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Entrepreneurial Innovation and Performance of Small and Medium Paper Wood Manufacturing Firms in Kenya

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Abstract

Small enterprises could be facing challenges that often stimulate entrepreneurial innovations. The performance of small and medium paper and wood manufacturing firms in Kenya has been a matter of concern and this is evident as the industry has been struggling overtime. Large paper and wood manufacturing in Kenya Webuye Paper Mills collapsed and now light paper and wood processing industries are in existence. This industry supplies 80% of Kenya's requirement for paper and paper board to many paper-convertors, however, the demand for wood and paper products is still unsatisfied warranting some importation. The aim of the study was to investigate the influence of entrepreneurial innovation on performance of small and medium paper and wood manufacturing firms in Kenya. The study population were 437 small and medium paper and wood manufacturing firms in Kenya where the unit of observation was operational manager from each of the enterprise. Thus, the target population were 437 operations managers for small and medium paper and wood manufacturing firms, while the unit of analysis were the small and medium paper and wood manufacturing firms. Slovin's formula was used to obtain a sample size of 209 small and medium paper and wood manufacturing firms. The questionnaires were administered in two ways: drop and pick method and emailing survey. Quantitative data collected was analyzed using descriptive statistics techniques. Qualitative data was analyzed using content analysis. Pearson R correlation was used to measure strength and the direction of linear relationship between variables. Multiple regression models helped to quantify the association between the study variables. Statistical package for social scientists (SPSS) version 27 was used to conduct the analyses. The study established that entrepreneurial innovation aspects such market innovation, product innovation and process innovation are significant predictors of performance of small and medium paper and wood manufacturing firms in Kenya. Strengthening innovation in the organization through focusing on improvements of market innovation, product innovation and process innovation is key in realizing sustained and desirable performance in an organization. The study recommended more investment on innovation in order to create a conducive environment. Additionally, the study recommended an open mind to new innovative ideas in the industry, particularly in the management and administrative teams.

Keywords: *Entrepreneurial innovation, performance of small and medium paper, wood manufacturing firms*

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1. Introduction

Entrepreneurs are often regarded as the lifeblood and backbone of modern economies Eid & El-Gohary, (2018). Their contributions in developed and developing countries in terms of employment creation, Gross Domestic Product (GDP) growth, export growth, economic empowerment, and wider distribution of wealth are widely acknowledged (Kibunja & Fatoki, 2020). Studies demonstrate that SMEs contribute 49 per cent of formal GDP in high-income countries Gregory, (2019). A study by the Organization for Economic Cooperation and Development OECD, (2019a) shows that around 95 to 99 per cent of all enterprises in its member states are SMEs, accounting for two-thirds of all private sector employment in OECD member countries. Studies by Abor and Quartey (2023) and Chodokufa (2019) identify about 90 per cent of private businesses in Africa as SMEs; these SMEs also contribute more than 50 per cent of employment and GDP in most African countries. Entrepreneurial resources are the tangible and intangible assets firms use to exploit competitive imperfections in markets (Alvarez & Barney, 2014). Entrepreneur resources include an entrepreneur's own resources and abilities (Wu, 2007). According to Olugbola (2017), entrepreneurial resources include financial resources, physical resources and technological resources. For et al. (2014), entrepreneurial resources comprise knowledge, financial resources, physical resources and networking resources. It is against this background that the study seeks to establish the extent to which scarce resources affect manufacturing SME performance in Kenya.

Globally, small and medium enterprises are significant contributors to the global economy. In the OECD region, SMEs constitute an estimated 99% of all firms. The SMEs in OECD member countries employ 70% of the workforce and contribute 50%-60% of the gross domestic product OECD, (2020). In emerging economies, SMEs contribute up to 45% of total employment and 33% of GDP. Despite the significance of the SMEs to gross domestic product (GDP) and employment, the performance of SMEs remains a problem with numerous SMEs collapsing before the fifth year after inception (Iqualifyuk, 2020). In addition, many SMEs are confronted with problems related to inadequate entrepreneurial resources, inadequate financing, difficulties in exploiting technology, constrained managerial capabilities, low productivity, regulatory burdens become more acute in a globalized, technology-driven environment OCED, (2020).

In Canada, SMEs account for 60% of total employment, and Canadian SMEs performs very well across many measures of small business generation, growth and innovation OECD, (2017). According to Pinkham, (2022), SMEs represent 99.8 percent of all companies and employ 64 percent of private sector workers in Canada. However, lack of financing, market challenges, and regulatory issues still confront the operational sustainability of small and medium enterprises in Canada (Gill & Biger, 2012). The paper and wood manufacturing in Canada constituted USD 6.3 billion of the economy in 2022 Ibisworld, (2022) a decline from USD 10 billion in 2012. To enhance its competitiveness, the paper and wood manufacturing SMEs in Canada has been investing in entrepreneurial networking, boosting investment in research and development, raising focus on core competency and financing support (Mohiuddin & Su, 2013).

In Turkey, there are over 370,140 SMEs in the manufacturing industry in Turkey Asgary, Ozdemir and Özyürek, (2020). Manufacturing SMEs account for 61.5% of manufacturing industry employment and a share of only 73.1% of the value-added. On the other hand, large enterprises account for 0.7% of the total number of enterprises and 39.5% of employment Erdin & Ozkaya, (2020). Paper and wood manufacturing sector in Turkey is valued at USD1.06 billion (Technavio, 2022). However, the paper and wood manufacturing market in Turkey is fragmented, and the vendors are deploying growth strategies such as quality, technological innovations, and marketing networks to compete in the market.

Regionally, the SMEs contribute approximately 35% to the national GDP in South Africa (Berry, et al., 2020). According to Mashavira et al. (2022), SMEs in South Africa account for about 91% of the formal business entities, contributing to about 51% to 57% of the GDP and providing almost 60% of employment opportunities. SMEs are significant in their contributions to economic growth, innovation of new products, technological progress and competitive advantage (Ngibe & Lekhanya, 2019). In Nigeria SMEs contribute 48% of national GDP, account for 96% of businesses and 84% of employment PWC, (2020). Despite the significant contribution of SMEs to the Nigerian economy, challenges still persist that hinder the growth and development of the sector (Mohammed & Teru, 2020). In Zimbabwe, the bulk of the business enterprises are SMEs. In the manufacturing sector alone, SMEs constituted 96.6 per cent of the total number of manufacturing establishments, contributed 35.0 per cent to total manufacturing output, and involved mostly in textiles and apparel (23.2 percent), metal and non-metallic mineral products (16.7 percent) and food and beverages (Mugogo, 2020). On the other hand,

Uganda's economy is predominately SMEs that constitute 90% of the private sector (Al Mamun et al., 2016). SMEs contribute above 20% of gross domestic product and 80% of the manufactured output in Uganda Kisubi et al. (2022). According to the Uganda Bureau of Statistics (2019), SMEs employ about 45% of the labor force and remarkably contribute over 20% of Uganda's total GDP.

The Micro and small enterprises (MSEs) make a substantial contribution to livelihoods and inclusive growth in Kenya. They account for 24% of the country's GDP, over 90% of private sector enterprises and 93% of the total labour force in the economy FSD, (2021). According to Kenya Manufacturing Association (2019), the Micro, Small and Medium Enterprises (MSMEs) contributed approximately 40% of the GDP and over 80% of employment opportunities. Although the manufacturing sector in Kenya is diversified in terms of manufacturing activities, processing of food and other agricultural goods still contributes the largest share of manufacturing GDP, followed by textiles and garments, and refining of crude petroleum, paper and wood products respectively Chege, Ngui & Kimuyu, (2014). The paper and wood manufacturing industry in Kenya has been struggling overtime. Large paper and wood manufacturing in Kenya like the case of Webuye Pan Paper Mills collapsed and now light paper and wood processing industries are in existence. Kenya started paper-making in (1957). This industry supplies 80% of Kenya's requirement for paper and paper board to many paper-convertors, however, local paper costs more than imported ones. Due to high domestic demand for paper, Kenya exports only 2% of its total paper and wood products Muraya, (2018). The government lacks a decisive policy for the development of paper-making industry.

The players in the paper and wood manufacturing sector comprise largely small and medium enterprises. Despite the paper and wood manufacturing SMEs playing significant role in the manufacturing sector, their optimal potential has been constrained by access to entrepreneurial resources and support from the government. According to Ngui, Chege and Kimuyu (2016), lack of entrepreneurial capabilities, access to finance, limited market, competition from imported paper and wood products and punitive legal and regulatory framework in terms high taxation levies confront the performance and subsequent growth of paper and wood manufacturing in Kenya. It is against this that this paper investigated the influence entrepreneurial resources on performance of small and medium paper and wood manufacturing firms in Kenya.

1.1 Statement of the Problem

The SMEs are the main contributors to gross domestic product of many global economies. This has been replicated across many industries particularly wood industry. To spur the growth of wood industry SMEs, need to invest in innovation. However, small and medium wood and paper manufacturing firms in Kenya have been experiencing difficulties in accessing resources such as raw materials, innovative skills, tools, equipment, machineries and skilled human resources among others. These entrepreneurial resources are critical for their production operations and consequently their overall performance.

It is a matter of concern that the paper and wood manufacturing industry in Kenya has been struggling overtime. Large paper and wood manufacturing in Kenya Webuye Paper Mills collapsed and now light paper and wood processing industries are in existence. This industry supplies 80% of Kenya's requirement for paper and paper board to many paper-convertors, however, the demand for wood and paper products is still unsatisfied warranting some importation. Paper and paper board imports to Kenya stood at 542 tonnes worth$1,812,000 in 2020, while wood furniture imports were 71,356 items worth$3M in 2021 (wits.world bank.org) Moreover, Local paper costs more than imported ones. Due to high domestic demand for paper, Kenya exports only 2% of its total paper and wood products. It is not clear why the existing paper and wood manufacturing firms are unable to perform well enough by satisfying demand, export products, create employment, achieve high profits, expansion and diversification, hence the need for this study. Additionally, the SMEs are not sufficiently contributing to GDP, and economy to help alienate poverty and improve peoples' livelihood.

It is argued that entrepreneurial innovation is key to the survival and high performance of SMEs in all economies globally and ultimately the growth of a nation's economic status. Ademiluyi (2019) opined that consolidation of entrepreneurial innovative skills and technology offers advantages over competitors and is therefore seen as essential for a firm to survive in the turbulent business environment. Linguli and Namusonge (2015) argued that entrepreneurial innovation has positive effect on enterprise performance. Despite studies acknowledging that entrepreneurial resources are critical to the performance of enterprises, the studies did not conceptually narrow down to entrepreneurial resources like access to finance, entrepreneurial innovation and technological innovation that are deemed critical to the operational performance of manufacturing firms (Khan, Rathore & Sial, 2020; Khan, et al.,2021). It is against this that this study sought to establish the influence of entrepreneurial innovation on performance of small and medium manufacturing firms in Kenya with specific focus on paper and wood manufacturing SMEs within Nairobi Metropolitan block.

2. Theoretical and Empirical Review of the Study

The section presents theoretical and empirical literature that underpinned this investigation.

2.1 Theoretical Framework

The Schumpeterian theory of innovation by Schumpeter (1912) postulates that; innovation is primary driver of firm growth via profits. Based on the postulations of the Schumpeter, innovation can be a destructive phenomenon where early implementers are more likely to reap benefits from it compared to late adopters. Berglund (2005) asserts that financial intermediaries mobilize financial resources, evaluates and selects projects, assesses risks associated with the project, functions by financial intermediaries in enhancing financial access, availability and easing transactions between entities are viewed benefits associated with innovation Moldaschl, (2010); Sengupta, (2014). Innovation is an avenue in the introduction of new financial services and products to the market which is vital in sustaining firm operations Solo, (1951). Therefore, the relationship age between finance and innovation is important in fostering growth of firms.

However, Schumpeterian Theory of Innovation has been criticized for ignoring the role of saving as source of finance when access to credit facilities is limited. The Schumpeterian theory assumes credit extension from bank is what finances innovation Schumpeter, (1912) which is far from truth; innovation is not controlled by any entity Block, Fisch & Van Praag, (2017). In this way the theory disregards the vital roles of real savings like budgetary savings, public borrowing, deficit financing and other forms financing Śledzik, (2015).

The theory is relevant in comprehending the significance of innovation and access to finance to the operational performance of firms. According to the Schumpeterian Theory, innovation in the financial sector results to enhanced access to new innovative products and services and financial services. Manufacturing firms constantly require innovation to create competitive advantage in the market by producing products that suit customer needs. In the context of the study, paper and wood products ought to be of quality standards and thus innovative production of paper and wood products is essential. Moreover, the acquisition of raw material for manufacturing paper and wood products requires adequate financing. Thus, the Schumpeter`s Theory of Innovation was consequential in understanding the influence of entrepreneurial innovation on the performance of small and medium paper and wood manufacturing firms in Kenya.

2.2 Empirical Review

Innovation is the development of a new method, device or machine that, on the market, could change the way in which things happen Bessant & Tidd (2013). This change has to be transformative in bringing improvements Kovacs et al. (2019). There are four main forms of innovations, disruptive, incremental architectural and radical. Radical innovation is the launching of inaugural breakthroughs such us computers. The radical often refers to the magnitude of contribution made to the revenue that is the increase on efficacy, sales and profits of the firm (Hanaysha, et al., 2022). Incremental innovation refers to the systematic evolution of a product or service into newer larger markets. It is typically value addition; example is the Mobile money transfers. According to the Oslo Manual OECD, (2010), innovation is clearly part of a business strategy based on transforming ideas into value. Generally, improved goods, services or processes and can be configured as product, process, marketing and organizational innovation.

Innovation is noted to be a necessary ingredient for the sustained success of firms as it protects both tangible and intangible assets against the erosion of the market (Kraus, et al., 2019). In fact, according to Ali, Hao and Aijuan (2020), the ability to innovate is increasingly viewed as the single most important factor in developing and sustaining competitive advantage. Entrepreneurial innovations are the versatile procedures and processes an individual or organizations engage in to and attempt to bring innovative and potentially disruptive new products and technologies to the market. The disruptive type of innovation is majorly a game changer that transforms business practices, it offers to exceed the existing limits of technology solar energy is a good example. It is also the choice they make to, apply, implement, employ and inject materials, technology, strategies and other resources in the processes and operations of production in an existing, innovation.

Firms face challenges in delivering breakthrough innovations with incremental features such that they can easily consume all the enterprise resources leaving space for disruptive innovations by start-ups to take over the market Huynh et al. (2024). According to Ahlstrom (2010), enterprises are better placed by investing, promoting and fostering innovations across the board within their firms. This implies the type of innovation an enterprise adopts is fundamental in the quest for success and growth. Entrepreneurial innovation processes pass through a sequence of stages before the acceptance of a new product (Gomes & Wojahn, 2017). Innovation adoption is the process through which an individual or another decision-making unit passes knowledge of an innovation, to

forming an attitude toward the innovation, to a decision to embrace or reject, to implementation, of the new idea, and to confirmation of this decision (Rezvani & Fathollahzadeh, 2020). The adoption decision takes place at the micro-economic level and the potential beneficiary of the innovation often is an enterprise, a vision, or an individual Van Oorschot, Hofman, & Halman, (2018). The key driver of innovation practices in enterprises is the ambition to get reimbursement in the form of better performance in earnings. Important to note that for entrepreneurial innovation to occur, the idea has to have a place in the enterprise.

Innovations are not only driven by external factors but also by internal ones. An innovation might be a new product, service, production design new source of material or business segment Hou, Hong & Zhu, (2019). Moreover, in order to service the changing needs of customers, innovations are a core necessity to remain stable in a market. Innovation can be academically divided into different types. Engelen et al. (2015) Schachter, (2018) for instance, split innovation in technological, product-market and administrative innovation. Here, administrative innovation is related to controlling systems, product-market innovation focuses on product design, and technological innovation refers to the development in products and processes (Mabenge, et al., 2022). Unlike small enterprises, in large firms, innovation comprises pre-adoption, adoption decision and post-adoption phases. The pre-adoption phase is characterized by the identification of a new need or the look for new solutions Pichlak, (2016). Furthermore, in this stage, organizations create awareness for existing innovations, evaluating a suitable one, discussing it with other organization members. In the adoption decision stage, the considerations are reflected by top managers from the technical, financial and strategic perspective in order to make a decision Damanpour & Schneider, (2019).

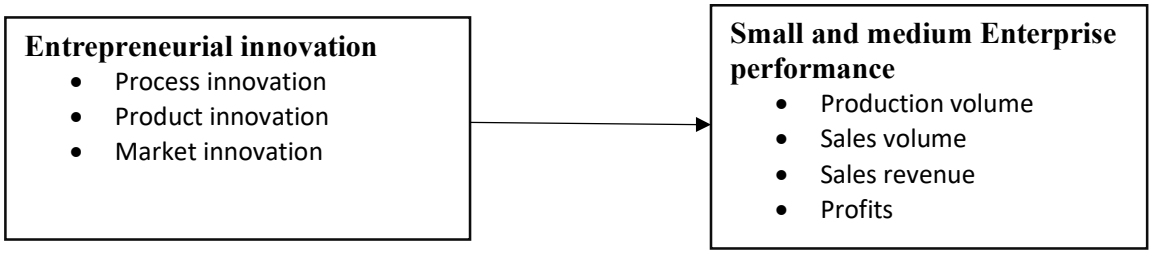
Lastly, the post-adoption stage, firm's application of an innovation is primarily influenced by the innovation characteristics costs, complexity and relative advantage Lichtenthaler, (2016). The greater the return on investment of an innovation application, the higher the probability of its adoption. Manager characteristics need to be taken into account in this framework due to the fact that they are playing an important role in an organizational adoption decision. Needless to say that in SMEs the manager may be the owner. According to Damanpour and Aravind (2012), innovation attitude of managers has a significant positive influence on innovation. Innovation oriented managers are more likely to create a facilitating atmosphere which has a positive impact on organizational culture. As observed by Talukder, (2015), despite an organization's decision to implement an innovation, its actual usage depends on how members of the organization and the organization's customers implement the usage of the innovation. Therefore, it is important to examine the innovations by members of the organization because if there is no acceptance among general staff and management, the desired benefits cannot be realized and the organization may eventually abandon the innovation.

Gërguri-Rashiti, et al. (2017) identified five critical attributes that greatly influence the rate of innovation application and include relative advantage, compatibility, complexity, trainability and observability. Thus, the rate of adoption and application of new innovations may depend on how an organization perceives the innovation's relative advantage, compatibility, trainability, observability and complexity. According to Gaynor (2014), innovation is the core factor behind the survival and continuity of enterprises; it supports the company's expansion and growth and enhances the enterprise's future success. Numerous challenges that face SMEs in innovation. The challenges may be internal or external to the small enterprises Kocak, et al. (2017). Hence, the application of entrepreneurial innovation has been low in small enterprises compared to large enterprises. The problems experienced by small enterprises include a lack of resources, mainly, expertise finances and technical experience Adam & Alarifi, (2021).

2.3 Conceptual Framework

Figure 1

Conceptual Framework



From the presentation in figure 1, the independent variable of the study is entrepreneurial innovation. The dependent variable is performance of small and medium paper and wood manufacturing firms. It is expected that entrepreneurial innovation may have a positive influence on the performance of small and medium paper and wood manufacturing firms.

3. Research Methodology

The study adopted the descriptive survey design. Descriptive survey design enables the researcher to summarize and organize data in an effective way. It provides tools for describing collections of statistical observations and reducing information to an understandable form. Mugenda and Mugenda (2008) defines descriptive research as the procedure for data collection so as to test hypothesis and answer questions on the area under study. This study adopted a descriptive research design since the design helps to understand the characteristics of a group in a given situation, offer ideas for further probe and research and help to make certain decisions Sekaran & Bougie, (2016).

The study population were 437 small and medium paper and wood manufacturing firms operating in Nairobi Metropolitan including Nairobi Main, Kiambu, Machakos and Kajiado regions in Kenya Wresearch, (2022); KNBS (2023). These regions comprise a substantial number of small and medium paper and wood manufacturing firms. The unit of analysis were the small and medium paper and wood manufacturing firms while the unit of observations were the operations managers for small and medium paper and wood manufacturing firms. Thus, the target population were 437 operations managers for small and medium paper and wood manufacturing firms. The sampling frame which is a list of the registered entrepreneurs in the region were obtained from the Kenya Ministry of Industrialization Trade and Enterprise Development, in addition to physical identification for those not registered.

The stratified random sampling was used to obtain 209 operations managers for small and medium paper and wood manufacturing firms who participated in the study. The strata were small and medium paper and wood manufacturing firms in Nairobi Metropolitan comprising 143 small and medium paper and wood manufacturing firms in Nairobi, 25 small and medium paper and wood manufacturing firms in Kiambu, 23 in Machakos and 18 in Kajiado in Kenya. The samples were representative of the target population.

Creation of the questionnaire were done in line with the objective of the study and comprised of both open and closed ended questions. Through the open-ended questions, the study obtained responses that are more structured and therefore facilitating recommendations that are tangible. Through the closed ended questions, the researcher were able to measure various attributes and therefore obtaining responses that are varied. Areas that are not covered by the closed ended questions were covered by the open-ended questions. In addition, the study employed the interview guide to obtain qualitative information from the respondents.

Reliability is the extent to which the results reproduced over time are consistent and accurate and highly represents the population being studied. An instrument is said to be reliable when the same study results can be achieved using the same methodology. Consistent of measured items determine the reliability Joppe, (2010). The results consistency, the degree to which a measuring tool produces the same result every time it is used under similar conditions in the same case, it also implies the repeatability, stability or internal consistency of a questionnaire. Cronbach's alpha method is adopted in the case of this study to determine reliability of the instrument used. Cronbach's alpha is used to measure a large number of items at particular intervals. Once administered it provides a unique, quantitative estimate of the internal consistency of a scale Cooper and Schindler, (2014).

Validity methods adopted are construct and content validity. To ensure construct validity, the questionnaire had different sections which addressed the study specific objectives. The sections were related to the conceptual framework. For construct validity, KMO tests were used. Content validity was ensured by the examination of the questionnaire by the supervisor. This is important to determine the relevance of the structured questions. Adjustments were made whenever there was the need before data collection. Hence, ensuring content validity. Cooper and Schindler (2014) suggest that variables with factor loading 0.7 are acceptable. However, a minimum of 0.5 value of factor loading is allowed as suggested by other researchers. Similarly, Kilic et al, (2020), argued that factor loading of 0.5 and above is acceptable.

SPSS version 27 was employed to analyze the data. Multiple regression models were fitted to the data in order to determine how the independent variables affect the dependent variable. It is a statistical tool attempting to establish whether some variables can be used together in predicting a particular variable Mugenda & Mugenda, (2008). Multiple regression models helped to quantify the association between the study variables. To determine any causal relationship, multiple linear regression analysis was conducted. As stated by Gujarati, (1995)

causation models are best explained by linear regression analysis and thus, the study used linear regression results for each variable as follows;

Regression Model

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

Where Y is the dependent variable (performance of small and medium paper and wood manufacturing firms)

X_1 is entrepreneurial innovation

β_0 is the constant of the model

β_1 is the beta coefficient of X_1 depicting the change in Y

e is error term

4. Results

Results and discussion of findings are undertaken in this section.

4.1 Performance of small and medium paper and wood manufacturing firms

These assessed the performance of small and medium paper and wood manufacturing firms in Kenya. The variable was examined by production volume, sales volume, sales revenue and profits. Respondents were asked to record their opinions on a scale of agreement and disagreement with specific measurements borrowing from Likert scale that is Scale; 1-strongly disagree (SD), 2-disagree, 3-moderate, 4-agree, 5-strongly agree (SA) as presented in Table 1.

Table 1

Descriptive Findings of performance of small and medium paper and wood manufacturing firms

Statement	SD	disagree	moderate	agree	SA	Mean	Std
The firm has new processes, operations, machines and hence high-quality products	40.4	31.5	12.9	6.7	8.4	2.41	1.17
The customers of this SMEs are satisfied with our products and services	44.4	33.7	7.9	7.3	6.7	1.90	1.16
The firm has been recording profits	42.7	32.0	9.0	6.2	10.1	2.34	1.56
The production volume for the firm has been increasing	43.8	32.0	9.6	9.0	5.6	2.49	1.20
The firm receives high return on input due to innovative practices	44.9	29.2	9.6	7.3	9.0	1.94	1.17
The sales revenue for the firm has been increasing	46.1	24.7	13.5	7.9	7.9	1.72	1.15
The customer base for this SMEs has expanded	43.3	33.1	14.0	3.4	6.2	1.97	1.01
The operating revenue for this paper manufacturing firm is sustainable in meeting firm day to day operations	33.7	36.5	12.4	10.1	7.3	2.09	1.29
The return on investment of the firm has rising steadily	37.1	36.0	12.4	6.7	7.9	2.48	1.18
Aggregate means and Std						**2.15**	**1.21**

Based on the findings of the study, it was noted that majority (71.9%) of the respondents disagreed that firm have new processes, operations, machines and hence high quality products as depicted by mean of 2.41. It was also revealed that 15.1% of the respondents agreed that firms have new processes, operations, machines and hence high quality products. It was also found out that majority of the respondents (78.1%) disagreed that customers of the SMEs are satisfied with the products and services as depicted by mean of 1.90. However, 14% of the respondents agreed with this statement. Moreover, it was found out that majority (74.7%) of the

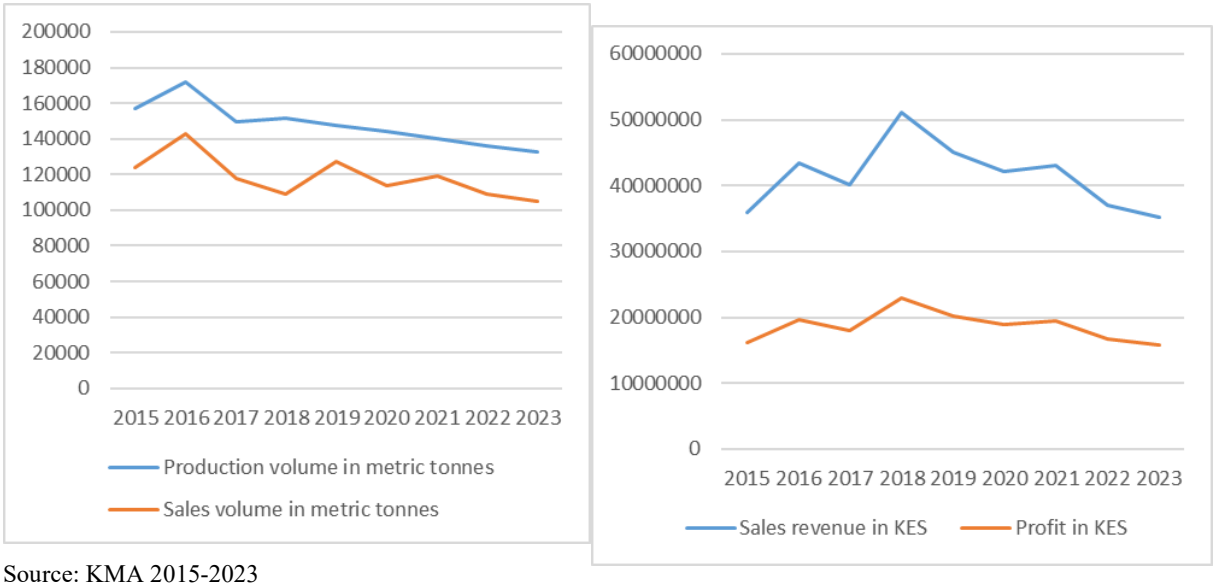
respondents disagreed that the manufacturing SMEs have been recording profits as depicted by mean of 2.34. Further, it was noted that 16.3% agreed that the manufacturing SMEs have been recording profits. Resources are essential for the success and high performance of SMEs include managerial resources, communication resources, production resources, marketing resources and technical resources Udemba, (2020). Entrepreneurial resources are the resources, which complement the entrepreneur to analyze situations, opportunities and environments, and assist the entrepreneur/manager to organize/manage and assume the risk and reward of a business or enterprise Marus, et al. (2017). Additionally, a weakness in a particular skill is associated with a decrease in the overall performance of the venture. Skilled entrepreneurs have all it takes to go after their dreams and reach their main goals. They have a way of surviving the tough situation unlike those who have totally no experience or lack important resources such as managerial, accounting, negotiation and technical resources Marus, et al., (2017).

The findings of the study noted that majority of the respondents (75.8%) disagreed that the production volume for the manufacturing SMEs have been increasing as depicted by mean of 2.49. It was noted that 14.6% respondents agreed with statement. Moreover, most of the respondents (74.1%) disagreed that firm receives high return on input due to innovative practices as depicted by mean of 1.94. On the other hand, 14.6% of the respondents that agreed firm receives high return on input due to innovative practice. Moreover, majority of the respondents (74.1%) disagreed that the sales revenue for the firm has been increasing as depicted by mean of 1.72 while 16.3% of the respondents that agreed. Entrepreneurship resources are simply business resources which individuals acquire to enable them effectively function in the turbulent business environment as an entrepreneur or self-employed. Entrepreneurial skill is crucial in aggregating both the innate characteristics and other resources, in other words the ability to consolidate resources, it depends on the individual's entrepreneurial resources Forth and Bryson (2019). Entrepreneurship is embodied in entrepreneurs' mind that help establish businesses, generate employment, create new products and services, stimulate innovation and improve performance and welfare (Sagar, 2024).

It was also noted that majority of the respondents (76.4%) disagreed that the customer base for the manufacturing SMEs have expanded SMEs as depicted by mean of 1.97. Nonetheless, 9.6% of the respondents that agreed market size and customer base for this SMEs. In addition, it was noted that majority of the respondents (70.2%) disagreed that operating revenue for this paper manufacturing firm is sustainable in meeting firm day to day operations as indicated by the mean of 2.09. This was also contrasted by 17.4% of the respondents who agreed. Finally, majority of the respondents (73.1%) did not agree that return on investment of the firm has rising steadily as depicted by the mean 2.48. This was however contrasted by 14.6% who agreed that return on investment of the firm has rising steadily. Entrepreneurial resources are essential to the growth, performance and survival of small-scale enterprise Prasanna, et al., (2019). Thus, resources are the knowledge established through actions or a unique performance in certain situations. Resources are attained and developed through training Zahra & Wright, (2016). Setyawati, et al. (2011) showed that learning and networking have a significant effect on innovation adoption. Consequently, innovation use significantly influences the growth and performance of the entrepreneurs. Further the study examined the performance trends and the findings are presented in figure 2 and it measures production volume, sales volume, sales revenue and profits from 2015 to 2022.

Figure 2

Trends of production volume, sales volume, sales revenue and profits



Source: KMA 2015-2023

Based on the findings in figure 2, the production volume, sales volume, sales revenue and profits have been fluctuating over time in the manufacturing sector compromising of SMEs. Production volume recorded the huge decline in 2018 and highest rise in the subsequent year and this was replicated with sales revenue that shrank within the same period. The overall growth of production volume, sales volume, sales revenue and profits have stagnated within one digit growth or performance and thus there is a concern for policymakers in the industry and the field.

4.2 Entrepreneurial Innovation and performance of small and medium wood and paper manufacturing firms in Kenya

The objective of the study was to establish the influence of entrepreneurial innovation on the performance of small and medium wood and paper manufacturing firms in Kenya. The variable entrepreneurial innovation was examined by process innovation, market innovation and product innovation. Respondents were asked to record their opinions on a scale of agreement and disagreement with specific measurements borrowing from Likert scale that is Scale 1-strongly disagree (SD), 2-disagree, 3-moderate, 4-agree, 5-strongly agree (SA) as presented in Table 2.

Table 2

Descriptive Results of Entrepreneurial Innovation

Statement	SD	disagree	moderate	agree	SA	Mean	Std
The cost of production influences the development of new innovative manufacturing products required in the market	6.7	9.0	12.9	20.8	50.6	3.99	1.27
This firm sets competitive prices for its innovative products	8.4	2.2	12.9	35.4	41.0	3.98	1.18
The firm has been undertaking product innovation with aim of expanding sales revenue of the firm products	4.5	8.4	11.2	29.2	46.6	4.05	1.15
The firms manufactures new products that align with customers' demands	7.9	5.1	16.9	25.8	44.4	3.94	1.24
The manufacturing firm has heavily invested in new production processes to enhance efficiency in the production of products	48.9	25.3	10.7	9.0	6.2	1.98	1.23
By focusing on customer tailored innovative products, the manufacturing firm has been able to find new market for new and innovative products	3.9	3.4	15.2	33.1	44.4	4.11	1.04
The entrepreneurial innovations undertaken by the firm in terms of producing quality products has enable the firm gain competitive advantage in the market	2.8	5.1	15.7	38.8	37.6	4.03	1.00
Through entrepreneurial innovation, the manufacturing firm has been able to attain strategic orientation to deal with production challenges	2.2	2.8	13.5	42.1	39.3	4.13	0.91
The deployment of new industrial process has enabled the firm to efficiently manufacture the paper products	5.6	5.6	15.7	31.5	41.6	3.98	1.14
Aggregate means and Std						**3.80**	**1.13**

The findings of the study revealed that majority of the respondents (71.4%) agreed that cost of production influences the development of new innovative manufacturing products required in the market as indicated by 3.99. It was also noted that 15.7% of the respondents disagreed that cost of production influences the development of new innovative manufacturing and 12.9% had a view that this process is still moderate. The study deduced that majority of the respondents agreed that (76.4%) firm sets competitive prices for its innovative products while 10.6% disagreed and 12.9% remained neutral on the status of this process. Innovation is critical in development of a new method, device or machine that, on the market, could change the way in which things happen Tidd & Bessant (2013). Most of this development are known in bringing transformative changes that results in overall improvements. There are four main forms of innovations, disruptive, incremental architectural and radical and all these are known to be phenomenal in enhancing performance of business. The radical changes that are characterized by this movement is crucial in having breakthrough. This is evident with the increased efficiency and effectiveness in the sector as demonstrated in the performance of many organizations that have adopted innovation in running daily operations and activities. According to the Oslo Manual OECD, (2010), innovation is clearly part of a business strategy based on transforming ideas into value. Generally,

improved goods, services or processes and can be configured as product, process, marketing and organizational innovation.

The finding of the study revealed that majority of the respondents agreed that (75.8%) firms have been undertaking product innovation with aim of expanding sales revenue of the firm products as depicted by the mean 4.05 while 12.9% disagreed as 11.2% remained neutral. On the other hand, many of the respondents agreed that (70.2%) agreed that firms' manufactures new products that align with customers' demands as depicted by the mean of 3.94, 13% disagreed while 15.9% remained neutral. Innovation is considered a necessary ingredient for the sustained success of firms as it protects both tangible and intangible assets against the erosion in the market. This is because innovation has the capability and ability to transform enterprise operations and thus drive competitiveness in the organization. Entrepreneurial innovations involve a versatile procedures and processes which organizations find it fit in offering solutions to ever dynamic working environment and also operationalization of markets. Innovation is known in causing positive disruption in business environment through improving operation and creating efficiency. It also transforms methods and practices on how business is operated for instance payments and logistical operations in business is simplified by innovation through reduction of time and procedures. It is also the choice they make to, apply, implement, employ and inject materials, innovation, strategies and other resources in the processes and operations of production in an existing, innovation.

The study discovered that majority of the respondents (74.2%) disagreed that manufacturing firms have heavily invested in new production processes to enhance efficiency in the production of product and this depicted by the mean of 1.98. This was complimented by the 15.2% of the respondents that agreed with this as 10.7% remained neutral. On the other hand, it was revealed that majority of the respondents (77.5%) agreed that focusing on customer tailored innovative products, the manufacturing firm has been able to find new market for new and innovative products as indicated by mean of 4.11. This was evident as 7.3% of the respondents disagreed while 15.2% of the respondents remained neutral. Innovations are not only driven by external factors but also by internal ones. An innovation might be a new product, service, production design new source of material or business segment. Moreover, in order to service the changing needs of customers, innovations are a core necessity to remain stable in a market. Innovation can be academically divided into different types.

Innovation is made up of different components that all are attributed to the sustained success which many businesses have enjoyed in the recent past. According to Bonvillian et al. (2015), Schachter, (2018) split innovation in technological, product-market and administrative innovation are key in attaining the desired performance by many manufactures. On the other hand, administrative innovation is related to controlling systems, product-market innovation focuses on product design, and technological innovation refers to the development in products and processes (Mabenge, et al., 2022). The large firms in the industry tend to use different forms of innovation, in large firms, innovation comprises pre-adoption, adoption decision and post-adoption phases. The first stage involve identification of the new need and this will inform the next course of action. The look for appropriate solution becomes key in looking for the next crucial step and thus enable the solving of the problem with more ease as compared to the existing problem. This stage is complimented by the creation of awareness that is important in creating collaboration with other players and also sharing activities. In the adoption decision stage, the considerations are reflected by top managers from the technical, financial and strategic perspective in order to make a decision Damanpour & Schneider, (2019).

The findings of the study revealed that majority of the respondents (76.2%) agreed that entrepreneurial innovations undertaken by the firm in terms of producing quality products has enable the firm gain competitive advantage in the market as depicted by the mean of 4.03. This complimented by 7.9% of the respondents that disagreed and 15.7% that remained neutral. On the other hand, it was noted many of the respondents (81.4%) agreed that entrepreneurial innovation and manufacturing firm has been able to attain strategic orientation to deal with production challenges as depicted by the mean of 4.13. This was evident as 5% disagreed and 13.5% of the respondents were neutral that entrepreneurial innovation has brought strategic orientation. Moreover, the study noted that majority of the respondents (73.1%) agreed that deployment of new industrial process has enabled firms to efficiently manufacture paper products as depicted by mean of 3.98. Likewise, 11.2% of the respondents disagreed that deployment of new industrial process has enabled firms to efficiently manufacture papers and 15.7% remained undeterred by this stamen. The approach of innovation adoption through post-adoption stage, firm's application of an innovation is primarily influenced by the innovation characteristics costs, complexity and relative advantage Lichtenthaler, (2016). Adoption has been associated strongly with return on investment and in most circumstances its adoption yields high level of returns. The manager characteristics need to be taken care off and thus play a crucial role in decision making of many organizations. According to Damanpour and Aravind (2012), innovation attitude of managers has a significant positive influence on innovation. Innovation

oriented managers are more likely to create a facilitating atmosphere which has a positive impact on organizational culture. As observed by Talukder, (2015), despite an organization's decision to implement an innovation, its actual usage depends on how members of the organization and the organization's customers implement the usage of the innovation. Therefore, it is important to examine the innovations by members of the organization because if there is no acceptance among general staff and management, the desired benefits cannot be realized and the organization may eventually abandon the innovation.

Gërguri-Rashiti, et al. (2017) identified five critical attributes that greatly influence the rate of innovation application and include relative advantage, compatibility, complexity, trainability and observability. Thus, the rate of adoption and application of new innovations will depend on how an organization perceives the innovation's relative advantage, compatibility, trainability, observability and complexity. According to Gaynor, (2014), innovation is the core factor behind the survival and continuity of enterprises; it supports the company's expansion and growth and enhances the enterprise's future success. Numerous challenges that face SMEs in innovation. The challenges may be internal or external to the small enterprises Kocak, et al., (2017). Hence, the application of entrepreneurial innovation has been low in small enterprises compared to large enterprises. The problems experienced by small enterprises include a lack of resources, mainly, expertise finances and technical experience Adam and Alarifi, (2021).

The aggregate means and standard deviation for entrepreneurial innovation was 3.80 and standard deviation of 1.13. The results imply that majority of the respondents were of the view that entrepreneurial innovation influences the performance of small and medium manufacturing firms. Innovation is considered a necessary ingredient for the sustained success of firms as it protects both tangible and intangible assets against the erosion of the market. This is because innovation has the capability and ability to transform performance, and this is increasingly viewed as key driver of competitiveness.

4.2.1 Correlation Analysis

The correlation coefficient that measures the strength of correlation always ranges between 0 and 1 in absolute integer number system hence denoting both positive and negative association among the variables. A correlation of 0 indicate there exist no relationship among the variables under investigation. A correlation coefficient above 0.7 is considered strong while a coefficient ranging between 0.699 and 0.3 is viewed as moderate while a coefficient below 0.3 is considered weak. As per Schober et al. (2018), r of 0.7 and above implies very strong correlation, 0.5-0.69 strong correlations, r of 0.39 to 0.49 is moderate correlation, r less than 0.39 is weak correlation, r of 1 is perfect correlation whereas 0 implies no correlation. Accordingly, bivariate correlation analyses were performed and Pearson correlation coefficients were generated to measure the strength of the relationship between the study variables and the findings are presented in Table 3.

Table 3

Correlation Analysis Results

Variable	Performance of small and medium paper and wood manufacturing firms	Entrepreneurial innovation
Performance of small and medium paper and wood manufacturing firms	1	.415**
	0.000	0.000
Entrepreneurial innovation	.415**	1
	0.000	

It was deduced that entrepreneurial innovation has a positive and significant association with performance of small and medium paper and wood manufacturing firms ($r=0.415$, $p=0.00<0.05$). According to KII09 '*Entrepreneurship innovation adopted in the manufacturing and other support chain of production and distribution is characterized by high level of creativity and innovativeness. Most of the manufacturers uses technological innovations in their manufacturing plants'.*

In addition, another KII3 noted;

> *"The manufacturing SMEs have several entrepreneurial opportunities in the sector, the use of technological innovations in some of the manufacturing start-ups are Key. The exploitation remains in areas where we have raw materials and we are still importing them for instance the agricultural products and products such as wears that require a simple innovation to guarantee successes. Entrepreneurial innovations has benefited many of the operations of our businesses for instance the use of Fintech in business operations."*

4.2.2 Regression Analysis

It was appropriate for the regression analysis to be conducted by the study since the data was fit and did not violate ordinary least square methods of estimation. Regression analysis is considered the most appropriate tool of estimating relationship of variables. The study adopted regression analysis to estimate the influence of entrepreneurial innovation on performance of small and medium paper and wood manufacturing firms in Kenya The regression analysis involved the use of R square to determine the proportion of performance of small and medium paper and wood manufacturing firms explained by entrepreneurial innovation. The results are presented in Table 4.

Table 4

Regression findings of entrepreneurial innovation and performance of small and medium paper and wood manufacturing firms in Kenya

			Estimate	S.E.	C.R.	P	Label
Performance of SMEs	<---	Product innovation	.339	.058	5.833	***	
Performance of SMEs	<---	Market innovation	.274	.050	5.481	***	
Performance of SMEs	<---	Process innovation	.216	.043	5.081	***	
Squared correlation		.421					

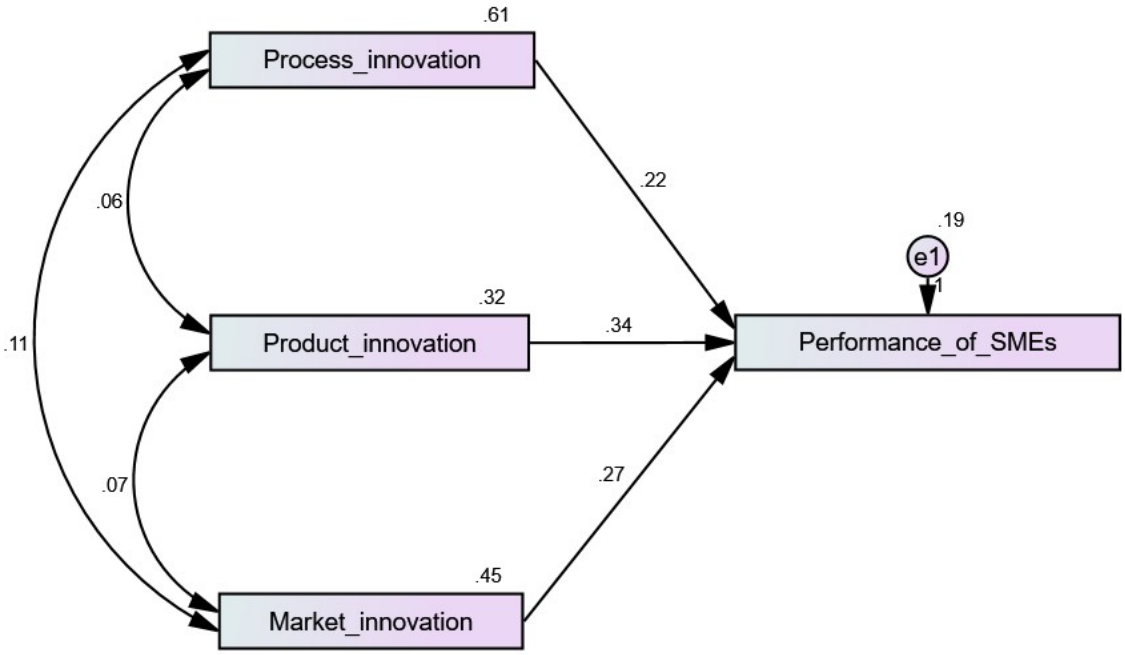
$Y=0.229X_{21}+0.225X_{22}+0.208X_{23}$

The study investigated how each parameter of entrepreneurial innovation affected performance of small and medium paper and wood manufacturing firms in Kenya. The parameters are product innovation, market innovation and process innovation. The coefficient of determination indicated that 42.1% of the changes occurring in performance of SMES of manufacturing firms are attributed to entrepreneurial innovation aspects such as product innovation, market innovation and process innovation.

The regression coefficient indicated that product innovation has a positive and significant influence on performance of small and medium paper and wood manufacturing firms in Kenya ($\beta=0.339$, $p=0.000<0.05$). In addition, it was deduced from the findings of the study that Market innovation has a positive and significant effect on performance of small and medium paper and wood manufacturing firms in Kenya ($\beta=0.274$, $p=0.000<0.05$). Moreover, it was established that process innovation has a positive and significant effect on performance of small and medium paper and wood manufacturing firms in Kenya ($\beta=0.216$, $p=0.000<0.05$). Therefore, it was inferred that the three indicators of entrepreneurial innovation have positive and significant influence on performance of small and medium paper and wood manufacturing firms. This imply that the study rejects the null hypothesis which claimed that entrepreneurial innovation does not significantly influence performance of small and medium paper and wood manufacturing firms in Kenya. Inference is made that entrepreneurial innovation has a significant influence on performance of small and medium paper and wood manufacturing firms in Kenya. According to KII009, 'Adoption of innovation in the manufacturing process has been common among many SMES across the sector. The stakeholders have patent their innovations to avoid duplication. Innovation has been brought on board by the hiring of the youthful cohorts that have more exposure to the current dynamics in the digital and technological space. The creativity within the youthful cohort is unmatched and this has create the market niche which the firm has found it appropriate.'

Figure 2

Structural Equation Modeling on Relationship between entrepreneurial innovation and performance of small and medium paper and wood manufacturing firms in Kenya



Empirical investigations have focused the role innovation play in enhancing business performance of many organization. Innovation capabilities have a significant impact on SMEs' financial performance while process and organizational innovation capabilities improves SMEs' operational performance. The key determinants of innovation capabilities involve availability of sufficient organizational resources, entrepreneurial orientation, knowledge development and external networks. Moreover, innovation-oriented managers are more likely to create a facilitating atmosphere which has a positive impact on organizational culture. As observed by Talukder, (2015), despite an organization's decision to implement an innovation, its actual usage depends on how members of the organization and the organization's customers implement the usage of the innovation.

The process of innovation is characterized by high initial cost which many entrepreneurs are supposed to bear in order to be competitive in the market. Innovation is critical in development of a new method, device or machine that, on the market, could change the way in which things happen. This development is essential in bringing transformative actions and thus is crucial in enhancing improvement of performance in an organization. This process is also radical in nature and thus brings breakthrough in some of the things. This can be replicated by improvement in efficiency that speed up processes and procedures in an organization. Therefore, it will be paramount for organizations to bring enhance this process in order to promote effectiveness in service delivery and also other performance indicators that demonstrate efficiency. Innovations are not only driven by external factors but also by internal ones. An innovation might be a new product, service, production design new source of material or business segment Hou, Hong & Zhu, (2019). Moreover, in order to service the changing needs of customers, innovations are a core necessity to remain stable in a market.

Innovation is a vital and sufficient ingredient for the sustained success of firms as it protects both tangible and intangible assets against the erosion of the market. This is evident as many have opined that innovation is increasingly becoming a factor in developing and sustaining competitive advantage. Entrepreneurial innovations are the versatile procedures and processes an individual or organizations engage in to and attempt to bring innovative and potentially disruptive new products and technologies to the market. The disruptive type of innovation is majorly a game changer that transforms business practices, it offers to exceed the existing limits of technology solar energy is a good example. It is also the choice they make to, apply, implement, employ and inject materials, technology, strategies and other resources in the processes and operations of production in an existing, innovation.

However, firms are faced with challenges in delivering breakthrough innovations with incremental features that can easily consume all the enterprise resources leaving space for disruptive innovations by start-ups to take over the market Mookerjee and Rao (2021). According to Huynh et al. (2024), enterprises are better placed by investing, promoting and fostering innovations across the board within their firms. This implies the type of innovation an enterprise adopts is fundamental in the quest for success and growth. Entrepreneurial innovation processes pass through a sequence of stages before the acceptance of a new product (Gomes & Wojahn, 2017). Innovation adoption is the process through which an individual or another decision-making unit passes knowledge of an innovation, to forming an attitude toward the innovation, to a decision to embrace or reject, to implementation, of the new idea, and to confirmation of this decision (Rezvani & Fathollahzadeh, 2020). The adoption decision takes place at the micro-economic level and the potential beneficiary of the innovation often is an enterprise, a vision, or an individual Van Oorschot, Hofman, & Halman, (2018). The key driver of innovation practices in enterprises is the ambition to get reimbursement in the form of better performance in earnings. Important to note that for entrepreneurial innovation to occur, the idea has to have a place in the enterprise.

5. Conclusion and Implications

Based on the findings inferred in the regression analysis it was concluded that entrepreneurial innovation aspects such market innovation, product innovation and process innovation are significant predictors of performance of small and medium paper and wood manufacturing firms in Kenya. Strengthening innovation in the organization through focusing on improvements of market innovation, product innovation and process innovation is key in realizing sustained and desirable performance in an organization. Therefore, null hypothesis of entrepreneurial innovation does not significantly influence performance of small and medium paper and wood manufacturing firms in Kenya was rejected. Entrepreneurial innovation practices is aided by economical cost of production on new innovation, setting up competitive prices, product innovation, alignment of new products to customer demands, innovative products, getting new market for new products, efficient production, strategic orientation and entrepreneurial innovations.

The study targeted how entrepreneurial innovation influenced performance of small and medium paper and wood manufacturing firms in Kenya. It was deduced from the study that many of these firms have under invested on innovation. The study recommend more investment on innovation. More resources should be allocated to innovative and creative activities. The resources can be channeled to research and development, strengthening training and increasing financial allocation to these sectors for more innovation to be realized in an organization. Additionally, the study recommended an open mind to new innovative ideas in the industry, particularly in the management and administrative teams.

Further, to enhance entrepreneurial innovation in small and medium manufacturing firms, business owners should prioritize investing in advanced technologies like automation, AI, and IoT to streamline operations and improve efficiency. Encouraging a culture of continuous learning and creativity among employees through training and incentives can drive innovation from within. Collaborating with research institutions, industry experts, and government programs can provide access to cutting-edge knowledge and funding opportunities. Additionally, adopting agile business models, embracing sustainable manufacturing practices, and leveraging digital marketing strategies can help firms stay competitive in evolving markets. Finally, fostering strong customer relationships and actively seeking feedback ensures that innovation aligns with market needs, leading to long-term success.

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