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BUSINESS INNOVATION AND PERFORMANCE: INFLUENCE OF ARCHITECTURAL INNOVATION ON WOMEN-OWNED SMES IN NAIROBI COUNTY

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ABSTRACT
Women-owned small and medium-sized enterprises in Nairobi face barriers including limited resources, weak institutional support, and competitive market conditions that restrict innovation and performance. This study examined how incremental, radical, disruptive, and architectural innovations affect the performance of women-owned SMEs in Nairobi County.
Grounded in the Induced Institutional Innovation Theory, Schumpeter's Theory of Entrepreneurship, Diffusion of Innovations, Organizational Learning Theory, and the Resource-Based View, the research adopted a correlational design. A target of 938 registered enterprises was identified, and a sample of 273 was drawn through Cochran's formula. Stratified sampling by sector, including retail, manufacturing, services, tourism, and financial services, ensured proportional representation. Structured questionnaires supported by a pilot test for validity and reliability provided the primary data. Quantitative analysis using SPSS Version 28 applied descriptive and inferential statistics, including correlation, regression, and ANOVA, while qualitative insights were drawn from content analysis. Findings revealed that all four types of innovation significantly enhanced performance. Incremental innovation ($\beta = 0.238$, $p < 0.001$) supported continuous improvement. Radical innovation ($\beta = 0.277$, $p < 0.001$) emerged as the strongest driver of enterprise outcomes. Disruptive innovation ($\beta = 0.190$, $p < 0.001$) opened market niches, while architectural innovation ($\beta = 0.139$, $p = 0.001$), though weaker, contributed by reconfiguring processes, strengthening adaptability, and improving efficiency. The study concluded that women entrepreneurs benefit from diverse innovation strategies, each adding unique value. Recommendations included integrating innovation training into entrepreneurship programs, offering financial incentives, and developing policies supporting informal and tech-enabled innovation, thereby enhancing sustainability of women-owned SMEs in Nairobi.
Keywords: - Business Innovation, Performance, Architectural Innovation, Women- Owned SMEs, Nairobi County

INTRODUCTION Background of the Study

Innovation is recognized as a crucial factor in industrial competition and serves as a tool for managing competitive pressures (Distanont, 2020). It is essential for the performance of enterprises, especially those owned by women (Krivorotov et al., 2019). Women-owned small businesses must innovate due to high competition, since failure to innovate leads to decline (Onileowo et al., 2021). Innovative enterprises are less sensitive to adverse change because they possess adaptability (Lv et al., 2018). Women-owned enterprises acting proactively can manage change, turn threats into opportunities, and quickly return to growth (Nursiah et al., 2020).

The businesses of women bring new ideas to old problems thus expanding and improving the growth of the economy. Change depends on networks and experience (Griffin and Hammis, 2021). Social entrepreneurship is boosted by the presence of women entrepreneurship as well, and increases the quality of services, as well as social structures (Martínez Dy et al., 2017). The research in the UK indicates that female entrepreneurs use digital technologies to transform products, compete within markets, and cross borders to

sell (Dias et al., 2018; Brush et al., 2019; Pascual-Miguel et al., 2020). Performance is also boosted by incubators and accelerators (Ojo et al., 2019).

In Nigeria and Ghana, women-owned businesses in Africa are using value chain integration, value addition, and community engagements strategy (Ogundele and Ojo, 2020; Appiah and Mlambo, 2020). Economic activities of the region, such as AfCFTA, provide a chance to grow (World Bank, 2019). But such challenges as the lack of funds and poor infrastructure remain. Digital platforms are also used by 23 percent of women-owned businesses in Kenya as opposed to 45 percent of men (Government of Kenya, 2019). Such programs like AGPO facilitate procurement, yet some issues cannot be disregarded, like access to capital, gender discrimination, and competition (World Bank, 2020).

The economy of Nairobi, the economic center, provides markets, customers, and services to facilitate growth (Özyol, 2020). Nevertheless, female entrepreneurs continue to experience competition and bias in the city (World Bank, 2020). One of the success drivers has been found to be innovation (Onguso, 2022). Architectural innovation is one of the types of innovations, reorganizing systems and incorporating elements into functional systems and structures, which increase functionality (Onyero, 2024; Chantzaras, 2023). It facilitates adaptability and survival in changing markets. Although there has been an improvement, there is still a paucity of empirical research on the impact of such innovations on the performance of women-owned SMEs in urban Africa. This research enquires into incremental, radical, disruptive, and architectural innovation relative to the performance of women-owned SMEs in the Nairobi County as a contribution to the theories and policy interventions to the growth process through innovation.

Problem Statement

In developed economies such as the United States, United Kingdom, and Canada, innovation has become integral to the growth, competitiveness, and sustainability of women-led small and medium enterprises (SMEs). Female entrepreneurs in such situations have used digital technologies, platform-based business models, and strategies based on data to increase operational efficiency, profitability, and access to markets abroad (Brush et al., 2021; Jain et al., 2022; Pascual-Miguel et al., 2023). It is also facilitated by the existence of gender-inclusive accelerators, innovation hubs, venture capital activities that facilitate scalable and resilient businesses (Chen & Qureshi, 2021). These are ecosystems that show the disruptive power of innovation with institutional backing.

In comparison, however, the performance of women-owned SME in Kenya, especially in the Nairobi City County is still very low. Even though Nairobi is an economic hub and the number of women entrepreneurs is on the rise, unfortunately, female-run enterprises are less profitable, do not grow as fast as male businesses, have restricted access to markets, and diversify their products even less (KNBS, 2023; Njenga, 2024). The level of innovation adoption is low: The PwC MSME Survey 2023 identifies that 31.6 percent of women entrepreneurs in Nairobi were implementing architectural innovation and a smaller proportion of them have innovated in marketing innovations or process innovations. Mwangi and Odhiambo (2023) similarly observed that just 34.8% of these enterprises had integrated architectural innovation strategies. The gender gap in engaging in innovation continues to exist in the country. The Global Entrepreneurship Monitor (2023) states that in Kenya, 18.4% of the women owned businesses implement innovation-specific activities, as opposed to 26.3% of the male owned businesses. KNBS (2023) also gave lower levels of innovation uptake between women-led SMEs (65.7) compared to male-led ones (81.2). These inequalities indicate structural impediments, a lack of access to finance, digital infrastructure, policy support that is specifically tailored, and gender bias, which hinder the effective utilization of innovation to spur performance.

Even though the general relationship between innovation and SME performance has been investigated in the past, such as the review by Kithinji and Misuko (2022), the authors state that no research has determined the impact of certain forms of innovation, including incremental, radical, disruptive, and architectural, on performance through a gendered lens. This gap has not been addressed a lot. Thus, this paper aimed to address this gap by examining the variousiated impacts of innovation typologies on the performance of female owned SMEs in the Nairobi City County in order to guide inclusive innovation policy as well as entrepreneurial support mechanisms.

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Significance of the Study

The research has great academic, policy, and practical implications by improving the comprehension of the impact of various forms of business innovation, namely incremental, radical, disruptive, and architectural innovations on the performance of women-owned small and medium enterprises (SMEs) in the Nairobi City County of Kenya. Performance is viewed with regard to such key indicators as business growth, profitability, sustainability and competitiveness in the market.

The results were empirical in nature, as they gave an understanding of the contribution of different innovation strategies to the upgrading of the business outcomes of women entrepreneurs. This information is especially important in a place where female-owned companies will be at structural disadvantage to their male counterparts. The study provides women with knowledge and practical measures to enhance their operations, distribute their limited resources and expand their business ventures with a better sense of confidence, by determining the types of innovation that best contribute to performance.

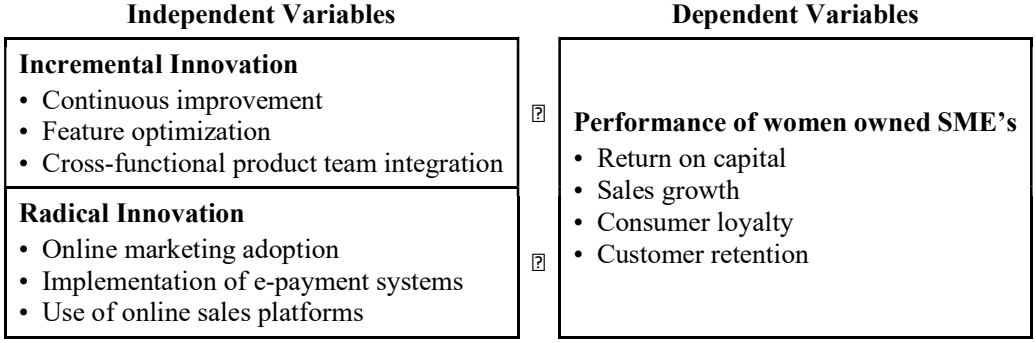
To the policymakers and government institutions, the study provides essential feedback that can be used in formulating evidence-based and gender-responsive innovation policies. Knowledge of the relationship between the typologies of innovation and business performance can help to develop specific support programs, such as mechanisms of financial access, specific training, and mentorship opportunities to meet the needs of women entrepreneurs. These efforts also help towards the creation of an inclusive entrepreneurial ecosystem in urban Kenya. On an academic note, the study can be regarded as a contribution to the theoretical debate of innovation and entrepreneurship because it provides a gap in knowledge about the varying influence of the types of innovations on the performance of women-led businesses in urban African settings. The paper does not only contribute to the body of literature but also offers a theoretical and methodological framework that can be repeated or expanded in other areas of research, and thus, take a step forward in comparative and context based research of entrepreneurship.

Theoretical Framework

This study was anchored on four complementary theoretical lenses: the Induced Institutional Innovation Theory, Schumpeter's Innovation Theory, Diffusion of Innovation Theory, Organizational Learning Theory and the resource-based view theory. These frameworks collectively enable a robust examination of how innovation types influence the performance of women-owned SMEs (Women-owned SMEs) in Nairobi County. Among these, resource-based view theory anchors the study's dependent variable as it conceptualizes how internal capabilities and strategic resources influence business outcomes.

This theory was initially described by Hayami and Ruttan (1981) and referred to as Induced Institutional Innovation Theory because it tried to ensure the point that there is innovation when the historical institutions fail to fulfill the new demands of economic or technological advancement. Its applicability has recently been confirmed in theoretical attempts to uncover how SMEs in resource-constrained environments such as Kenya respond to institutional shortages by adjusting business models and informal norms (Ferreira et al., 2021).

Conceptual Framework



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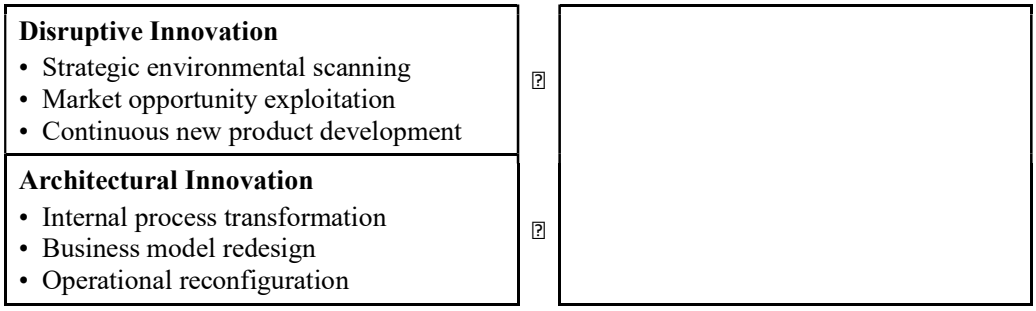

LITERATURE REVIEW Theory of Induced Institutional Innovation

The induced institutional innovation theory was proposed by Vernon and Hayami

(1981). It posits that the demand for institutional change is dictated by the institutional resources available and the technical skills required for the change. Institutions are expected to provide products and services that help to satisfy the needs of the customers and bring stability to market complexity and uncertainty (North,1990). The theory provides the link between various aspects of institutions, such as resource endowments, culture, and innovations (Williamson, 2000). Businesses are expected to ensure that they have the required technological expertise, resources, and a culture that supports innovation in their products and services. Businesses must also be willing to embrace innovations, which help customers accept and feel that their needs are met. This theory is important to study because it points out that there is need for change in business operations in order to sustain business competition (Scott, 1995). This theory postulates that the innovation within organizations can be initiated through changes in the regulations, norms and policies of institutions Incremental innovation, which involves gradual improvements to existing products or processes, can be influenced by institutional factors such as government support programs or industry standards (North, 1990). By examining how incremental innovation affects the performance of women-owned SMEs, the study can provide insights into how induced institutional innovation shapes entrepreneurial outcomes. This theory is thereof reused to explain the effect of incremental innovation on performance of women owned enterprises in Nairobi City County, Kenya.

Incremental Innovation and Performance of Women Owned Enterprises

Incremental innovation, characterized by small and continuous improvements in products, services, or internal processes, has been studied in relation to SME performance. However, its specific role within women-owned SMEs (Women-owned SMEs), particularly in African urban contexts, remains underexplored both empirically and theoretically.

Li and Huang (2019) examined the differential effects of incremental and disruptive innovation on the sustainable development of China's manufacturing sector using a panel data model. Their results suggested that while incremental innovation enhanced regional competitiveness, especially in underdeveloped areas, its impact was less significant at the national level. This study provides useful macroeconomic insights into innovation strategy but presents several gaps. At the conceptual level, it is built around the sustainability and regional development instead of the firm-performance indicators. Theoretically, it lacks grounding in performance-oriented frameworks such as the Resource-Based View or Organizational Learning Theory. Contextually, the study is rooted in a manufacturing sector in a highly industrialized Asian economy, limiting its relevance to Women-owned SMEs in service-oriented African urban centers.

Oduro and Nyarku (2018) used a multiple-case study approach to understand incremental innovation in 17 Ghanaian SMEs. According to their findings, incremental innovation enhances customer satisfaction, competitiveness, and global market coverage. However, the research has a number of serious gaps. To verify its results on a larger sample, it is methodologically deficient in a quantitative or mixed-methodology. It is conceptually a homogenous innovation that does not break down into its types. In principle, it fails to reconcile its findings to innovation adoption or performance models. Notably, no gender-

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based differences in innovation behavior or outcome were taken into account and it undermines the applicability of the study to women-owned SMEs.

The authors of the piece by Chachage, Nasra, and Ndahani (2024) focused on the influence of incremental innovation on the sustainability of Tanzanian SMEs. Their research affirmed that small and constant business process gains assisted those firms that worked in low and middle-income regions to gain flexibility and efficiency. Nonetheless, there are also methodological issues that include the absence of the inferential analysis and the descriptive design. The research also does not theoretically address the literature of innovation or performance. In a contextual way, although it is concentrated on LMIC environment, it does not treat women entrepreneurs or urban areas in isolation where the limitation on innovation can be dramatically different based on the structural discrimination or even competition levels.

Architectural Innovation and Performance of Women Owned Enterprises

Architectural innovation refers to the reconfiguration of existing systems or relationships between components within a product, service, or process, without necessarily changing the individual components themselves (Henderson & Clark, 1990). This type of innovation can allow SMEs, especially women-owned SMEs, to capitalize on existing strengths and increase performance flexibility, minimize costs and operate in rapidly changing markets without having to undertake sweeping technological changes.

Lin and Eng (2024) focused on architectural innovations of SMEs involved in product development and discussed the quality of modularity, reconfiguration of the supply chain and strategic sourcing as a positive influence on operational cost management and responsiveness on the market. In their case, their results indicate that such innovation can prove as a viable avenue of sustained improvement that can be achieved by Women-owned SMEs without serious resource outlays. Nevertheless, the theoretical gap needs to be addressed in the study in question, denoting the fact that the study fails to anchor on either Organizational Learning Theory or Resource-based Views that would contribute to bringing the causational mechanisms by which architectural innovation is prospectively linked to performance. Contextually, the study does not isolate women-owned enterprises or address gender-based constraints in innovation adoption.

Kim, Park, and Lee (2020) studied how architectural innovation impacts the performance of South Korean technology firms by using a mixed-methods method. They also indicated great progress in their product performance and market share and have highlighted the significance of favorable organizational cultures in supporting the architectural change. Although this research offers a good conceptual clarity, its contextual weakness is that it addresses high-tech firms in a developed economy and that it might not imply what the Women-owned SMEs in Nairobi are operating under. Also, the gendered lens is not used, which diminishes the applicability of the study to the women-led companies, especially in the less formal or least resourced environments.

Henderson and Clark (2019) re-examined their original model of architectural innovation but put an emphasis on how it holds component-level knowledge and disputes system-level architecture. The paper noted that innovation of this nature may compromise the current capabilities, especially in companies that are not amenable to structural change. Although conceptually powerful, both Women-owned SMEs and low-capital settings did not provide empirical evidence to the theoretical model. In addition, it suffers methodological drawbacks in its reliance on illustrative, as opposed to empirical, data and its failure to offer gender or size-specific segmentation to limit applicability to small, women-owned businesses.

Henderson (2021) used computer simulations to explore architectural innovation as a search problem, distinguishing between narrow and broad architectural innovation strategies. The findings suggested that narrow architectural innovation led to more focused long-term performance improvements, while broader searches could offer short-term performance boosts. Though innovative in methodology, the study's simulation-based design abstracts from real-world SME conditions. It also provides no insight into gender dynamics, nor does it consider how resource limitations affect the feasibility of either narrow or broad architectural innovation among Women-owned SMEs.

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RESEARCH DESIGN AND METHODOLOGY

Research Philosophy

The study adopted positivist philosophy, as advocated by Talisse (2020), which emphasizes the collection and analysis of empirical evidence, focusing on observable and quantifiable events. Positivism is adopted due to its ability to embrace non-hypothesis tradition and thereby reducing the role of the researcher to acute observation of facts; meaning that the researcher does not influence the study (Comte, 1830). This is because this approach allows for systematic data collection and analysis techniques such as surveys, experiments, among others, thereby improving the reliability and validity of the results which would be obtained (Babbie, 2016). In addition, large sample sizes and measures based on statistics aim at expanding research conclusions to various contexts (Creswell & Creswell, 2017), which also enriches theoretical perspectives and practice.

Research Design

In this study, the research methodology was a mixed methods research, which encapsulates the quantitative and qualitative research approaches in order to develop a holistic picture of the impact of various forms of innovation on the performance of women-owned SMEs in Nairobi City County. The quantitative aspect helps to measure the relationships between the variables by applying close-ended and structured survey questions, whereas the qualitative aspect is gathered by utilizing the open-ended questions to give the contextual understanding of the lived experiences and attitudes of the respondents. Mixed methods research is especially effective when one wants to not only generalize the results but also to appreciate more, as Creswell and Plano Clark (2018) discuss, which is the case in complex social and entrepreneurial contexts where one can use this research to obtain both breadth and depth of knowledge.

Target Population

The proposed study target population will include registered women owned small and medium-sized businesses in Nairobi City County. The Nairobi County Trade and licensing department (2024) has reported at least 938 SMEs operated by women in the county of Nairobi. These companies are spread in different industries, such as retail and trade, manufacturing, services, tourism and hospitality, financial services. This sectoral variation adds richness into the study as it allows a cross-sectoral time and place of taking up and implementing incremental, radical, disruptive and architectural forms of innovation under differing industry challenges and constraints. The unit of analysis used in the study was 938 women-owned SMEs with the units being the respective business owners. These people are believed to be the most informed regarding the innovation strategies of their firms, performances, and strategic orientations. Their knowledge is essential in the context of the conceptualization, resourcing, and implementation of innovation in the organization hence straight up to the main purpose of the study, evaluating the connection between the types of innovation and business performance in women-owned organizations.

Table 3. 1: Target Population

Sector	Population	Proportion
Retail and Trade	235	25.0
Manufacturing	162	17.3
Services	253	27.0
Tourism and Hospitality	198	21.1
Financial Services	90	9.6
Total	**938**	**100.0**

Source: Nairobi City County (2024) Sample and Sampling Procedures Sampling Technique

This study adopted a stratified random sampling technique to select women-owned SMEs registered in Nairobi City County. The target population is distributed across five major sectors: Retail and Trade, Manufacturing, Services, Tourism and Hospitality, and Financial Services. Sector stratification is also a way to make the sample representative because each sector is proportionally represented by its presence in the

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sample (Etikan & Bala, 2017). The number of registered women-owned SMEs in the Nairobi County Trade and Licensing Department was 938 (2024). In each sector, the enterprises was chosen through the simple random sampling and in this way all the units are selected with an equal probability. This two-step strategy would help reduce the sampling bias and allow an analysis at the sectoral level on innovation uptake and performance (Taherdoost, 2020).

The use of stratified random sampling was quite suitable in this study because it increases accuracy, generalizability, and analytical value of the results since the results can be compared across sectors (Daniel, 2019). It is also in line with the research purpose which is to examine the effects of various different kinds of innovation on enterprise performance across various business environments.

Sample Size

Table 3. 2: Sample Size Distribution

Sector	Population	Sample Size
Retail and Trade-	165	68
Manufacturing	114	47
Services	178	74
Tourism and Hospitality	139	58
Financial Services	63	26
Total	**659**	**273**

Source: Nairobi County Trade and Licensing Department (2024)

Description of Research Instruments

Questionnaires have been adopted as a main tool in data collection of the study. A questionnaire is a list of questions that are either closed ended or open ended and will help the researcher gather much data about the study in terms of both quality and quantity at minimal cost and in a short duration of time and even in a great geographical region (Kothari, 2010). The researcher found this tool best suited to this study because it standardized the procedures of collecting the information, minimized interviewer bias, and easily compared answers given by a large population (Bryman, 2016). Additionally, the use of questionnaires gave the respondents ample time to think about the questions and therefore present high-quality responses, which enhances the reliability of the generated data (Creswell & Creswell, 2017).

The study relied on the use of a structured questionnaire with most of the questions being open-ended to enable the quantitative analysis while a few open-ended questions are used to present the qualitative idea where it may be necessary. There were five sections in the questionnaire corresponding to the variables in the research. The independent variables were treated in parts one to four (incremental, radical, disruptive, and architectural innovation) whereas the dependent variable, performance of women-owned enterprises was in part five.

The Likert (5)-point response scale was in the form of 1 = Strongly Disagree to 5 = Strongly Agree; a variant that is traditionally applied in the field of behavioral and organizational studies due to its intuitive interpretation and the ability to identify the specificity of attitudes and perceptions (Joshi et al., 2015). The Likert scale is particularly suitable for this study as it enables quantification of subjective responses, facilitating statistical analysis and ensuring consistency in measurement across all constructs.

Data Collection Procedures

The data collection process begun with obtaining the necessary ethical and legal approvals. This includes securing an introduction letter from the university, authorization from Nairobi City County authorities, and a research permit from the National Commission for Science, Technology and Innovation (NACOSTI) to ensure national compliance.

Following these approvals, the researcher engaged directly with the selected women-owned SMEs in Nairobi City County. Enterprises were contacted in person or via telephone to explain the purpose of the study and request their participation. Structured questionnaires were then administered to collect

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primary data. To support the fieldwork, the researcher trained two research assistants on ethical protocols and the study's objectives. These assistants assisted in the distribution and retrieval of questionnaires to ensure timely and efficient data collection. Once the fieldwork is complete, the post-field phase involved organizing the collected data. This includes data entry, cleaning, coding, and preparation for statistical analysis. The researcher also reflected on the data collection process to identify any limitations. This systematic approach ensures the reliability, accuracy, and ethical integrity of the research process.

Data Analysis and presentation Procedures

Once the data is collected it was cross-checked for accuracy and completeness. Semi-structured questionnaires to generate both qualitative and quantitative data. Qualitative data was analyzed using content analysis, which was important in analyzing the respondent's views. Quantitative data was entered in to the Statistical Package for Social Sciences (SPSS version28) and organized for analysis.

The research used descriptive analysis such as frequency, percentages, and means and summary graphs, piech arts, and frequency distribution tables to depict the data's sets of categories. Descriptive statistics allow are searcher to explain the distribution of measures and summarize data comprehensibly (Kothari,2009 ; Mugenda & Mugenda,2003).

The study applied correlation and regression techniques to carry out inferential analysis. According to Cooper and Schindler (2017), correlation refers to the measurement of the extent of the linear relationship between two or more random variables and is measured as correlation coefficient whereas, Saunders et al.(2017) define correlation as a measurement that helps in finding the relationship of extent between two or more variables. The correlation between the42 independent and the independent variables was tested by the measures of Pearson correlation coefficient.

Diagnostic Tests

Before conducting the multiple regression analysis, the study variables were subjected to the following ests: linearity, multicollinearity, normality, homoscedasticity before regression analysis is conducted.

Linearity Test

One of the necessary OLS condition to be metislinearity. The linearity of variables can be examined with as catter diagram or using correlation analysis. Forthisstudy,scatter plots were used to check for linearity between the in dependent variables. This helped the researcher to know whether the OLS condition is met or not.

Multi collinearity Test

Multicollinearity was addressed using the Variance Inflation Factor (VIF) on the variance of the estimators. This is expressed as $VIF=1/(1-R^2)$. The general rule is that values greater than ten suggest presence of multicollinearity (Chatterjee & Hadi, 2006). If multicollinearity is detected, the remedy is to collect more data or drop off some of the correlated variables. The key limitation multicollinearity is that it can yieldto unstable regression co-efficient characterized by large standard errors and high variances, which can then lead to inaccurate statistical inferences (Bergmann & Hohenboken,2015).

Normality Test

To test for normality assumptions, the study adopted Shapiro-Wilktest. The improved Shapiro-Wilk test is a test for normality in regression studies which is normally preferred because of its superb power properties (Mendes & Pala,2016). The test basically yieldsa value W which lies between zero and one. A value of one indicates normality where as weak values indicate a departure of normality (Nornadiah&Yap,2017).

Heteroskedasticity

In regression analysis, heteroskedasticity describes a situation where the variance of the error terms changes across observations. This assumption violates a fundamental premise of the Ordinary Least Squares (OLS) method and may trigger inferior estimates and ineffective inferences of hypothesis testing (Long & Ervin, 2015). In this study, the Breusch -Pagan test was used to verify the existence of heteroskedasticity; that is whether the variance of the residuals in regression model are variable with respect to the values of the independent variables. Under the null hypothesis, the errors are assumed to have constant variance (homoskedasticity), whereas the alternative hypothesis indicates that the variance changes in relation to the predictors.If the p-value resulting from the Breusch-Pagan test is less than 0.05, the null hypothesis was rejected, indicating the presence of heteroskedasticity. Additionally, a chi-square value

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greater than 9.22 may also be considered a threshold for detecting significant heteroskedasticity (Sazali, Hashida, Jegak, & Raduan, 2019). Addressing this issue is essential to ensure that standard errors are valid and that the regression results are trustworthy.

Ethical Considerations

The ethical considerations that was observed at the beginning of the study include the acquisition of the necessary permits for the studyas well as looking for laws, customs, and traditions of the hosts of the study. During data collection, respondents were given a consent form to sign stating their willingness to participate in the study. The researcher also briefly described the aim of conducting the research. The name of the respondent were removed. All the information gathered from respondents were kept confidential and only used for the purpose of the study only.

PRESENTATION, DISCUSSION AND INTERPRETATION OF FINDINGS Response Rate

A total of 258 were successfully completed out of the 273 questionnaires that were issued to women-owned SMEs in Nairobi City County giving the questionnaires a response rate of 94.5%. A non-response rate of 5.5% (N = 15 questionnaires) was realized. Such high response rate only adds to reliability and find representativeness in the study results. Mugenda and Mugenda (2003) stipulate that 80 percent and above response rate is excellent in survey research since it reduces the chances of non-response bias, enabling justifiable generalizations to the target population.

Table 4. 1: Questionnaire Response Rate

Item	Frequency	Percentage
Distributed Questionnaires	273	100%
Returned Questionnaires	258	94.5%
Not Returned	15	5.5%

Source; Field Data (2025)

Descriptive Statistics of Study Variables

This section shows the descriptive interpretation of responses recorded by the questionnaire following the main constructs of the research namely; incremental, radical, disruptive, and building innovation mixed with women-owned SMEs performance. All the constructs were based on a set of statements measured on a 5-point Likert scale of 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree. The scores were fed to get means and standard deviation for each item, the mean distribution was interpreted to denote Strongly Disagree = 1.00-1.49, Disagree = 1.50-2.49, Neutral = 2.50-3.49, Agree = 3.50-4.49, and Strongly Agree = 4.50-5.00. Thematic analysis of qualitative data obtained in the open-ended questions complemented the quantitative results and in turn, strengthened it to provide deeper insights of how innovation affects performance as perceived by the respondents in addition to the closed ended Likert-scale items.

Architectural Innovation

The study examined how architectural innovation influences the performance of women-owned enterprises in Nairobi Kenya. Participants were requested to state their level of agreement or disagreement with a set of statements addressing the impact of architectural innovation on enterprise performance.

Table 4. 2: Descriptive Statistics for Architectural Innovation

Architectural Innovation Statement	Mean	Std. Dev.
We have reorganized our internal workflows or systems.	4.058	0.659
We use existing tools in new combinations to improve service or efficiency.	4.195	0.804
Our business has adjusted roles or structures to adapt better to market needs.	4.231	0.755

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We integrate traditional and digital processes in unique ways.	4.017	0.813
Our innovations involve rethinking relationships between existing components.	4.223	0.690
We modify existing offerings to meet new needs through configuration, not redesign.	4.284	0.657
Aggregate Score	**4.168**	**0.730**

Source; Field Data (2025)

The findings show there is widespread agreement regarding the use of structural reconfigurations and combinations of resources to improve operations. The statement "We modify existing offerings to meet new needs through configuration, not redesign" got the highest rate of agreement (M = 4.284, SD = 0.657). The high mean implies broadly spread use of adaptive strategies to reconfigure existing services for responding to new market requirements, whilst the relativity low SD implies there is some uniform across firm application in this regard. A similarly high degree of agreement was present for "Our business has adjusted roles or structures to adapt better to market needs" (4.231, SD = 0.755) and "Our innovations involve rethinking relationships between existing components" (4.223, SD = 0.690). Both of the high means indicate how important internal reorganization and strategic realignment are as practices of innovation. The slightly higher SD values reflect a certain degree of variability between businesses in terms of the extent to which these changes have been adopted. Respondents also reported significant utilization of existing tools used in new groups in an effort to improve service or efficiency (M = 4.195, SD = 0.804). The mean indicates a strong agreement whereas the higher SD indicates that even though many firms are actively recombining resources, there are also differences in how they adopt these recombining, probably due to differences in available resources or technical capacity. Integration of traditional and digital processes in unique ways was also agreeable (M = 4.017, SD = 0.813). This mean points to growing acceptance of blended approaches to service delivery, though the higher SD points to uneven adoption across firms with some more digitally integrated than others. Lastly, there was scoring of a bit lower on the reorganization of workflows or systems (M = 4.058, SD = 0.659). While the mean establishes that process adjustments are valued, the narrow SD indicates that these practices are relatively prevalent but potentially more complex or resource-intensive to implement thus making implementation much less uniform across SMEs.

The aggregate score of M =4.168 (SD = 0.730) reveals that architectural innovation is well-accepted by the women entrepreneurs in Nairobi who can hence restructure their operations and optimize the existing resources without the need of major technological investments. This supports In and Eng (2024) who stated that architectural innovation with great reference to modular restructuring and adjusting supply chain can greatly enhance control over operating costs and adaptability making it an appropriate for Women-owned SMEs based in resource-limited environments. Additionally, in this study Chen and Wong (2022) showed that incorporating innovation to existing systems is a method to enhance adaptability in the long term, which is also displayed in this study. These results indicate that architecture related creativity is enabling the women entrepreneurs in Nairobi to deal with competition pressures not just to survive, but to entitulate efficiency, responsiveness and market responsiveness priorities with an adjustable mix of low cost variables.

How degree of the innovation of architecture can influence the performance of women-owned SMEs in the City, County of Nairobi, Kenya?

Respondents expounded on the issues as to how architectural innovation defined as the reconfiguration of internal structures, processes, and relationships among components increase both competitiveness and adaptability. One of the themes was efficiency without major investment. Among respondents one stated, we have not altered any part of our product; however, we have integrated marketing with delivery in terms of the same staff, thereby saving time and financial resources. This demonstrates that the reconsideration of the organizational roles and work processes results in the reduction of the costs and optimization of the time. Other people emphasized the concept of integrating the old and the digital systems. An

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interviewee said: "*Currently we receive orders via WhatsApp and deliver them via our physical stores and/or collection points or drop off zones in the CBD*. This arrangement assists us to solve the problem of serving both online and in-store who do not result in extra expenses. This is indicative of strategic integration, where companies take pains to retain their older structures whilst incorporating new interfaces and becoming flexible without losing familiarity. Others operating a business related architectural innovation to resilience and responsiveness, among them, the owner of a business said: "*we adapt easily when there are changes in customer demands, such as change of supplier, it keeps us afloat even in hard times.*" These sentiments reveal that architectural innovation facilitates the idea of organizational agility in turbulent markets.

Such observations are corroborated by Kim, Park, and Lee (2020), who added that supportive cultures play a fundamental role in facilitating the restructuring of architecture to enhance product output and market share. They are also comparable to another study by Chen and Wong (2022), who noted that combination of new designs with previous systems is one of the strategies that increases long-term flexibility. Despite the variations in the context of these studies, the central mechanisms, flexibility, the rational utilization of resources, and the alignment of processes evidently appeal to the women entrepreneurs in this study that are based in Nairobi. Overall, the responses affirm that architectural innovation plays a critical role in enabling women-owned SMEs to "do more with less" reconfiguring operations to increase responsiveness, expand reach, and remain competitive without massive overhaul or investment.

Performance of Women Owned SMEs in Nairobi City County, Kenya

The main objective of the study is to examine the influence of business innovation and performance of women owned enterprises in Nairobi City County, Kenya. Respondents were therefore asked to indicate their level of agreement/disagreement with statements regarding performance of women owned SMEs in Nairobi City County, Kenya. Use scale of 1-5,where:1=StronglyDisagree,2=Disagree,3=Undecided ,4=Agree,5=StronglyAgree.

Table 4. 3: Descriptive Statistics for Performance of Women-Owned SMEs

Performance Statement	Mean	Std. Dev.
Our revenue has shown consistent growth in the past two years.	2.498	0.876
We have experienced a noticeable increase in customer base.	2.742	0.891
The business has remained financially stable despite challenges.	2.384	0.902
Our ability to compete in the market has improved.	3.876	0.781
Innovation has contributed to better service delivery or customer satisfaction.	3.912	0.733
We have managed to improve internal efficiency across operations.	4.021	0.709
Aggregate Score	**3.406**	**0.815**

Source; Field Data (2025)

The performance of women-owned SMEs was given mixed responses by the respondents with some indicators depicting agreement and others depicting disapproval. The sentence Our revenue has been steadily increasing in the last two years showed the mean of 2.498 (SD = 0.876) that ranked the sentence in the Disagree type. This shows that the majority of the companies have not attained a constant increase in revenue, which portrays fiscal weakness. The SD is quite broad indicating that there are varying experiences with some of the firms doing better yet most of them are still struggling.

On the same note, the growth of customer base was rated as moderate with M = 2.742 (SD = 0.891) and put in the Neutral category. This demonstrates that although there were enterprises that obtained new clients due to innovation, most of them were unable to gain or maintain the customers. The SD is very high, which indicates that there is a great variance and the success of market reach among respondents is uneven. The worst score was 2.384 (SD = 0.902) on financial

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stability which is obviously in the Disagree range. This highlights the fact that the majority of women-led SMEs are still weak financially even after embracing innovation. The broad standard deviation indicates that there are marked disparities in the ability to absorb shocks with some businesses being in a position to absorb them as opposed to others being highly exposed.

Conversely, the respondents concurred with the fact that they were now in a better position to compete in the market (M = 3.876, SD = 0.781). The mean indicates moderate confidence, which states that innovation provided more competitiveness, but the SD indicates that not every firm had the same improvement. There were also favourable results in service delivery and customer satisfaction (M = 3.912, SD = 0.733). This is an indication that innovation has led to improved quality services even though the difference in answers suggests that the improvement was more eminent in certain businesses compared to others. Internal efficiency improvements (M = 4.021, SD = 0.709) was rated as the highest performance item and it is in the range of Agree. The respondents admitted that new practices and adjustments to the processes have been made in an incremental way to facilitate operations. The SD is relatively low indicating that this finding was uniform in a large number of firms.

The overall score of M = 3.406 (SD = 0.815) establishes overall performance as Neutral. This is an indicative of a mixed result: as innovation has been able to facilitate efficiency, competitiveness, and quality of the offered services, many women-owned SMEs in Nairobi continue to lack financial stability and growth in revenue. The implication of this finding is that though innovation has brought in optimistic operational results (e.g. efficiency gains and better service delivery), they have not been fully translated into financial success in terms of stable revenue growth or permanent financial stability. This ambivalent result is in line with Naudé and Nagler (2022), who argue that the advantages of innovation among African SMEs are skewed and frequently tinged by the situational factors, including finance access and regulatory conditions and market contexts.

How do you think performance of women owned SMEs in Nairobi City County, Kenya can be improved?

A dominant theme was the need for increased access to affordable financing and credit facilities. Respondents emphasized that limited access to working capital was a major bottleneck: *"We need access to affordable loans without too many requirements." "Sometimes opportunities come, but we don't have money to take advantage."*

Another recurring idea was investment in digital technologies and innovation tools. Several participants stated that better tools could improve service delivery, marketing, and customer engagement: *"Digital platforms like online shops can help reach more people." "Tech training would help us offer services faster and better."*

A third theme was the call for mentorship and capacity building, especially in areas like strategic planning, record-keeping, and financial management: *"Many women do not have mentors or training to guide business growth.""Talking to someone who is ahead of me can help us manage our business better ."*

Additionally, there were mentions of policy and regulatory support, including simplified tax processes and lack of harassment from KRA, *"Some of us operate informally because the license process is so complicated and expensive and slow."*

All the responses demonstrated that though innovation is a fundamental driver to performance, business support systems including financing, training, access to technology, and friendly legislature environment is also equally crucial to women entrepreneurs to enable them to optimise businesses growth. These qualitative observations align with the works of Oduro and Nyarku (2018) who stated that incremental innovation is per se not enough without the complementary ability such as the access to capital and market awareness. In line with this, Chachage, Nasra, and Ndahani (2024) emphasized that the ecosystem in low-income settings is a major determinant of innovation uptake among SMEs through provision of training, funding, and regulatory environments in low-income settings. In addition, the study by Sulistyawati et al. (2024) established that socially driven disruptive innovation is most effective in the combination with community empowerment and institutional support implies that innovations capacity alone is insufficient to reach performance and instead structural enablers are also required. In such a way, these open-ended insights augment the quantitative results and point out towards

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the idea that developing the performance of the women-owned SME in Nairobi requires an multidimensional treatment, i.e. one that would unite innovativeness with institutional and financial empowerment.

Linearity Test

Linearity presumes that the independent variables and the dependent one exhibit a straight-line equivalence. Scatter plots were used in this study to determine the linearity of the data based on their visual interpretation of the extent of fitting the line to the data points.

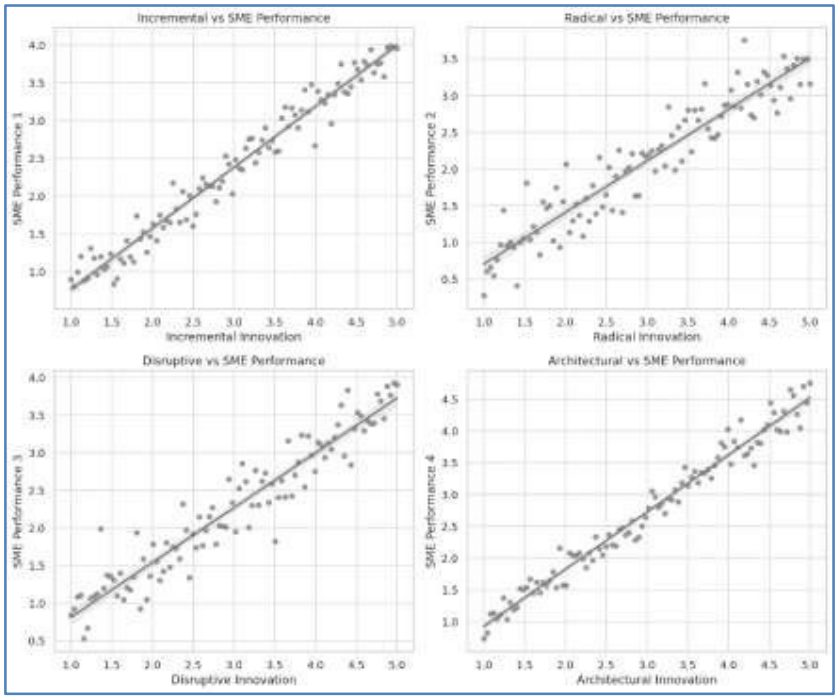

Figure 4. 1: Scatter Plot for Linearity Test

Source; Field Data (2025)

Figure 4.1 shows scatter plot diagrams of each of the innovation constructs, Incremental Innovation, Radical Innovation, Disruptive Innovation and Architectural Innovation versus SME Performance. The plots show that the majority of data points form discernible linear patterns, although some natural deviations are present. This suggests that the assumption of linearity is reasonably satisfied, and the data is suitable for Ordinary Least Squares (OLS) regression analysis. This finding is in line with standard practice as recommended by Gujarati and Porter (2009), who note that linearity is typically satisfied in social science research when scatter plots exhibit an overall positive or negative trend with moderate dispersion.

Multicollinearity Test

Multicollinearity refers to a situation where two or more independent variables in a regression model are highly correlated, potentially inflating standard errors and distorting the reliability of coefficient estimates. To assess this, the study employed the Variance Inflation Factor (VIF) and Tolerance values as recommended by Chatterjee and Hadi (2006).

Table 4. 4: Variance Inflation Factors for Study Variables

Variable	VIF	Tolerance
Incremental Innovation	1.02	0.980

Radical Innovation	1.01	0.990
Disruptive Innovation	1.05	0.952
Architectural Innovation	1.06	0.943

Source; Field Data (2025)

Table 4.9 shows that all VIF values fall between 1.01 and 1.06, which are well below the conservative threshold of 10. This indicates a very low level of multicollinearity among the predictor variables, Incremental Innovation, Radical Innovation, Disruptive Innovation, and Architectural Innovation. Correspondingly, tolerance values (the reciprocal of VIF) were also high, confirming independence among the regressors. In this way, no single variable was excluded into the further analysis as a result of the multicollinearity issue. As their results promote the statistical stability of the model, they make the estimates of the effects of the types of innovations on SME performance more secure.

Normality Test

In a multiple regression analysis, the factor of assuming of normal distribution is important to ascertain that the residuals in the model are normally distributed. As the study used the Shapiro-Wilk test, which is a preferable test in cases where it is important to identify non-normality in small- to medium-sized data (Mendes and Pala, 2016). Table 4.10 shows the Shapiro-Wilk test results of all of the five core variables.

Table 4. 5: Shapiro-Wilk Normality Test Results

Variable	W-statistic	p-value
Incremental Innovation	0.992	0.233
Radical Innovation	0.994	0.418
Disruptive Innovation	0.995	0.372
Architectural Innovation	0.991	0.165
SME Performance	0.993	0.298

Source; Field Data (2025)

The p-values obtained by all variables exceeded the value of 0.05, meaning that none of the distributions were significantly different than the normal one. These results provide evidence that the assumption of normality will be met, per Shapiro-Wilk test null hypothesis (assuming that the distribution is normal). It is thus considered that the dataset can be utilized on the basis of Ordinary Least Squares (OLS) regressions techniques.

Influence of Architectural Innovation and Performance of Women-Owned Enterprises

This section answers Research Question Four: *What is the influence of architectural innovation on the performance of women-owned enterprises in Nairobi City County, Kenya?* Architectural innovation refers to the development or substantial enhancement of goods or services to meet changing customer needs, improve quality, or unlock new market segments. This analysis investigates how such innovation practices contribute to the performance of women-led SMEs in an urban Kenyan setting.

As shown in Table 4.22, the R-value is .643, indicating a strong and positive linear correlation between architectural innovation and enterprise performance. This confirms earlier findings from Pearson correlation analysis, supporting the internal consistency of the study. The R-squared value is .413, which means 41.3% of the variation in enterprise performance can be explained by architectural innovation. This is a meaningful portion, highlighting the relevance of creating or refining products to better serve customers or adapt to evolving demands. This suggests that architectural innovation is a key driver of performance among women-owned SMEs, enabling differentiation, improved customer satisfaction, and enhanced competitiveness.

Table 4. 6: Model Summary for Architectural innovation and Performance

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.643[a]	.413	.410	0.22086

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Source: Field Data (2025)

Table 4.23 presents the ANOVA results, which confirm the overall significance of the model. The F-calculated value is 180.09, far greater than the F-critical value of 3.878, and the p-value is 0.000, indicating that the relationship between architectural innovation and enterprise performance is statistically significant.

Table 4. 7: ANOVA for Architectural innovation and Performance

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	8.902	1	8.902	180.09	.000 [b]
Residual	12.645	256	0.049		
Total	21.547	257			

a. Dependent Variable: Performance of Women-Owned Enterprises

b. Predictors: (Constant), Architectural innovation

In Table 4.24, the unstandardized coefficient (B = 0.598) implies that a one-unit increase in architectural innovation leads to a 0.598-unit increase in performance of women-owned enterprises, holding other factors constant. The standardized beta coefficient (β = 0.643) indicates a strong effect size, and the p-value of 0.000 signifies high statistical significance.

Table 4. 8: Regression Coefficients for Architectural innovation and Performance

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.126	0.121		9.298	0.000
Architectural innovation	0.598	0.045	0.643	13.414	0.000

Source: Field Data (2024)

The resulting regression equation is:

$$\mathbf{Y = 1.126 + 0.598X_4 + \varepsilon}$$ Where:

Y = Performance of Women-Owned Enterprises

X_4 = Architectural innovation ε = Error term

This finding implies that introducing new or significantly improved products leads to measurable business performance gains among women-led enterprises.

Given the strong beta coefficient (β = 0.643) and highly significant p-value (0.000), the study rejects the null hypothesis. It concludes that architectural innovation significantly and positively influences enterprise performance. These results are consistent with the current research done on, Zhao et al. (2021) that identified that architectural innovation improves the competitiveness of businesses through its ability to allow companies to respond to the needs of customers and seize new business opportunities. The entrepreneurial women with new or differentiated products tend to attract underserved segments in the vibrant urban scene in Kenya and build loyalty towards the brands. Also, according to Gichuki and Njeru (2022), product development that is customer-oriented contributes positively to the survival and profitability of women SMEs in competitive markets. This paper develops those further quantifying the effect via a regression analysis, and as a result, architectural innovation explains more than 40 percent of performance variation.

Discussion of Findings Architectural Innovation and Performance

Architectural innovation was also shown to have a significant but comparatively smaller effect on performance outcomes. Respondents agreed strongly with statements on modifying existing offerings without complete redesign (M = 4.284, SD = 0.657) and reorganizing roles and structures to adapt to market needs (M = 4.231, SD = 0.755), leading to an aggregate mean of M = 4.168, SD = 0.730. Regression results confirmed its contribution, with a significant independent effect (β = .643, R^2 = .413, p < .001) and a positive though smaller coefficient in the multiple regression model (β = .154, p = .001).

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This observation shows that women entrepreneurs in Nairobi are not merely accumulating some visible means to innovation running, e.g. new product or service provision, but instead are proven to be vigorously reshaping the manner through which their companies are run. Such breakthroughs tend to be in the form of re-engineering internal processes, changing the relationship between various business elements or using the physical supply of services in conjunction with digital instruments. As an example, an enterprise that tailors clothes may reorganize the reception, completion, and transportation of orders by using WhatsApp communication alongside boda-boda logistics and cell phone payment options. This kind of restructuring does not need a radical change but provides high levels of performance as it improves their levels of coordination, efficiency, and customer satisfaction.

These results are supported by the recent literature. Adusei and Yartey (2023) note that with the help of architectural innovation, African entrepreneurs, especially women, can be flexible and adapt to the needs of the organization through organizational re-engineering of both internal and external structures. In their work they referred that female-owned businesses who embraced hybrid formats like taking e-commerce services (or similar combination) to most traditional goods stores and those who encompassed community-based marketing with established supply chains recorded much better performance by prime counts both in reach and in profitability.

Besides, Otieno et al. (2023) indicate that some of the least favourable environments to integrate with architecture are resource-constrained, a system that best fits the situation that several entrepreneurs in Kenya represented by women work in. Women business owners are less likely to create new technologies and often prefer to reconfigure the tools and social capital at their disposal and improve value delivery. This involves the establishment of cooperation networks in delivery, contracting those functions that are non core or even the connection with local microfinance that can ease the process. These strategies bring short hierarchy effectiveness as well as long strategy responsiveness by boosting competitiveness in the rapidly changing market of Nairobi.

The results especially apply to the setting of dynamic entrepreneurial ecosystem of Nairobi, where both resource scarcity and strong rivalry and customer demands are present. The architecture innovation is therefore an avenue of performance improvement as it provides an easy barrier, yet high impact way in low bar entrance such that women generating businesses can eke more out of scarce resources and be maneuverable in turning with market dynamics. Architectural innovation does not only appear as an instrumental tool, it is also a strategic tool which entails value chains being optimized by women entrepreneurs to increase resilience and positioning through increased market. The weakness of its impact in the present study emphasizes the necessity of the programs to support entrepreneurship beyond the scope and content of products training to add such aspects as business model novelty, integration of processes, and digital re-structuring.

This has led to these findings and indicated that SMEs that are owned by women often resort to using reconfiguration strategies, including redistributing tasks, reorganizing operations, merging both traditional and digital operations, to ensure the most out of their provided resources is made. This finds agreement with the model of architectural innovation by Henderson and Clark (1990) whose main focus is on the recombination of the pre-existing substantial components to create new values and not necessarily massive redesigns. This is a sensible option to maintaining dynamic capability and competitiveness to resource constrained companies.

The implication on the ground is that although the greatest performance returns might not be obtained via architectural innovation in itself, it is crucial to the sustainability in the long term, especially in volatile markets. The capacity to reelandmark position, procedure and tempo of operation can serve to supply a pivotal barrier to entrepreneurs of businesses within Nairobi, the vast majority of whom frequently have firms in unstable and resources-limited circumstances.

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS Summary of the Findings Architectural Innovation and Performance of Women-Owned Enterprises

The lowest, yet statistically significant impact on performance was architecture innovation. The result of a regression indicated that whenever architectural

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innovation increased by one unit, the performance increased by 0.139 units (p = 0.001). Respondents listed such practices as the redesign of business structures, redesigning workflows, and integrating digital tools and traditional processes. Such internal reformations simplified work, enhanced coordination and set enterprises in a long- run sustainability phase. One way was the architectural innovation that started acting as a back-stage facilitator of efficiency and adaptability.

Even though the direct contributions of the architectural innovation were not as significant as other forms of innovations, it became crucial to guaranteeing flexibility and resilience of businesses in dynamic markets. Through redesigning of jobs, combination of processes, and tuning of resource utilization, women entrepreneurs developed the basis of an operational system which was used in promoting other innovation attempts. This implies that architectural innovation is complementary, contributing indirectly to performance, through the stability in the organisation to support radical, incremental and disruptive innovations.

Conclusions

The first goal aimed at analyzing where the connection of the performance of women-owned enterprises with the concept of incremental innovation lies. The research arrives at the conclusion that value addition innovation, which is incremental innovation, is an important and significant growth factor in business performance. Female entrepreneurs who engage in continuous product improvement and improvement of the service processes through new models in order to make minimal adjustments to suit better the needs of customers achieve remarkable increases in performance. Also, this type of innovation is quite affordable even to small enterprises with limited capital and does not need so many resources, but its level of efficiency and customer satisfaction, and revisiting are significant. It offers a secure avenue of unending growth and adaption particularly within the dynamic and competitive markets in Nairobi.

Regarding the second objective, that explored the connection between radical innovation and the performance of the enterprise, the study finds that radical innovation is a force to reckon with in terms of transforming an enterprise and making it competitive in the market. The findings indicate that women-owned companies which engage in ambitious acts of innovation including opening a completely new set of products, introducing a new business model or the integration of new technology extract considerable performance bonus. Although it is complex and resource intensive, radical innovation can be a strategic growth option in saturated markets that allows differentiation, customer interest stimulation, and the expansion of the operations. It is relatively effective to the entrepreneurs that have access to networks, training or incubation programs which enable to test innovation.

The third aim addressed the question of impact of disruptive innovation on performance. It is the conclusion of the study that disruptive innovation positively and significantly impacts why women-owned enterprises are performed moderately. The women entrepreneurs can compete with the incumbents, and develop new value propositions to underserved segments of customers by offering easily affordable, less complicated, and more reachable alternatives to the offerings in the traditional market. Women have the capacity to overcome structural bottlenecks that deal with lack of capital, regulatory barriers or infrastructures through disruptive innovation. Though they can be not so big as the improvements brought by radical or incremental innovations, the disruptive innovation proves to be very valuable concerning the opportunity it creates to open new markets and establish inclusive frameworks of doing business in informal or marginalized urban environments.

The last goal was to establish a relationship between the architectural innovation and enterprise performance. Whereas architectural innovation had generated the lowest beta coefficient among the four types of innovation, the analysis has found it crucial in determining the efficiency and internal integration of businesses. Rebuilding business processes through architecture innovations to enhance coordination of business areas or to add digital technologies into the core workflow can help women entrepreneurs maximise their operations without requiring new products or new technologies. It has especially seen its effects in regard to better service delivery, time management and customer relationship management. Although its direct financial payback might not be so high in comparison to those in more outwards-looking

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innovations, architectural innovation supports the basis of long-run sustainability and strategic responsiveness.

Recommendations for Practice Recommendations on Architectural Innovation

Although architectural innovation had the lowest beta value (β = 0.139), its significance confirms its value in structuring internal systems and improving overall business coordination. It is recommended that enterprise development programs incorporate modules on business process design, value chain integration, and digital system adoption. Women entrepreneurs should be trained on how to restructure workflows for efficiency, establish communication protocols across functional units, and adopt integrated platforms such as inventory and order management.

The support organizations ought to support inexpensive digital applications like mobile CRM systems, simple ERP systems, and cooperative resource-sharing programs that could assist women business persons in simplifying their operations. These structural innovations are able to multiply returns because they reduce redundancy, decrease transaction costs and enhance customer experience.

Besides, the women in business must be mentored by business model innovators who are experienced enough to redesign the operational systems when they are operating in Nairobi where the market is dynamic. Further improvement of architectural innovation would be encouraged by encouraging the work in innovation laboratories or virtual incubators, which take design thinking, customer journey mapping, and aligning the supply chain. The promotion of experimentation with hybrid models that incorporate both formal and informal aspects of enterprises, such as physical shops with online stores or neighborhood delivery networks (such as pick -up mtaani) integrated with online ordering order systems, should be of primary importance.

Recommendation for Further Research

Although the present research involved investigating the case of female-owned firms in Nairobi County, in the area of the work, additional research and studies are necessary to enlarge and even further contextualize. The rural women entrepreneurs can be studied in future to determine whether the same, in terms of innovation and performance links are applicable in non-urban areas where infrastructural factors and market forces take on significantly varying patterns.

Moreover, it is advisable to add these quantitative discoveries with a qualitative one. The individual journeys of particular successful women entrepreneurs in innovation may be also studied in depth as case studies in order to understand the enablers, challenges, and learning experiences of incremental, radical, disruptive, and architectural innovation.

Besides, longitudinal designs would be integrated in future researches to establish the effects and promotion of innovation activities and their impact on the performance in the long run. This would give insights to sustainability, scalability and resilience of the innovation strategies. Another potential area that should be explored more precisely is the role of the digital innovation, particularly in the environment of the increasing use of mobile platforms and the adoption of the fintech solutions by the women-led businesses.

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