et al., 2021). The effectiveness of a product is concerned with an ability to develop a product with the desired capabilities that solves the immediate customer problem and creates value in a way that meets the customer's expectation (Li et al., 2022).

The customer experience is hinged on customer satisfaction, continuous improvement, factually speaking and respect for people as observed by Zaid & Patwayati (2021). Since customer experience matches the customer expectation, customer satisfaction is a very strategic component in the entity's quality planning without which, no firm can ever

remain viable, profitable, or competitive (Gerea, et al., 2021). Customer satisfaction is achievable through emphasis on learning and satisfying consumers' needs and requirements consistently (Kuppelwieser & Klaus, 2021). This is because satisfied customers will buy more in quantity and be willing to buy new items of the same or different product from the firm. Rahimian et al (2021) adds that this will therefore lead to a retention of the customer base as well as loyalty of clients as they obtain the products and services that they need and when they need in the right quality and quantities. A better customer experience aids in customer retention and tapping into new customers as satisfied clients freely provide relevant and vital information to the firm and act as agents of the firm by giving positive feedback to others about an entity's product and services Bawack et al., 2021; Mai Chi et al (2022), Dalla Pozza (2022.

2.5 Empirical Studies

Different studies on quality management, attribute the success of product development and the eventual performance in the hands of the customer to the adoption of a collaborative quality management approach, to achieve desired customer experiences.

The success of a firm's value drive according to the technology acceptance model, suggests a dependency on an organization developing and building the right capabilities to match the user expectations and supply products that provide perceived user value as well as making the user experience while using the product as smooth and effortless as possible. Catlin et al., (2015) views quality management as a central component in ensuring effectiveness in the successful building and targeting of such capabilities. Lemon and Verhoef (2016) explored the importance of a better value towards the company operations and noted that they are essential drivers of service quality management. The discussions assert existing opportunities to understand the integrated contribution of different drivers to customer experience and allude to such constructs as service quality management and the incorporation of customer data to understand a collective conceptualization of the customer experience.

The conclusions by Mäki and Alamäki (2019) focused on the aspect of quality management based on risk management and mitigation, to ensure best practices and

quality measures that protect user data and promote proper cyber security and data privacy validation and verification for the Fintech transactions systems and appreciated the significant role played by the technology revolution in digital financial institutions' capability to handle data protection and security measures. Ngoc et al., (2021) recommended a proper study on negative aspects of the technology revolution and identify its pros and cons in emerging markets and future research opportunities on empirical consideration of privacy concerns and the varying types of data in the distinct phases of customer journeys. This study builds from the data privacy construct to invoke the risk management dimension as part of important quality management variables in the Fintech context.

2.6 Conceptual Framework

Lemon and Verhoef (2016), Okwiri (2012) and Ngoc et al. (2021) propose future studies to include customer experience. It is in this consideration that this study used software quality management practices to derive inference on the common practices that directly influence the perceived customer experience.

Figure 2.6 Conceptual Framework

Predictor Variable   **Dependent Variable**

Software Quality Management Practices   Customer Experience

| Product Focus |
| Continuous Learning |
| Customer Engagement |
| Data-Driven Decision Making |

Customer Experience
1. Customer Satisfaction
2. Customer Retention
3. Customer Loyalty
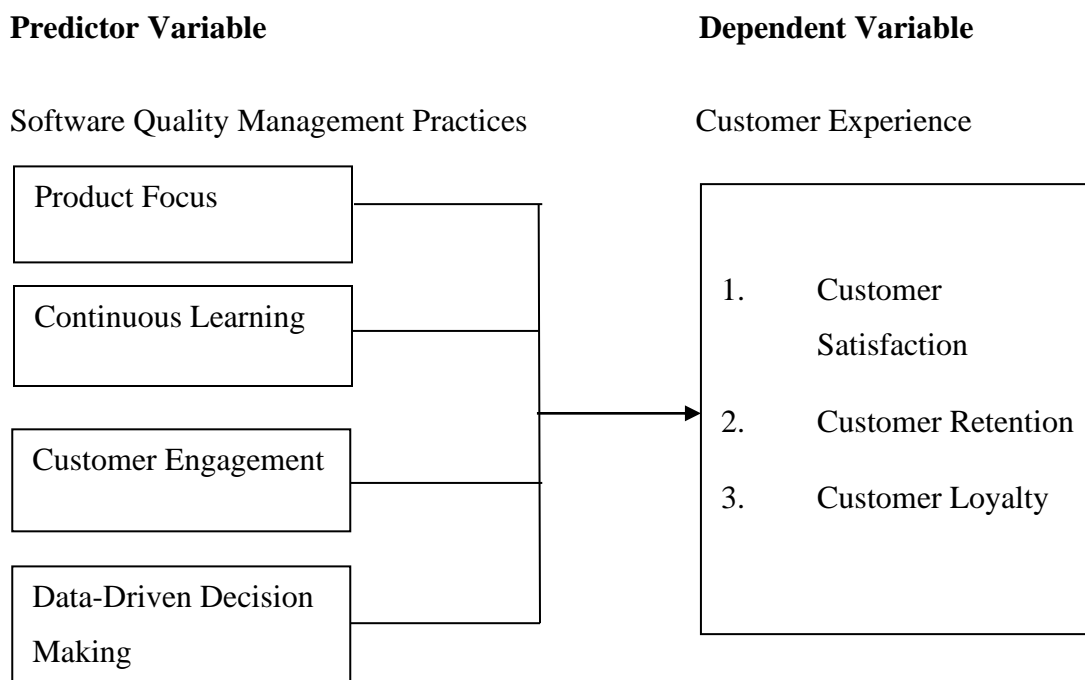
CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter highlights the proposed study design as well as target group and population. It also covers the sampling ways as well as how the field data will be gathered, Finally, it delves on the analysis model in the study.

3.2 Research Design

This research applied a comparative descriptive research design which allowed the researcher to gather the best software practices in the Fintech industry in Kenya and infer it across software quality management in general. The synthesis of the data collected was valuable in examining the insights that would help in understanding the relationship of the variables as well as offer insightful evidence on the importance of quality management and offer a basis on how to effectively use it to achieve customer value and sustainable customer experience that would promote business excellence in the contemporary technology-driven business environment.

3.3 Population of Study

This study focused on 354 fintech startups in Kenya as reported by the analyst-led global research company Tracxn (2022), as of 22nd February 2022.

3.4 Sample Design

The research applied clustered sampling and random selection to enable equal chances of sampling of the respondents. The cluster sampling technique allowed the identification of groups focused on software development based in Kenya, and a division of these groups into clusters, based on their specific industry. This was effective at allowing the organization of the results based on industry, with analysis on the insights on software product quality management in the FinTech industry in Kenya.

To ensure the accuracy and reliability of the research data and reduce bias, this research used a simple random sampling method to pick the groups that would take part in the

research. This method was both reliable and saved on time and resources during the research process. This technique also ensured adequate coverage of the research on the diverse population of software firms.

According to Sekaran and Bougie (2010), authors must use simple models in their study. This is important in providing all the participants a chance to participate. This is supported by Yamane formula. The formula provides simple ways as show below.

$n = N / (1 + N(e)2)$, where N represents the total population = 354, e represents the level of error = 0.05 and n represents the study sample size. Therefore, the sample size (n) = $354/ (1+354 \times 0.05^2) = 187$ fintech firms

The study used the fintech category groupings highlighted by Garvey, Burns, Alexander & O'Hearn (2019) to divide the study population into Seven clusters to represent FinTechs in distinct categories covering the following clusters: Lending, Mobile Payments, Agriculture, Insurance (Insuretech), Health, Consumer Banking and Retail.

3.5 Data Collection

The model adopted field data. The data was gained using questionnaire model and the researcher used self-administration plans to collect this information. This method proved to be cost-effective because it only needed well-structured questionnaires which used the available do-it-yourself online survey tools supported by various websites with ease of distribution across diverse socio-professional platforms like LinkedIn and other social networks. The study focused on 187 fintech company managers in Kenya with a target of the product development and the quality managers as the respondents.

Eventually, archival studies supplemented the preceding proposed data collection methodologies to examine the core practices of quality management and system approaches in enhancing effective product development and delivery operations in the software product development process to complement the online questionnaires.

3.6 Data Analysis

This research applied data analysis techniques based on linear regression, correlation analysis, and descriptive statistics to analyze the link among the study concepts.

The regression model that was used for data analysis is:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e$$

Where;

Y = Customer Experience

X_1= Product Focus

X_2= Continuous Learning

X_3= Customer Engagement

X_4= Data-driven Decision Making

e is the error term

Table 3. 1 Summary of Data Analysis Techniques

Objective	Data Collection	Analysis
To determine the extent that software development quality management practices have been adopted in FinTech industry in Kenya.	Self-administered questionnaire	Descriptive statistics
To establish the relationship between software development quality management practices and customer experience among Fintech firms in Kenya	Self-administered questionnaire	Linear regression, and Correlation analysis

CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND DISCUSSIONS

4.1 Introduction

The aim of the research was to establish the influence of software development quality management practices on customer experience among Fintech firms in Kenya. This chapter analyses the findings with regards to demographic information, extent of adoption as well as the correlation between software development quality management practices and customer experience.

4.2 Response Rate

This study targeted 187 Fintech firms in Kenya of which 151 responded translating to 80.75% of the respondents, a percentage considered sufficient for analysis. Yin (2017) considers a response rate of over 70 % as adequate for interpretation, presentation, and analysis of the outcome of any research

4.3 General Information

The research aimed at determining the job title of the study's participants, period of service, age bracket and highest education level that they held, and outcome are presented in table 4.3.1 and 4.3.2.

Table 4.3.1 Position and Education Levels

Position in organization	Frequency	Percentage (%)
Board Members	9	5.96
Top Management	34	22.52
Middle Level Manager	101	66.89
General Staff	7	4.63
Highest Education Level	**Frequency**	**Percentage (%)**
Diploma	11	7.28
Bachelors	91	60.26
Masters	41	27.15
Doctorate	8	5.31
Total	**151**	**100**

Table 4.3.1 illustrates that 5.96% of the study's participants represented Board Members, 22.52% represented respondents holding the top management position, 66.89%

represented Middle level management while the remaining 4.63% represented the members of the general staff. The outcome suggests that a big percentage of the participants held managerial positions and were knowledgeable on the subject matter under study.

On the level of education, a big percentage or the respondents which is 60.26% had attained bachelor's degree, 27.15% had masters, 5.31% had Doctorate with 7.28% having attained diploma. Hence, the majority (92.72%) had attained undergraduate and post graduate degrees as their highest education levels and thus were learned enough, an indication that FinTech firms employs learned and competent people to fill the positions

Table 4.3.2 Period of Service and Age Bracket

Period of service(years)	Frequency	Percentage (%)
0-3	14	9.27
3 -5	43	28.48
6 -10	49	32.45
Over 10	45	28.80
Age Bracket (Years)	**Frequency**	**Percentage (%)**
20-25	24	15.89
26-30	32	21.19
31-35	49	32.45
Above 36	46	30.47
Total	**151**	**100**

On the period of work under the positions that they held, most respondents (32.45%) had worked for between 6 and 10 years in their current positions while 28.80% had served for over 10 years and 28.48% had served for 3- 5years with the remaining 9.27% having worked for less than three years. Thus 90.73% of the respondents had worked for more than 3 years, an indication that they were knowledgeable and experienced in participating in the research.

As per the age bracket, most respondents (32.45%) were between 31 to 35 years while 21.19% were between 26 to 30 and 15.89% had 20 to 25 with the remaining 30.47% having above 36 years. Thus 62.92% of the respondents had more than 30 years implying that they were old enough and experienced enough to participate in the study.

4.4 Software Development Quality Management Practices

The first objective was to examine the extent of adoption of software development quality management practices by FinTech firms in Kenya and the subsequent sections present the outcome. The software development quality management practices that the study focused on were Product Focus, Continuous Learning, Customer Engagement and Data Driven Decision Making.

4.4.1 Product Focus

The research aimed at establishing the level of adoption and usage of Product Focus by FinTech firms in Kenya. The respondents were asked and requested to rate on a Likert scale of 1 to 5 whereby 1 is to a very low extent with 5 being to a very large extent. Table 4.4.1 illustrates that the firms have adopted product focus mindset in their software development operations that emphasizes on sustainable product quality, usability and reliability to a large extent as shown by the mean of 3.89 and S.D of 0.51. Also, to a large extent, mean = 3.97, S. D= 0.99, indicated that the development process advocates for constant assessment of the existing opportunity space to deliver quality products. The entity aiming at producing high quality and defect-free product was adopted to a large extent (M=4.23, SD=0.81) while the entity having a team of professionals that work on software development operations was also adopted and used by the firm management and this is evidenced by the mean of 3.79. It is also confirmed by the standard deviation of 0.61.

Table 4.4.1 Product Focus

Product Focus	Mean	Std. Deviation
1.The firm has adopted product focus mindset in their software development operations that emphasizes on sustainable product quality, usability, and reliability	3.8940	.50534
2.The development process advocates for constant assessment of the existing opportunity space to deliver quality products.	3.9735	.99296
3.The entity aims at producing high quality and defect-free product	4.2318	.81194
4.The entity has a team of professionals that work on software development operations	3.7940	.60534
Overall score	**3.9733**	**0.7289**

The aggregate score indicate that Product Focus has been adapted in the firm. This is evident based on the mean provided at 3.97 and deviation of 0.73. This outcome is consistent with the literature as Faraj et al (2021) and Awoke (2021) opined that properly focusing on Products to help reduce challenges and errors in firm operations and this is important for good customer value. Firm should find ways to promote simple products in their operations as noted by Al-Maamari et al (2021).

4.4.2 Continuous Learning

The study sought to determine the level of adoption of Continuous Learning by FinTech firms in Kenya. This was done using Likert scale value of 1 to 5 with 1 being to a very low extent while 5 being to a very large extent. Table 4.4.2 shows that that the firms have adopted continuous improvement efforts in their software development processes to a large extent as shown by the mean of 3.96 and S.D of 0.99. Provision of regular training on software product quality to enhance quality-related skills of the employees across different units of the business (M=4.23, SD=0.81) and the undertaking of extensive customer research and development activities by the software product development team as part of the initiatives to continually enhance software development processes and products (M=3.69, SD=1.80) were adopted to a large extent as indicated by their respective mean and standard deviations. Also, to a large extent, mean = 3.86, S. D = 0.61, the firm regularly carries out customer deep dives to understand and learn the underlying customer problems. The software product management teams regularly undertake design thinking sessions to standardize ideation and discovery sessions towards

a targeted problem-solving practice with cross-functional members to improve their software product offerings was adopted to a large extent as represented by the mean of 3.91 and SD of 0.74.

Table 4.4.2 Continuous Learning

Continuous Learning	Mean	Std. Deviation
1. The firm has adopted continuous improvement efforts in their software development processes.	3.9635	.99326
2. The firm provides regular training on software product quality to enhance quality-related skills of the employees across different units of the business	4.2318	.81194
3. The software product development team undertakes extensive customer research and development activities as part of the initiatives to continually enhance software development processes and products.	3.6940	1.8016
4. The firm regular carries out customer deep dives to understand and learn the underlying customer problems.	3.8609	.61144
5. The software product management teams regularly undertake design thinking sessions to standardize ideation and discovery sessions towards a targeted problem-solving practice with cross-functional members to improve their software product offerings	3.9139	.73883
Overall score	**3.9328**	**.9914**

The overall score (M=3.93, SD=0.99) points out that Continuous Learning has been widely adopted by the FinTech firms in Kenya as indicated by the mean and deviation. The outcome concurs with that of Ngoc Thach (2021) who asserted that by improving skills and continually learning, and this means that workers should promote proper learning to enjoy quality in their operations. Alzoubi et al. (2022) adds that through continuous learning and improvement, the entity can eliminate errors and can develop quality and superior products than they previously did.

4.4.3 Customer Engagement

The study sought to establish extent in use of Customer Engagement by FinTech firms in Kenya using a 5-point Likert scale with the low of 1 to a very low extent and the high of 5 representing to a very large extent. Table 4.4.3 indicates that firms undertake customer and employee engagement programs and affirms commitment to quality in their software development processes to a moderate extent as shown by the mean of 3.43 and S.D of 1.78 while the firm having a department that handles customer feedback, complaints and

views and uses them as inputs in the software product development processes was adopted to a large extent (M=3.74, SD=1.33). The management valuing relationship management in their software development process (M=3.33, SD=1.62) and the firm training and supporting customers on the use of products for effective utilization and better customer experience (M=3.24, SD=1.87) were both adopted to a moderate extent as indicated by their respective mean and deviations.

Table 4.4.3 Customer Engagement

Customer Engagement	Mean	Std. Dev
1.The firm undertakes customer and employee engagement programs and affirms commitment to quality in their software development processes.	3.4273	1.7765
2.The firm has a department that handles customer feedback, complaints and views and uses them as inputs in the software product development processes	3.7432	1.3286
3.The management values relationship management in their software development process.	3.3321	1.6178
4.The firm trains and supports customers on the use of products for effective utilization and better customer experience	3.2351	1.8770
Overall score	**3.4344**	**1.6499**

Table 4.4.3 illustrates that Customer Engagement has been adopted to a moderate extent by FinTech firms in Kenya as represented by the mean of 3.43 and standard deviation of 1.65. The outcome contradicts that of Al Shraa et al. (2021) who established that Customer Engagement is vital and that by engaging customers in the decision making of the product or service, they feel empowered and give feedbacks that can help in development of superior quality products and services. Engagement of customers is vital in managing and improving quality and it also aids in boosting the customer confidence and add a sense of association and ownership towards the products that the firm is producing as added by Alzoubi et al. (2022).

4.4.4 Data-Driven Decision-Making

The study aimed at ascertaining the adoption level of Data Driven Decision Making by Fintech firms in Kenya and Table 4.4.4 shows the outcome. A five-point Likert scale was adopted whereby 1 was to a very low extent with 5 being to a very large extent Adopted to a large extent as shown by the mean of 4.15 and SD of 0.75, the firms have embraced

data driven and evidence-based decision-making approaches in their software development processes. Putting in place tools for actively and continuously monitoring software products while in the hands of the customers by Software product development teams was also adopted to a large extent (M=3.83, SD=0.51) whereas monitoring and re-evaluating product analytics to inform their development strategies and priorities during their software product development cycles by product development team was adopted to a moderate extent (M=3.41, SD=1.49). The monitoring and measuring responsiveness in their software development process by firms (M=4.05, SD=0.92) and advocating for product reliability mindset in their software development operations were both adopted to a large extent (M=3.57, SD=0.69).

Data Driven Decision Making was adopted to a large extent as portrayed by the general score with the mean of 3.80 and the SD of 0.87. The outcome goes hand in hand with that of Olaleye et al (2021) who noted that Data-driven decision-making is key as it helps reduce costs by minimizing the cycle time while reducing costs without affecting quality. It is important that firms seek ways of promoting quality data management and this will reduce, and control majority of their challenges as concluded by Faraj et al. (2021) and Awoke (2021).

Table 4.4.4 Data-Driven Decision-Making

Data Driven Decision Making	Mean	Std. Deviation
1.The firm has adopted data driven and evidence-based decision-making approaches in their software development processes.	4.1523	.74609
2.The software product development teams have put in place tools for actively and continuously monitoring their software products while in the hands of the customers.	3.8340	.50574
3.The product development team monitors and re-evaluates product analytics to inform their development strategies and priorities during their software product development cycles.	3.4135	1.49296
4.The firm monitors and measures responsiveness in their software development process.	4.0518	.92194
5.The firm advocates for product reliability mindset in their software development operations.	3.5710	.69167
Overall score	**3.8047**	**.87168**

4.5 Relationship between Software development quality management practices and customer experience

The research sought to examine the relationship between software development quality control aspects and customer experience among Fintech firms in Kenya. Using a linear regression model, the findings were explained.

Table 4. 5 Regression Model Summary of Customer Experience

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.719a	.670	.653	.50212

a. Predictors: (Constant), Product Focus, Continuous Learning, Customer Engagement, Data-Driven Decision Making

From table 4.5, the coefficient of determination (R square) is 0.670 which translates to 67%. This therefore means that 67% of the variations in Customer Experience is attributed to software development quality management practices (Product Focus, Continuous Learning, Customer Engagement and Decision Making). The outcome is considered modest fit as only 33% of the variation in Customer Experience is not accounted for. The analysis of variance is presented in table 4.6.

Table 4. 6 ANOVA Analysis of Customer Experience

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	19.698	4	6.662	18.111	.000b
1	Residual	53.295	146	.363		
	Total	**72.993**	**150**			

a. Dependent Variable: Customer Experience

b. Predictors: (Constant), Product Focus, Continuous Learning, Customer Engagement, Data-Driven Decision Making.

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Based on table 4.6, the analysis of variation confirms the F value of 18.11. This is above the mean of 6.66. However, it confirms that p value of 0.00 is significant. This shows suitability of the variables as shown below.

Table 4. 7 Coefficients Analysis of Customer Experience

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	3.007	.398		7.556	.000
Product Focus	.397	.148	.528	2.682	0.01
Continuous Learning	.223	.061	.263	3.684	.000
1 Customer Engagement	.461	.070	.491	6.589	.000
Data-Driven Decision-Making	.193	.067	.003	2.881	.043

a. Dependent Variable: Customer Experience

The established linear regression equation becomes:

$Y = 3.007 + .397X1 + 0.223X2 + .461X3 + .193X4$

$Y = 3.007 + .397$Product Focus $+ 0.223$Continous Learning $+ .461$Customer Engagement $+ .193$Data-Driven Decision-Making.

From table 4.7, software development quality management practices (Product Focus ($t=2.682$, $P<0.05$), Continuous Learning ($t=3.684$, $P<0.05$), Customer Engagement ($t=6.589$, $P<0.05$) and Data-driven Decision Making ($t=2.881$, $P<0.05$) all have a positive and significant relationship with Customer Experience. This is supported by the fact that the P values do not exceed 0.05 and the T values are above 1.96. Important, the values provided confirm that customer experience is important in firm operations at a value of 3.007.

The findings also confirm that software development quality management practices were found to have statistically significant relationships with Customer Experience. Software development quality management practices (Product Focus, Continuous Learning, Customer Engagement and Data-driven Decision Making) were found to influence

Customer Experience through Customer Satisfaction, Customer Retention and Customer Loyalty. The outcome is consistent with that of Gerea, et al. (2021) who established that since customer experience matches the customer expectation, customer satisfaction is a very strategic component in the entity's quality planning without which, no firm can ever remain viable, profitable, or competitive.

Kuppelwieser and Klaus, (2021) added that Customer satisfaction is achievable through emphasis on learning and satisfying consumers' needs and requirements consistently. Rahimian et al (2021) posit that by adopting quality management practices will lead to a retention of the customer base as well as loyalty of clients as they obtain the products and services that they need and when they need in the right quality and quantities. A better customer experience aids in customer retention and tapping into new customers as satisfied clients freely provide relevant and vital information to the firm and act as agents of the firm by giving positive feedback to others about an entity's product and services as concluded by Bawack et al. (2021), Mai Chi et al (2022) and Dalla Pozza (2022).

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

Here, the study includes the summary view, the conclusion reached as well as the suggestions that can guide future managers. The section also includes the limitations and aspects that future scholars should consider.

5.2 Summary of The Findings

The study was carried out in 187 FinTech firms of which the results were obtained from 151 firms representing 80.75%. The primary objective was to determine the extent of adoption of software development quality management practices by FinTech firms in Kenya which was represented by Product Focus, Continuous Learning, Customer Engagement and Data Driven Decision Making. The outcome reveals that Product Focus, Continuous Learning and Data Driven Decision Making were used by the firms. It is also evident that Customer Engagement was part of many Fin-Tech firms in Kenya. This is a confirmation that FinTech firms in Kenya have put more efforts on the Product Focus, Continuous Learning and Data Driven Decision Making while giving little consideration of Customer Engagement based on their level of adoption. This could be due to their perceived benefits to influence and enhance Customer Experience. However, FinTech firms did not put much emphasis on Customer Engagement as it was moderately adopted implying that its benefits are somehow overlooked, and thus little efforts has been put on investing on the practices.

On the correlation between software development quality management practices and Customer Experience by FinTech firms in Kenya, regression analysis was executed and based on the regression coefficient, Product Focus, Continuous Learning, Customer Engagement and Data Driven Decision Making all had a positive and significant relationship with Customer Experience as indicated by the P value of less than 5%. This therefore implies that Product Focus, Continuous Learning, Customer Engagement and Data Driven Decision Making all influence Customer Experience of FinTech firms in Kenya

5.3 Conclusion

The study confirms that there is a connection and link between software and program maturity and the development of quality and good customer experience. This is common among FinTech firms in Kenya. It is also evident that firms should consider quality in their major operations to ensure that they build effective brand loyalty and amazing customer levels. Software development quality management practices were found to influence Customer Experience through Customer Satisfaction, Customer Retention and Customer Loyalty.

The research realized its first objective as different software development quality management practice were adopted on different extent. Product Focus, Continuous Learning and Data Driven Decision Making were adopted to a large extent while Customer Engagement was adopted to a moderate extent by the FinTech firms in Kenya. This is an indication that software development quality management practices have been adopted by FinTech firms in Kenya, albeit to different extents.

The second objective was also achieved, and the study concludes that software development quality management practice influences Customer Experience of FinTech firms in Kenya. More specifically, it is concluded that Product Focus, Continuous Learning, Customer Engagement and Data Driven Decision Making all had a positive and significant relationship with Customer Experience through Customer Satisfaction, Customer Retention and Customer Loyalty.

5.4 Recommendations from The Study

Based on the results of the study, the research recommends that the FinTech firms in Kenya should embrace software development quality management practice as they have been established to impact Customer Experience. FinTech firms needs to adopt Product focus as literature has indicated that to achieve software product user retention, the firm needs to adopt a product focus mindset that that emphasizes on sustainable product quality, usability, and reliability. The entities also need to advocate for constant assessment of the existing opportunity space to deliver quality products as well as aim at producing high quality and defect-free software products.

It is also recommended that the FinTech firms should adopt Continuous Learning by continuously improving efforts in their software development processes as well as providing regular training on software product quality to enhance quality-related skills of the employees across different units of the business. The firm also needs to have its software product development team undertake extensive customer research and pre-development activities as part of the initiatives as well as regularly carry out customer deep dives to understand and learn the underlying customer problems to solve to achieve business agility.

The study additionally recommends that the FinTech firms adopt Customer Engagement practices to a large extent as it was adopted to a moderate extent. The entities ought to undertake customer and employee engagement programs and affirm commitment to quality in their software development processes as well as value relationship management in their software development process. The entities should also train and support customers on the use of products for effective utilization and better customer experience as well as put in place a department that handles customer feedback, complaints and views and use them as inputs in the software product development processes

Lastly, it is recommended that the FinTech firms fully adopts the software development quality management practices as they have been established to impact Customer Experience. The firms should adopt Product Focus, Continuous Learning, Customer Engagement and Data Driven Decision Making as they all positively and significantly influence Customer Experience through Customer Satisfaction, Customer Retention and Customer Loyalty.

5.5 Limitation of The Study

The study had some limitation. For example, it was not possible to get the entire questionnaire filled and this means that the response rate was below 100%. Some of the participants were busy and did not manage to fill the questionnaire. However, this did not affect the objective of the study since the author managed to convince a number of the participants to fill and provide accurate data for the analysis.

Methodologically, a stratified random sampling was adopted due to the large population hence the researcher could not cover all the Fintech firms in Kenya. The outcome however did not hinder the quality of the outcome as the sample was sufficient enough to give a clear picture of the position of FinTech Firms.

Finally, the data was gathered using online models. This made it difficult to confirm if the actual respondents provided the information. In addition, some employees who did not have enough data may have filled the study. However, analysis was done to avoid such errors in interfering with the study plans.

5.6 Suggestions for Further Studies

Future studies can focus on the general quality drivers impacting the Fintech software product development process in Kenya. This way, what makes the FinTech firms in Kenya adopt specific software development quality management practices can be determined. The challenges faced in the implementation of software development quality management practices by FinTech firms in Kenya can also be another area for further studies. This will potentially bring out the indicators that hinder full adoption of the software development quality management practices by Kenyan FinTech firms.

Future studies can maintain the variables of the study but change the scope in which the study is carried out. A study can deviate from service sector and be focused in comparing the software development quality management practice and Customer Experience in either manufacturing firms, SMEs, or even Multinational corporations. This will aid in ascertaining whether the studies will generate the same results.

Apart from altering the scope, future study can alter one of the variables like the dependent variable. This can be done by attempting to carry out the study on the influence of software development quality management on either the supply chain performance, competitive advantage, financial performance or even service delivery on different sectors.

REFERENCES

Anderson, J. C., Rungtusanatham, M., & Schroeder, R. G. (1994). A theory of quality management underlying the deming management method. Academy of Management Review, 19(3), 472–509. https://doi.org/10.5465/amr.1994.9412271808

Anil, A. P., & Satish, K. P. (2019). Enhancing customer satisfaction through total quality management practices – an empirical examination. Total Quality Management & Business Excellence, 30(13–14), 1528–1548. https://doi.org/10.1080/14783363.2017.1378572

Appelbaum, E., & Batt, R. (2018). The New American Workplace: Transforming Work Systems in the United States. In The New American Workplace. Cornell University Press. https://doi.org/10.7591/9781501720642

Al Shraah, A., Abu-Rumman, A., Al Madi, F., Alhammad, F. A. F., & AlJboor, A. A. (2021). The impact of quality management practices on knowledge management processes: a study of a social security corporation in Jordan. The TQM Journal.

Albloushi, B., Alharmoodi, A., Jabeen, F., Mehmood, K., & Farouk, S. (2022). Total quality management practices and corporate sustainable development in manufacturing companies: the mediating role of green innovation. Management Research Review.

Al-Maamari, Q. A., Alkadash, T., Al-Absy, M. S., Nagi, M., & Abdullah, M. A. (2021). The Mediation Impact of Organizational Commitment on the Total Quality Management Practices and Individual Readiness for TQM Implementation within Yemeni Oil Units. International Journal for Quality Research, 15(2).

Alzoubi, H. M., In'airat, M., & Ahmed, G. (2022). Investigating the impact of total quality management practices and Six Sigma processes to enhance the quality and reduce the cost of quality: the case of Dubai. International Journal of Business Excellence, 27(1), 94-109.

Awoke, P. (2021). Total Quality Management Practices for Improving Procurement Performance of Petroleum Producing Companies (Doctoral dissertation, Walden University).

Barbu, C. M., Florea, D. L., Dabija, D. C., & Barbu, M. C. R. (2021). Customer experience in fintech. Journal of Theoretical and Applied Electronic Commerce Research, 16(5), 1415-1433.

Bawack, R. E., Wamba, S. F., & Carillo, K. D. A. (2021). Exploring the role of personality, trust, and privacy in customer experience performance during voice shopping: Evidence from SEM and fuzzy set qualitative comparative analysis. International Journal of Information Management, 58, 102309.

Catlin, T., Scanlan, J., & Willmott, P. (2015). Raising your Digital Quotient. 30–43. CB Insights. (2021). CBINSIGHTS State of Fintech. CBINSIGHTS. https://www.cbinsights.com/reports/CB-Insights_Fintech-Report-2021.pdf?

Collins, T. (2020, February 11). Is fintech in Kenya too successful? African Business. https://african.business/2020/02/economy/is-fintech-in-kenya-too-successful/

Conti, T. (2010). Systems thinking in quality management. The TQM Journal, 22(4), 352–368. https://doi.org/10.1108/17542731011053280

Creyer, E. H., & Ross, W. T. (1996). The impact of corporate behavior on perceived product value. Marketing Letters, 7(2), 173–185. https://doi.org/10.1007/BF00434908

Croll, A., & Yoskovitz, B. (2013). Lean Analytics.

Dalla Pozza, I. (2022). The role of proximity in omnichannel customer experience: a service logic perspective. Journal of Service Management, (ahead-of-print).

Dow, D., Samson, D., & Ford, S. (1999). Exploding the Myth: Do All Quality Management Practices Contribute to Superior Quality Performance? Production and Operations Management, 8(1), 1–27. https://doi.org/10.1111/j.1937-5956.1999.tb00058.x

Dziuba, A. (2021, November 2). The Software Development Process We Used to Build 200+ Products. Relevant Software. https://relevant.software/blog/software-development-process/

Ebert, C. (2014). Software Product Management. IEEE Software, 31(3), 21–24. https://doi.org/10.1109/MS.2014.72

Faraj, KM, Faeq, DK, Abdulla, DF, Ali, BJ, & Sadq, ZM (2021). Total Quality Management and Hotel Employee Creative Performance: The Mediation Role of

Job Embeddedment. Journal of Contemporary Issues in Business and Government, 27(1), 3838-3855.

Fricker, S. A. (2012). Software Product Management. In A. Maedche, A. Botzenhardt, & L. Neer (Eds.), Software for People: Fundamentals, Trends and Best Practices (pp. 53–81). Springer. https://doi.org/10.1007/978-3-642-31371-4_4

Garvey, J., Burns, P., Alexander, O., & O'Hearn, S. (2019). Global Fintech Report 2019. 29.

Gerea, C., Gonzalez-Lopez, F., & Herskovic, V. (2021). Omnichannel customer experience and management: an integrative review and research agenda. Sustainability, 13(5), 2824.

Gharakhani, D., Rahmati, H., Farrokhi, M. R., & Farahmandian, A. (2013). Total Quality Management and Organizational Performance. American Journal of Industrial Engineering, 1(3), 46–50. https://doi.org/10.12691/ajie-1-3-2

International Organization for Standardization. (2015). ISO 9001:2015(en), Quality management systems—Requirements. https://www.iso.org/obp/ui/#iso:std:iso:9001:ed-5:v1:en

Juran. (2020, March 4). The History of Quality | Dr Juran and Quality Improvement. Juran. https://www.juran.com/blog/the-history-of-quality/

Juran, J. M., & Feo, J. A. D. (2010). Juran's Quality Handbook: The Complete Guide to Performance Excellence, Sixth Edition. McGraw-Hill Education. https://www.accessengineeringlibrary.com/content/book/9780071629737

Kuppelwieser, V. G., & Klaus, P. (2021). Measuring customer experience quality: the EXQ scale revisited. Journal of Business Research, 126, 624-633.

Lemon, K. N., & Verhoef, P. C. (2016). Understanding Customer Experience Throughout the Customer Journey. Journal of Marketing, 80(6), 69–96. https://doi.org/10.1509/jm.15.0420

Li, J., Ma, F., & DiPietro, R. B. (2022). Journey to a fond memory: How memorability mediates a dynamic customer experience and its consequent outcomes. International Journal of Hospitality Management, 103, 103205.

Long, F. (2009). Research Paper—Real or Imaginary: The effectiveness of using personas Search Articles in product design. 7.
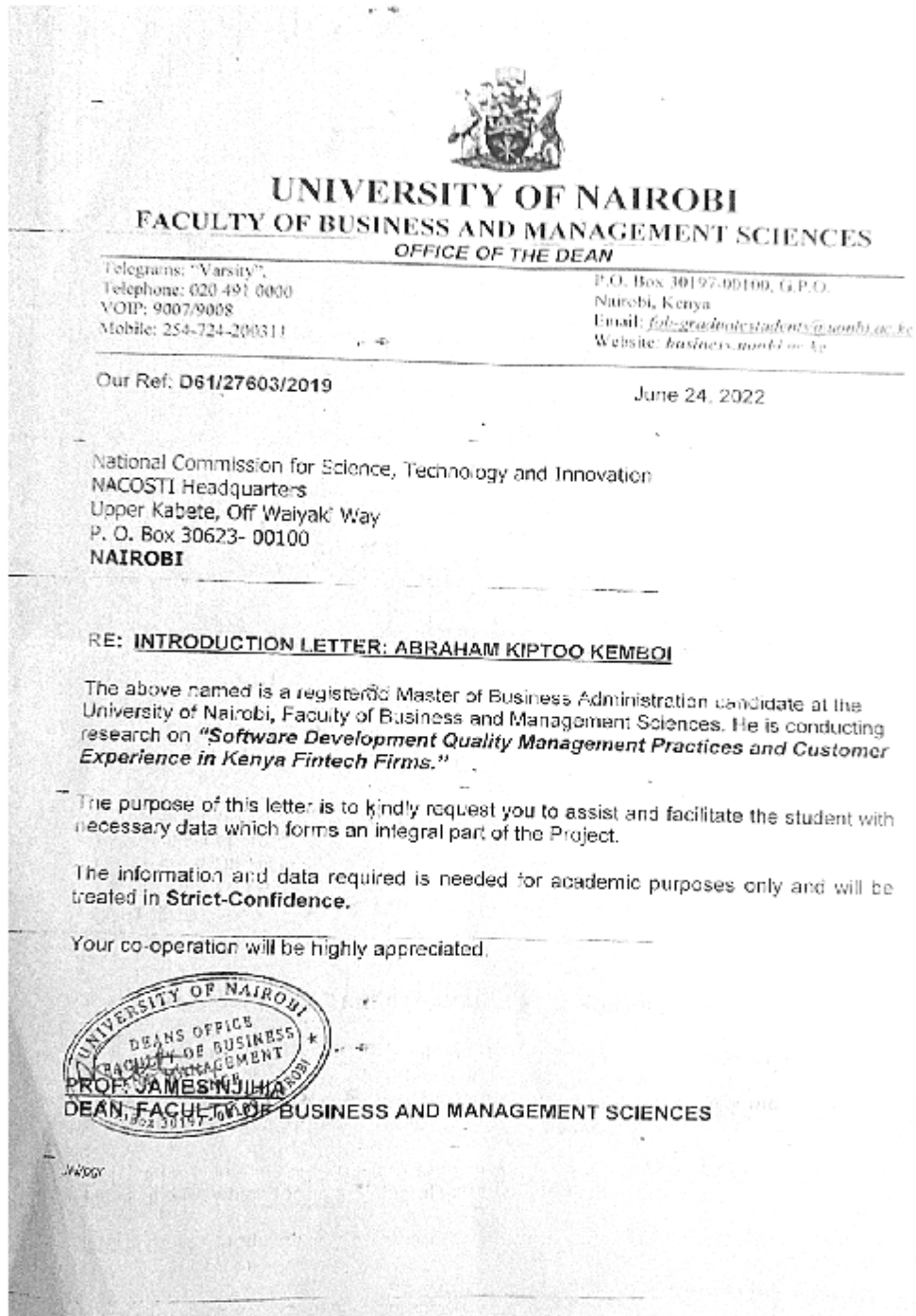
Mäki, M., & Alamäki, A. (2019). Data Privacy Concerns Throughout the Customer Journey and Different Service Industries (pp. 516–526). https://doi.org/10.1007/978-3-030-28464-0_45

Manz, C. C., & Stewart, G. L. (1997). Attaining Flexible Stability by Integrating Total Quality Management and Socio-Technical Systems Theory. Organization Science, 8(1), 59–70. https://doi.org/10.1287/orsc.8.1.59

Mai Chi, V. T., Paramita, W., & Ha Minh Quan, T. (2022). Does customer experience always benefit company? Examining customers' epistemic motivation and interaction with service contexts. Australasian Marketing Journal, 30(1), 35-50

Mele, C., & Colurcio, M. (2006). The evolving path of TQM: Towards business excellence and stakeholder value. International Journal of Quality & Reliability Management, 23, 464–489. https://doi.org/10.1108/02656710610664569

Munda, C. (2020, 09). Mobile transactions hit Sh4trn on rising demand. Business Daily. https://www.businessdailyafrica.com/bd/news/mobile-transactions-hit-sh4trn-on-rising-demand-2279564

Ngoc Thach, N., Thanh Hanh, H., Ngoc Huy, D. T., Gwozdziewicz, S., Viet Nga, L. T., & Thanh Huong, L. T. (2021). Technology Quality Management of The Industry 4.0 And Cybersecurity Risk Management on Current Banking Activities in Emerging Markets—The Case In Vietnam. International Journal for Quality Research, 15(3), 845–856. https://doi.org/10.24874/IJQR15.03-10

Okwiri, D. O. A. (2012). Quality Management Core Practices: A Participatory Action-Based Case Research on Non-Integrated Implementation. 2(1), 18.

Olaleye, B. R., Ali-Momoh, B. O., Herzallah, A., Sibanda, N., & FA, A. (2021). Dimensional Context of Total Quality Management Practices and Organizational Performance of SMEs in Nigeria: Evidence from Mediating Role of Entrepreneurial Orientation. International Journal of Operations and Quantitative Management, 21(4), 399-415.

Patterson, P. G., & Spreng, R. A. (1997). Modelling the relationship between perceived value, satisfaction and repurchase intentions in a business-to-business, services context: An empirical examination. International Journal of Service Industry Management, 8(5), 414–434. https://doi.org/10.1108/09564239710189835

Robertson, S., & Robertson, J. (2012). Mastering the Requirements Process: Getting Requirements Right. Addison-Wesley.

Rahimian, S., ShamiZanjani, M., Manian, A., & Esfidani, M. R. (2021). A framework of customer experience management for hotel industry. International Journal of Contemporary Hospitality Management.

Ryu, H.-S., & Ko, K. S. (2020). Sustainable Development of Fintech: Focused on Uncertainty and Perceived Quality Issues. Sustainability, 12(18), 7669. https://doi.org/10.3390/su12187669

Saurin, T. A., Ribeiro, J. L. D., & Vidor, G. (2012). A framework for assessing poka-yoke devices. Journal of Manufacturing Systems, 31(3), 358–366. https://doi.org/10.1016/j.jmsy.2012.04.001

Schneider, A., Wickert, C., & Marti, E. (2017). Reducing Complexity by Creating Complexity: A Systems Theory Perspective on How Organizations Respond to Their Environments. Journal of Management Studies, 54(2), 182–208. https://doi.org/10.1111/joms.12206

Shammot, M. (2011). Quality management practices and their impact on organizational performance, and customer behavior. 155–161.

Singh, A. S., & Masuku, M. B. (2014). Sampling Techniques & Determination of Sample Size in Applied Statistics Research.

Spillner, A., Linz, T., Rossner, T., & Winter, M. (2007). Software Testing Practice: Test Management: A Study Guide for the Certified Tester Exam ISTQB Advanced Level. Rocky Nook, Inc.

Tracxn. (2022, February 22). FinTech Startups in Kenya. https://tracxn.com/explore/FinTech-Startups-in-Kenya/

Uma Sekaran & Roger Bougie. (2010). Research Methods for Business (7th Edition).

Varga, D. (2017). Fintech, the new era of financial services. Vezetéstudomány / Budapest Management Review, 48(11), 22–32. https://doi.org/10.14267/VEZTUD.2017.11.03

Walden, S. (2020, August 4). What Is Fintech and How Does It Affect How I Bank? Forbes Advisor. https://www.forbes.com/advisor/banking/what-is-fintech/

Zaid, S., & PATWAYATI, P. (2021). Impact of customer experience and customer engagement on satisfaction and loyalty: A case study in Indonesia. The Journal of Asian Finance, Economics and Business, 8(4), 983-992.

APPENDICES

Appendix I: Introductory Letter

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FACULTY OF BUSINESS AND MANAGEMENT SCIENCES
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Our Ref: D61/27603/2019

June 24, 2022

National Commission for Science, Technology and Innovation
NACOSTI Headquarters
Upper Kabete, Off Waiyaki Way
P. O. Box 30623- 00100
NAIROBI

RE: **INTRODUCTION LETTER: ABRAHAM KIPTOO KEMBOI**

The above named is a registered Master of Business Administration candidate at the University of Nairobi, Faculty of Business and Management Sciences. He is conducting research on **"Software Development Quality Management Practices and Customer Experience in Kenya Fintech Firms."**

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

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

Your co-operation will be highly appreciated.

PROF. JAMES NJIHIA
DEAN, FACULTY OF BUSINESS AND MANAGEMENT SCIENCES

JN/pgr

Appendix II: Questionnaire

SECTION A: GENERAL INFORMATION

1. Please state the name of your firm   (optional)

   _____

2. Please state the year in which your firm was founded

   _____

3. What is your current position in the firm?

Member of the Board   []

Middle Level Manager   []

General Staff   []

Top Management   []

Other, Specify   [] …………………

4. Please tick one checkbox that corresponds with your highest level of education.

Diploma   []

Bachelors   []

Masters   []

Doctorate   []

Other (Please specify)

5. How long have you been working in this company? (Years of experience)

Less than 3 years   []

3 –5 years   []

6 –10 years   []

More than10 years   []

6. What is your Age?

a. Between 20 to 25   []

b. Between 26 to 30   []

c. Between 31 to 35   []

d. Above 36 years   []

SECTION B: QUALITY MANAGEMENT PRACTICES IN SOFTWARE PRODUCT DEVELOPMENT

7. In the following table, please tick only one most appropriate answer from the alternatives provided below.

1 = Very Low Extent

2 = Low Extent

3 = Moderate Extent

4 = Large Extent

5 = Very Large Extent

To what extent do you agree that your company has adopted the following software quality management practices in software product development?

Statement	1	2	3	4	5
Product Focus					
The firm has adopted product focus mindset in their software development operations that emphasizes on sustainable product quality, usability and reliability.					
The development process advocates for constant assessment of the existing opportunity space to deliver quality products.					

The entity aims at producing high quality and defect-free product				
The entity has a team of professionals that work on software development operations				
Continuous Learning				
The firm has adopted continuous improvement efforts in their software development processes.				
The firm provides regular training on software product quality to enhance quality-related skills of the employees across different units of the business.				
The software product development team undertakes extensive customer research and development activities as part of the initiatives to continually enhance software development processes and products.				
The firm regular carries out customer deep dives to understand and learn the underlying customer problems.				
The software product management teams regularly undertake design thinking sessions to standardize ideation and discovery sessions towards a targeted problem-solving practice with cross-functional members to improve their software product offerings.				
Customer Engagement				
The firm undertakes customer and employee engagement programs and affirms commitment to				

quality in their software development processes.				
The firm has a department that handles customer feedback, complaints and views and uses them as inputs in the software product development processes				
The management values relationship management in their software development process.				
The firm trains and supports customers on the use of products for effective utilization and better customer experience				
Data Driven Decision Making				
The firm has adopted data driven and evidence-based decision-making approaches in their software development processes.				
The software product development teams have put in place tools for actively and continuously monitoring their software products while in the hands of the customers.				
The product development team monitors and re-evaluates product analytics to inform their development strategies and priorities during their software product development cycles.				
The firm monitors and measures responsiveness in their software development process.				
The firm advocates for product reliability mindset in their software development operations.				

SECTION C: EFFECTIVE CUSTOMER EXPERIENCE

8. To what extent do you agree that your company has experienced the following effective customer experience outcome upon the adoption of software development quality management practices?

(*Please tick the only one most appropriate answer from the alternatives provided by the scale below.)*

Scale

1= Very Low Extent, 2= Low Extent, 3= Medium Extent 4= Large Extent, 5= Very Large Extent.

Customer Experience	1	2	3	4	5
Customer value and satisfaction	1	2	3	4	5
Customer attraction and retention	1	2	3	4	5
Customer brand Loyalty and value	1	2	3	4	5

9. Based on your experiences, please suggest various quality management practices in software development that can be adopted by your organization to promote effective customer experience and customer value

………………………………………………………………………………………………

………………………………………………………………………………………………

………………………………………………………………………………………

THANK YOU