

INNOVATION STRATEGIES AND PERFORMANCE OF CONSTRUCTION FIRMS IN NAIROBI COUNTY, KENYA

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ABSTRACT

The construction sector, comparable to other medium enterprises, confronts a volatile economic landscape due to the constantly evolving business climate. This study aimed to determine the impact of innovation strategies on the performance of construction enterprises in Nairobi County, Kenya. The study was directed by the following specific objectives: to ascertain the impact of product innovation strategies on the performance of construction companies in Nairobi County, Kenya; and to ascertain the impact of technological innovation strategies on the performance of construction companies in Nairobi County, Kenya; The research was based on the Diffusion of Innovation Theory and Porter's Theory of Competitive Advantage. The research employed a descriptive approach to assess the impact of innovation initiatives on the performance of construction firms in Nairobi County. The target population comprises 113 construction enterprises in Nairobi, Kenya, with three business unit managers from each firm serving as responders. The research employed convenience and purposive sampling methods to ascertain the sample size. Ten percent of the sample size will be allocated for the pilot study. The research employed a structured questionnaire to gather primary data, while SPSS was utilized for data analysis. The study was constrained by information bias from the respondent. Descriptive and inferential statistics will be employed to ascertain the correlations between the variables. The correlation coefficient assessed the relationship between independent and dependent variables, while regression analysis evaluated the strength of this relationship. Data was given as tables. The results indicated statistical evidence that innovation techniques positively influenced the performance of construction enterprises in Nairobi County, Kenya. The correlation study results indicated a strong positive relationship between innovation strategies and the organizational performance of construction enterprises in Nairobi County, Kenya. The regression analysis results indicated that innovation methods had a favorable and significant influence on the performance of construction enterprises in Nairobi County, Kenya.

Key Words: Innovation Strategies, Product Innovation Strategies, Technological Innovation Strategies, Performance, Construction Companies, Nairobi County, Kenya

Background of the study

Innovation practices have been used to evaluate competitiveness and national progress. To encourage innovation, the government should continuously update and change the regulatory and institutional framework that underpins it. Increasing worldwide competitive pressure, shorter product lifecycles, and ease of imitation necessitate the need for enterprises to innovate in order to remain competitive. As a result, there is more pressure on all organizations to innovate by inventing and introducing new products and services than ever before (Kiraka et al., 2013). Governments can encourage innovation by investing in science and basic research, which leads to the advancement of ICT and allows for additional innovation (OECD, 2007). Innovative approaches have been utilized to address global concerns such as climate change and sustainable development.

Innovation has resulted in new forms of competition and marketplaces for the development and delivery of innovative products and services (Reguia, 2014). This has been reinforced by globalization and rapid advancements in new technologies, particularly information and communication technology (ICT). Globalization has raised the demand on countries to engage in a continual process of adjustment and innovation, resulting in increased invention and commercialization of novel products, processes, and services. It also opens up new markets for innovative products and provides access to a fresh supply of highly skilled individuals (Schwab, 2017). Research has demonstrated that the level of innovation varies greatly amongst organizations (Caiazza et al., 2014; Kamarulzaman et al., 2021; Ho et al., 2018; Iza and Dentoni, 2020; Ali et al., 2021). A number of elements have been found to influence the level of innovation. Product repositioning, product replacement, and process innovation methods such as regulatory compliance and cost reduction all led to greater profitability for banks (Ngugi, 2013). The Kenyan government has developed the unique Kenya National Agricultural Insurance Program, which is intended to solve the issues that agricultural farmers confront during large production shocks such as droughts and floods. The initiative intends to increase farmers' financial resilience to these shocks and enable them to implement improved production procedures, so breaking the poverty cycle of low investment and low returns.

Statement of the problem

The sustainability of some Kenyan construction projects has faced challenges, as evidenced by the report from the Kenya National Bureau of Statistics (2020). Despite the construction industry's significant contribution of 5.6% to the country's GDP in 2019 and providing employment to approximately 222,000 people, the sector experienced a decline, with growth dipping from 6.9% in 2018 to 6.4% in 2019. This decline highlights the obstacles that Kenyan construction sector encounter in achieving long-term sustainability (Kirui & Gichana, 2024). Construction firms are struggling with the current market conditions, which are attributed to escalating costs of raw materials for construction, uncertainties of returns due to poor performance of the economy, poor reputation, inadequate financing, technical and skilled personnel. In this regard, organizations need flexible and aggressive strategies that will align with the current situation on how to respond to the impacts (Mbatha, 2024). This study will therefore address how best businesses can implement innovative strategies to stay ahead of the competition and beat tough times. Similarly, the Construction sector growth slowed to 4.1% in 2022 from 6.7% in 2021, although the industry was able to sustain real growth over the five years to end-June 2022. The Architectural Association of Kenya (AAK) attributes the deceleration in 2022 to government funding constraints and investor uncertainty.

Several studies have shown how innovations can be implemented to achieve competitiveness in different sectors. Laban (2019) explored the effect of strategic innovations on the organizational performance of information communication technology sector firms in Nairobi County, Kenya. He found that innovation had a positive impact on performance. In the study, market innovation had the best predictor of organizational performance, and then process innovation and product innovation followed in that order. Tuan et al. (2016) investigate the impacts of innovation activities on the different aspects of innovation performance and in turn, their effects to firm performance of 118 firms that support the industry in Vietnam. The findings show that process, marketing and organizational innovation activities are the main drivers of performance in the SMEs rather than product innovation. Mbocho (2020) found that process, technological and social innovations had a positive impact on the manufacturing sector in Kenya. The studies have however, not shown how SMEs in Nairobi can utilize innovations to attain desired performance. Thus, this study aims to establish how SME.s in Nairobi can utilize innovations to attain high performance.

Objectives of the study

To establish the influence of innovation strategies on the performance of construction companies in Nairobi County, Kenya

Specific Objectives

- i. To establish the influence of product innovation strategies and performance of construction companies in Nairobi County, Kenya
- ii. To establish the influence of Technological innovation strategies and performance of construction companies in Nairobi County, Kenya

Research Questions

- i. How does product innovation strategies influence the performance of construction companies in Nairobi County?
- ii. How does Technological innovation strategies influence the performance of construction companies in Nairobi County?

LITERATURE REVIEW

Theoretical review

Diffusion of Innovation Theory

Rogers proposed the Diffusion of Innovation (DOI) hypothesis in 1962, which states that diffusion is the process of transmitting invention to members of a community over a period of time through specific channels. He defines the terms dissemination, innovation, and communication as follows. Diffusion is the process by which an innovation spreads through certain channels over time among members of a social system. Innovation is defined as an idea, practice, or thing perceived by a person. Communication is the process of creating and sharing knowledge with others in order to reach a common understanding. Rogers argued that there are five innovation traits that influence people's actions and explain the rate of innovation adoption. These characteristics include relative advantage, compatibility, intricacy, trialability, and observability. Uncertainty is a significant barrier to the acceptance of technologies. The implications of an innovation may lead to uncertainty. Consequences are the changes that occur in an individual or a social system as a result of the adoption or rejection of an innovation (Rogers, 2003). According to Rogers, To lessen the uncertainty of embracing the invention, folks should be informed about its advantages and disadvantages so that they are aware of all its repercussions. Furthermore, Rogers proposed that

consequences might be characterized as desirable vs undesired (functional or dysfunctional), direct versus indirect (immediate result or outcome of the immediate result), and anticipated versus unanticipated (known and intended or not). According to Rogers (2003), the innovation-decision process is an information-seeking and information-processing activity, where an individual is motivated to reduce uncertainty about the advantages and disadvantages of an innovation. Rogers (2003) proposed five steps individuals or organizations go through while adopting the technology: awareness, persuasion, decision-making, adoption, and confirmation. The aspects of technology that influence the adoption process include compatibility, competitive advantage, sophistication, and trialability. The hypothesis addresses the study's product and marketing innovation variables.

Technology Acceptance Theory

Davis's (1989) Technology Acceptance Theory posits that two criteria influence the acceptance of a computer system by potential users: (1) perceived usefulness and (2) perceived ease of use. The primary focus of this approach is the perceptions of potential consumers. The objective of Technology Adoption Theory is to elucidate the fundamental factors influencing computer adoption, which subsequently account for user behavior across various end-user computing platforms and demographics. The fundamental TAM model analyzed two distinct beliefs: perceived usefulness (PU) and perceived ease of use (PEU).

Perceived Usefulness is characterized as the potential user's subjective probability that utilizing a specific system will enhance their activity, while Perceived Ease of Use pertains to the extent to which the possible user anticipates the target system to be uncomplicated (Davis, 1989). Additional factors, referred to as external variables in the Technology Acceptance Model (TAM), may affect an individual's perception of a system. The information-sharing aspect of technology fosters the adoption of marketing innovations considered beneficial for enhancing team communication, hence promoting coordinated and collaborative care within the interdisciplinary team. The hypothesis substantiates the variable of the influence of technological innovation on corporate performance.

Venkatesh and Davis (2000) provided comprehensive explanations for users' perceptions of a system's value at three distinct intervals: prior to installation, one month post-implementation, and three months post-implementation. The Technology Acceptance Model posits that users' cognitive evaluations of the alignment between essential work objectives and the outcomes of task completion via the system underpin their appraisals of the system's efficacy (Venkatesh & Davis, 2000). The results demonstrated that TAM excelled in both voluntary and compelled environments. The information-sharing aspect of technology fosters the adoption of marketing innovations considered beneficial for enhancing team communication, hence promoting coordinated and collaborative care within the interdisciplinary team.

Conceptual Framework

The conceptual framework is a collection of concepts and theories that provides the study's direction and sheds light on the relationships between the variables being studied (Mugenda, Mugenda 2003). The conceptual framework explains how the independent and dependent variables are related.

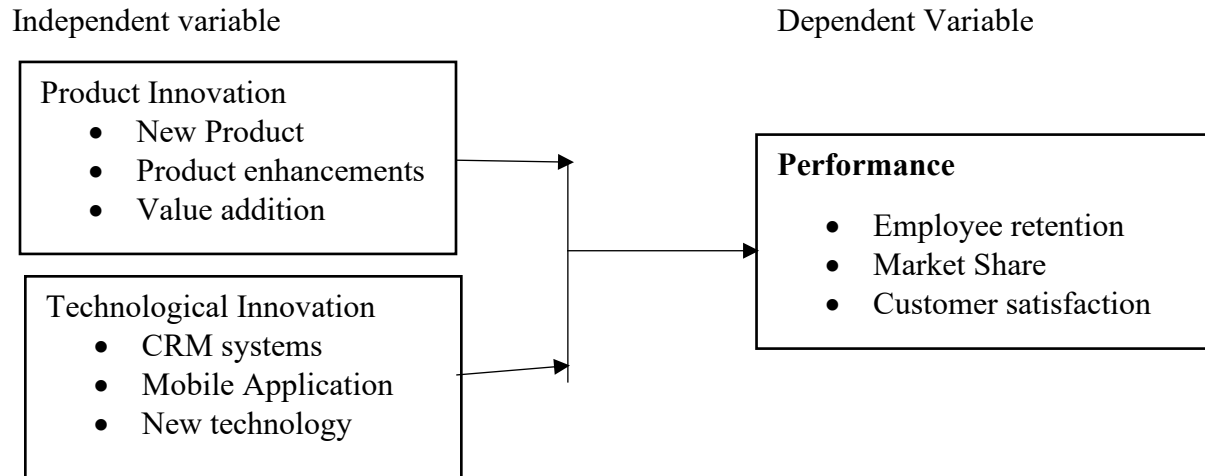


Figure 2.1 Conceptual framework

Product Innovation

Schumpeter (1939) defines product innovation as the introduction of a new good; one which consumers are not yet familiar with, such a good has new/improved quality (Schumpeter, 1939). He underscores the role of product innovation in spurring organizational growth. He further argues that competition resulting from new products far outweigh marginal variations in the price of existing products (Schumpeter, 1942). Product innovation is one of the sources of competitiveness that can be applied to improve the quality of products leading to improved firm performance and competitiveness (Sidek & Rosli, 2013). Product innovation also provides a variety of choice of a firm's products to the customers and greater perceived value as compared to the old products (Crawford et al., 2013). Many businesses, particularly market leaders, rely on innovation to survive. A meaningful and lasting competitive advantage is not generated by a first mover advantage or a pricing advantage for many of these businesses. It is fueled by these firms' capacity to amaze and surprise customers with new and/or better-performing products that improve the quality of their lives by addressing critical challenges and filling unmet requirements. But, if defining a product innovation strategy is so simple, why are so many firms, including Fortune 50 corporations and market leaders, struggling to drive innovation and failing to meet their innovation objectives (El-khouryetal, 2021). The approach to Product Innovation Strategy is anchored in the business strategy itself. As a strategy firm, it is believed that a good growth strategy and a good understanding of how to increase profitability and grow market share; for instance, are critical to drive a robust innovation strategy. The most obvious advantages are in assisting senior management in providing the appropriate and necessary resources to innovation and, more crucially, in engaging product and technology development leadership in a deeper understanding of what product or service is required and why (El-khouryetal, 2021). El-khouryetal, (2021) further consider the following difficulties after an analysis of what works and what doesn't when it comes to creating a good and productive Product Innovation Strategy and maximizing innovation efforts.

Technological Innovation

Coccia and Watts (2020) define technology as a complex system with multiple entities and relationships to achieve specific goals. New technology emerges from advances in basic and applied science and transforms into marketable innovations to meet needs, achieve goals, and solve problems for adopters who seize opportunities. Coccia (2016) and 2017 define technical

innovations as the result of problem-solving activities in a specific field to attain and sustain goals. Developing technological innovations requires technical competence and problem-solving approaches to translate environmental and organizational inputs into valuable products and processes that meet needs, solve problems, and support market and societal goals.

New technical advancements are extensively debated across disciplines. For example, Ghobakhloo (2018) summarizes the anticipated areas of application of several technical concepts within the smart factory in the manufacturing industry: The Internet of Things refers to the autonomous communication of physical objects; big data denotes the methodology for analyzing vast datasets to forecast the outcomes of operational, administrative, and strategic decisions; blockchain serves as the foundation for independent, transparent, secure, and reliable transactions conducted by humans or machines; and cloud computing represents an internet-based, adaptable infrastructure for concurrently managing all these processes. (Cacio & Montealegre, 2016; Ghobakhloo, 2018). Hajar (2015) found that technical innovation improves company performance. Furthermore, various research in Turkey shown that technical innovation (product and process innovation) has a considerable and favorable impact on business performance

Performance

According to Herath and Mahmood (2014), performance often refers to meeting organizational goals. Performance measurement and management are now widely used in enterprises. Understanding the link between innovation and company performance can inform effective firm management. Managers of SMEs can optimize their decision-making processes to get better performance outcomes. This knowledge can help maximize resource allocation.

Owen defines performance as the outcome achieved by a corporation in attaining its objectives. Wu (2009) defines performance as the ability to reach proposed targets using resources in an inexpensive manner in the internal/external setting (stockholders, rivals, society). In the same line, Sani A. et al. (2015) defined performance as SMEs' efficiency in valuing its stakeholders such as customers, society, and even the government. Firm performance is linked to the company's ability to generate money and achieve overall growth objectives (Haghighinasab, Sattari, Ebrahimi, and Roghanian, 2015). To measure performance in a reward system, consider annual profit growth, efficient product and service spin-off and growth, customer growth and retention, corporate expansion, market share increase, and employee turnover rate over time (Velada & Caetano, 2011).

Empirical Review

Product Innovation and Performance

Wangila and Were (2018) investigated the impact of innovative methods on public sector performance in Nairobi City County, Kenya. The study's target population was 32099 civil servants in the public sector in Nairobi City County. A representative sample of 384 was collected using stratified random sampling. This study targeted civil officials of various levels. The study employed a descriptive research approach to assess the impact of innovative techniques on public sector performance. The study collected data through the use of a questionnaire. A structured questionnaire was utilized to collect information. Data was analyzed using the Statistical Package for Social Sciences (version 22). Inferential statistics were employed to determine the associations between the variables. The study discovered that product innovation had a strong positive significant link with performance ($r = .786$, $p = .000$). The hypothesis was tested using multiple linear regression analysis, which revealed a substantial positive link between product innovation and public sector performance in Nairobi City County, Kenya.

Muigai (2019) examined the impact of product innovation on commercial bank performance in Kenya, using both primary and secondary data sources. The study focused on self-service account opening, savings innovations, loans innovations, and payment innovations items. We analyzed the data using descriptive statistics like mean, standard deviation, and frequency distribution. Data was presented using percentage and frequency tables. The study found that product innovation positively effects customer satisfaction and that a bank's reputation in the industry helps it stand out. Therefore, commercial banks should prioritize product innovation to improve client happiness.

Australia, Nina Evansa, and Rachelle Bosuab conducted a study on exploring innovation in regional manufacturing. SMEs conducted personal interviews with the firm owners/managers of 19 regional Australian manufacturing SMEs. Three interrelated innovation elements were identified: a focus on knowledge development, an openness to continual learning, and participation in social networking with many stakeholders. Furthermore, information technology helps regional manufacturing SMEs become more inventive. Innovation is achieved through the invention of new goods, processes, and markets to address the various problems of the corporate environment. The participating SMEs stated that their ability to create new products was critical to overcoming regional challenges.

Technological Innovation and Performance

Mutie (2018) examined the influence of technological improvements on the operational efficacy of governmental organizations. The research employed a descriptive cross-sectional survey methodology. Primary data was obtained using surveys. The model summary indicated that the independent variables system development enhancement, digital tools and services, information technology-based innovations, and interdepartmental process integration account for 75.9% of the variance in the dependent variable, as demonstrated by the R^2 value. This suggests that additional factors, not included in this model, contribute to 24.1% of the variance in the performance of government agencies in Kenya. The correlation study findings revealed a statistically significant positive association between system development improvement and the organizational effectiveness of government agencies in Kenya. The research also identified a significant positive correlation between digital tools and services and the performance of government organizations. Innovations based on information technology were found to have a favorable and significant correlation with the organizational effectiveness of government entities.

Ayodo and Deya's (2023) study on strategic innovation and airline performance in Kenya took a descriptive method, integrating primary and secondary data with a sample of 59 local carriers to assess the impact of strategic innovations on airline performance. The data was analyzed using the Statistical Package for Social Sciences, version 23. Inferential statistics was employed to identify the correlations between the variables, and the conclusion was that technical advancements have a significant positive relationship with airline performance in Kenya. The report recommends that Kenyan airline management embrace current airline technologies.

Omerikwa (2022) conducted study on the impact of innovative practices on the National Hospital Insurance Fund's operational performance in Kenya. A quantitative descriptive research design was used. The sample group included 148 personnel from the NHIF headquarters in Upper Hill Nairobi, including those from the ICT, operations, finance, and marketing departments. A stratified random sample technique was adopted, and primary data was acquired via closed-ended questionnaires. Descriptive and inferential statistics were employed to analyze the data, and a multiple regression model was utilized to determine the link between variables. The study discovered a positive relationship between technological innovation and operational performance.

There was a moderately positive association between technical innovation and operational success at Kenya's National Hospital Insurance Fund.

RESEARCH METHODOLOGY

This study adopted a descriptive research design, which is appropriate for examining relationships among variables and generating generalizable findings from observed data (Orodho, 2003; Kombo & Tromp, 2007). The design enabled the study to assess the influence of innovative strategies on the performance of construction firms in Nairobi County. The target population consisted of 113 construction firms with formal management structures, yielding 339 respondents drawn from managerial positions. A sample size of 183 respondents was determined using the Taro Yamane formula (Yamane, 1967), while convenience and purposive sampling techniques were applied to select accessible and relevant participants (Mugenda & Mugenda, 2003; Taherdoost, 2016).

Both primary and secondary data were utilized. Primary data were collected using structured questionnaires with a 5-point Likert scale, which are effective for capturing standardized responses from large samples (Saunders et al., 2012; Leavy, 2015). Secondary data were obtained from reports and scholarly sources. A pilot study involving 10% of the sample was conducted to assess instrument quality. Validity was ensured through face and content validity (Hair & Lukas, 2014; Straub et al., 2004), while reliability was tested using the test-retest method (Mugenda & Mugenda, 2003; Patel, 2019).

Data were analyzed using both descriptive and inferential statistics with the aid of SPSS. Descriptive statistics included means, frequencies, and standard deviations, while inferential techniques such as correlation, multiple regression, and ANOVA were used to establish relationships and test hypotheses (Saunders et al., 2007; Schindler, 2015). A regression model was applied to evaluate the effect of innovation strategies on firm performance. To ensure the robustness of the regression results, key diagnostic tests were conducted, including tests for normality (Shapiro-Wilk), multicollinearity (Variance Inflation Factor), and linearity (Pearson correlation), in line with standard econometric requirements for valid and reliable estimates (Gujarati, 2004; Field, 2013).

RESULTS, FINDINGS AND DISCUSSIONS

165 questionnaires were used to collect data. Of those, 121 were completely filled out and returned, yielding a 73.3 % response rate. Mugenda and Mugenda (2018) recommended that a 50% response rate is enough to produce viable results, 60% is good, and 70% and above is a perfect response rate, so 74% was excellent for analysis and producing credible data for the study.

Descriptive Statistics

The study used descriptive statistics to measure the items of the questionnaire. The study's descriptive statistics were means and standard deviations. The items of the questionnaire were measured on a likert scale of a scale of 1 to 5, denoting within a range of Strongly Disagree (SD) to Strongly Agree (SA).The researcher then calculated each statement's mean response and standard deviation.

Product Innovation

Statements	Mean	SD
The business specializes in goods that are most preferred by the customers	4.567	0.641
Improving the quality of the products is one of the key objectives of the organization	4.481	0.533
The organization modifies its product offerings (services) frequently to suit the needs of the customers	4.526	0.761
Embracing product value addition has enabled the organization to broaden its product base.	4.326	0.712
Value addition has enabled the firm to reach a wider base of clients	4.319	0.624
The firm conducts continuous research to keep improving on product features and uses.	3.984	0.732
Average	4.367	0.670

From the descriptive results presented, the majority of the respondents agreed with the statements of product innovation that the business specializes in goods that are most preferred by the customers (M= 4.567 SD=0.641), Improving the quality of the products is one of the key objectives of the organization (M= 4.481 SD=0.533), The organization modifies its product offerings (services) frequently to suit the needs of the customers (M= 4.526 SD=0.761), Embracing product value addition has enabled the organization to broaden its product base (M= 4.326 SD=0.712), Value addition has enabled the firm to reach a wider base of clients (M= 4.319 SD=0.624), The firm conducts continuous research to keep improving on product features and uses (M= 3.984 SD=0.732). All respondents on average, agreed with the statements on product innovation as shown by the average response mean of 4.367 and a standard deviation of 0.670, confirming that product innovation in construction sector is crucial for the performance of the firms.

The findings agree with Wangila and Were (2018) whose findings revealed a substantial positive link between product innovation and public sector performance in Nairobi City County, Kenya, Muigai (2019) found that product innovation positively effects customer satisfaction and that a bank's reputation in the industry helps it stand out, and Evansa,(2018) who stated that the ability of SMEs to create new products was critical to overcoming regional challenges.

Technological Innovation

Statements	Mean	SD
The Internet of Things has enhanced the rate of workflow and as well keeps employees connected.	3.653	0.766
The CRM systems has improved the efficiency of the firm operations	3.761	0.634
The adopted technology and data consolidation has enabled the management to make data-driven insights	3.728	0.616
Mobile Application has eased communication and collaboration with other stakeholders in the industry	3.622	0.641
Technological systems has helped in the storage and consolidation of data	3.764	0.633
The use of the technology has enabled managers to obtain real-time information on their projects and increase productivity.	3.655	0.648
Average	3.697	0.656

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well keeps employees connected (M= 3.653 SD=0.766), The CRM systems has improved the efficiency of the firm operations (M= 3.761 SD=0.634), The adopted technology and data consolidation has enabled the management to make data driven insights(M= 3.728 SD=0.616), Mobile Application has eased communication and collaboration with other stakeholders in the industry(M= 3.622 SD=0.641), Technological systems has helped in the storage and consolidation of data (M= 3.764 SD=0.633), The use of the technology has enabled managers to obtain real-time information on their projects and increase productivity (M= 3.655 SD=0.648). All respondents on average, agreed with the statements of technological innovation as shown by the average response mean of 3.697 and a standard deviation of 0.656, confirming that technological innovation is a crucial element in the performance of construction firms in Kenya.

The findings concur with the findings of Ayodo and Deya's (2023) who concluded that was that technological advancements have a significant positive relationship with airline performance in Kenya.It is also consistent with Omerikwa (2022) who discovered a positive and moderate relationship between technological innovation and operational success at Kenya's National Hospital Insurance Fund.

Performance of construction firms

Statements	Mean	SD
The firm experiences an increase in return on investments.	3.516	0.814
Customers are satisfied with the services delivered at the firm	3.693	0.818
There has been improved growth in market share over the Years	4.471	0.646
The firm’s experiences increased profitability due to quality service offerings	3.852	0.712
The has been reduced employee turnover rates due to a favorable systems	3.721	0.642
The company is strategically positioned to beat competitors	4.539	0.636
Average	4.079	0.683

Correlation Analysis

The Pearson correlation analysis was used to test for linearity the results outlined show that there exists a positive significant correlation between the innovation practices and performance of construction firms in Nairobi.

Table 1 Correlation Analysis

Variables	Measure	Performance	Product innovation	Tech innovation
Performance	Pearson Correlation	1	0.762	0.892
	Sig.		0.000	0.000
Product innovation	Pearson Correlation	0.762	1	0.854
	Sig.	0.000		0.032
Tech innovation	Sig.	0.000	0.023	0.032
	Pearson Correlation	0.892	0.854	1
	Sig.	0.000	0.032	

The correlation analysis table shows that there is a significant positive linear relationship between product innovation and performance of construction firms (with r= 0.762), technological innovation and performance of construction firms (with r= 0.892),at p<0.05 significance level. All the independent variables were found to be lineally related to the dependent variable.

Regression Analysis

Regression analysis aims to determine the degree of relationship between independent and the dependent variables. The model Summary, the ANOVA, and the Model coefficient give an explanation of the multiple regression analysis. The independent variables degree of relationship with the dependent variable, as well as the proportion of the dependent variable that the independent variables account for are shown.

Table 2 Model Summary

Model	R	R squared	Adjusted R-square	Standard error of the estimate
1	.879	.774	.729	1.573

Dependent Variable: Performance

b. Predictors: (Constant), PI, TI

The model summary shows that there is a significant positive relationship between the dependent variables and the independent variables. The R value of 0.879 indicates that there is a perfect relationship between the dependent variables and the independent variables. The R-squared Value of 0.774 means that 77.4 % of the dependent variables can be explained or predicted by the independent variables.

Table 3: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	19.607	2	4.902	22.345	.058 ^b
Residual	28.256	116	.150		
Total	47.863	120			

Dependent Variable: Performance

b. Predictors: (Constant), PI, TI

The analysis of variance was used to examine whether the regression model was a good fit for the data. The F-critical (4, 103) F-calculated was 22.345 as shown above. This shows that the F-calculated was greater than the F-critical and hence linear relationship between the innovation strategies and performance of construction firms in Nairobi, Kenya. In addition, the p-value was 0.000, which was less than the significance level (0.05). Therefore, the model can be considered to be a good fit for the data and hence it is appropriate in predicting the influence of the four independent variables on the dependent variable.

Regression Coefficients

Table 4 Regression Coefficients

Coefficients	Unstandardized		Standardized Beta	t	Sig.
	B	Std. Error			
(Constant)	0.116	0.175		0.663	0.022
Product Innovation	0.591	0.156	0.527	3.788	0.000
Tech Innovation	0.516	0.218	0.453	2.367	0.000

a. Dependent Variable: Performance

b. Predictors: (Constant)_Product, service, organizational, Technological Innovation

$$Y = 1.116 + 0.591X_1 + 0.516X_2$$

Conclusions

Based on the summary of the findings, the study concludes that product innovation positively and significantly affects performance. Elements of product innovation such as specializing in products that are most preferred by the customers, improving the quality of the products, modifying product offerings enhances innovation and performance of the construction firms.

Based on the summary of the findings, the study concludes that technological innovation positively and significantly affects performance. Elements of technological innovation such as the internet of things, CRM systems, Mobile applications are essential in ensuring that stakeholders data are conveniently stored and the management are able to make data driven decisions when needed.

Recommendations of the Study

From the conclusions, the study recommends that for product innovation, managers should continue investing in further research on how to make their product offerings agreeable to consumers and improving the quality of their offerings and perform modifications whenever necessary. On technological Innovation, the study recommends investing in automation of services and applications that will help in data consolidation and preservation.

Areas of further Research

The study employed descriptive research design, different scholars can carry out a similar study using a different methodological approach. Different studies can also be done on different tiers of the construction firms. Since the independent variables used in the study, accounted for 77.4 % of performance of construction firms, scholars can carry a study using different variables that were not used in this study.

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