Influence of Innovation Management Practices on Performance of Small and Medium Enterprises in Construction Industry in Nairobi City

County, Kenya

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Abstract: The purpose of this study was to establish the influence of innovation management practices on performance of small and medium enterprises in construction industry in Nairobi City County, Kenya. The study was guided by the following specific objectives: To find out how technological innovation , product innovation , process innovation and market innovation influence performance of small and medium enterprises in construction industry in Nairobi City County, Kenya. The area targeted in this study was Nairobi City County. The study was based on the Economic Theory of Entrepreneurship, Adaptive Structuration Theory, Diffusion of Innovation Theory, Technical Acceptance Model and Marketing Theory. The study was limited to the 3330 registered construction SMEs with National Construction Authority in the construction industry which will give insights on the various performance related problems faced by the construction enterprises in the county. A sample size of 100 small and medium enterprises was chosen and data was collected and analyzed. The design of this research was a descriptive survey research. The study adopted descriptive and inferential analysis method. The study established that technological innovation, product innovation, market innovation and process innovation enhance performance of SMEs in the construction industry. Therefore, from these quantitative results it can be deduced that the study which sought to establish the influence of innovation management practices on performance of SMEs in the construction industry was achieved because it established they influence performance of SMEs in the construction industry**.** A comparative study should be carried out to compare whether the findings also apply for other SMEs in different regions in order to validate whether the findings can be generalized in Kenya.

Keywords: *Technological innovation, Product innovation, Process innovation, Market innovation, Performance*

Introduction

It is evident that in today's competitive environment the objective of each firm is to be better than its rivals in terms of performance and ultimately create a competitive edge that will lead to sustainability of the firm. The current environment thrives on innovation which is driven by knowledge, employee creativity and the desire to constantly learn research and develop new ideas and process (Bartes, 2013). According to Kiraka, Kobia and Katwalo, (2013) innovation is a process that entails creation of new products, services, new technological process, new organization or the enhancing of existing products or services, enhancement of technological processes and the existing organization. Small and medium enterprises have been considered one of the driving forces in the economy due to their numeral contributions in terms of technological innovations, employment generation, export promotion to list a few (Chege, Wachira & Mwenda 2015). Innovation is key to the performance of SMEs as it provides firms with a competitive edge over other firms in the industry. Technological innovation plays in strategically to provide firms with a competitive edge as well as help such firms to gain entry into new markets (Ngugi, 2014). Ratten, (2014) put it that the ability of firms to innovate varies significantly depending on their sector, size, focus, resources and business environment in which they operate. Business enterprises need to constantly innovate in order to ensure performance and the broader success of any business. Adam (2014) argues that innovation is the best way for stimulating performance in a firm. The most innovative firms realize higher turnover of products and services introduced within a period of time. In order for firms to grow, then they have to adopt an innovative approach that will enable them gain a competitive edge in the prevailing business environment. Individual SMEs and their management may be distinguished by their strategies and their emphasis on the policy instruments available to them. A human capital strategy would be identified if a firm had adopted a training plan, although in each case what counted as a plan could differ markedly. A separate budget would perhaps be a better indicator of commitment, but the significance would vary with the size of the firm's turnover. This means an organization's policies to enhance customer satisfaction by meeting their requirements and fulfilling regulatory obligations. This shows business strategy an SME undertakes will determine its performance level (Gupta & Gupta, 2014)

Entrepreneurship is considered a major driver of competitiveness as new companies in the form of small, young firms create most new jobs (Halme & Korpela, 2014). Further, research suggests that high-performance SMEs were responsible for 80 percent of the total net new jobs created over the last two decades in that country. According to the Small Business Administration (2008), small firms in the US represent 99.7 percent of all employer firms and employ over half of all private sector employees. They makeup 97.3 percent of all exports and produce 13 times more patents per employee than large firms. These small businesses make up approximately 29.6 million businesses with 6 million of these with employees. Thus, it can be seen that small business and SMEs are a critical factor in the economic fabric of nations and regions. New innovations can improve quality of life through beneficial or improved products and services. Torkkeli, *et al*, (2016) observed in the context of Finnish SMEs that on average, the contribution of innovated new products was more to total sales than to profits. Greve, (2014) whose study focused exclusively on product innovations in German, UK, and Irish SMEs, ascertained that the output of innovative SMEs grew significantly faster than that of non-innovators implying that innovated products contributed to the faster growth of the former. Prange and Pinho (2017), similar to Greve, found that sales turnover of innovative firms grew faster than that of non-innovative firms. They detected a significant relationship between the share of innovative sales and sales turnover change of firms.

Krishnaswamy *et al*, (2014) found that innovation effects were felt in terms of both product-oriented results such as improvement in quality of goods and services, and secondly, increased range of goods and services, and process-oriented results like increased production capacity and improved production flexibility. Audretsch, *et al.,* (2014), while studying the process innovations of small firms in the USA, observed that economic incentives, internal resources, and technical and organizational competencies that a firm has developed or accumulated over time and a firm's linkage to external sources of expertise for learning about new technological development were the major forces that influenced these firms in adopting a process innovation. Shinkle and McCann (2014) in the context of new product development argued that it consists of bringing together two main components: markets and technology. According to them, product innovation requires the firm to have competencies relating to technology (enabling the firm to make the product) and relating to customers (enabling the firm to serve certain customers).

Innovation had led to performance for SMEs in Taiwan (Wu, 2017). Their research reports empirical evidence that innovation has weak link with performance (sales). The result by Wu (2017) is squabbled by results by Ngugi (2013) in Kenya which finds that innovation influences the growth of SMEs Wu (2017) The study further reveals that the tendency of owners to engage in new ideas, novelty, experimentation and creative processes result in new products services or technological process which has great influence on the performance of SMEs. Supporting the results by Klewitz and Hansen (2014) examined the role of innovation on SME operation sustainability. The results show that there is a strong link between innovation and SMEs operation sustainability. In their study which reports that superior innovative capacity contributes to improved performance in Portugal SMEs (Ferreira & Franco 2017). Consistent with his study show a positive relationship between innovation and Malaysian SMEs performance (Saunilla, 2014). The results found in some researchers are supportive of findings by Salim (2014) who find that innovation in assortment; information sharing and transportation coordination has a positive and significant effect on firm performance (Salim, 2014). However in Tanzanian context a study by Isaga, *et al.,* (2015) examined the influence of characteristics of Entrepreneur on the growth of SMEs in Tanzania. She found positive relationship between two variables such that cognitive characteristics of the Entrepreneur are positively related to SMEs. This makes a point of entry of this study why innovative activities is not conducted or very minimal and also to examine the relationship between the innovations and SMEs performance.

Statement of the Problem

Small and medium enterprises in the construction industry in Kenya report a rather low level of innovativeness. The Innovation Union Scoreboard (IUS) reveals that Kenyan SMEs in the construction industry lags behind EU-27 in innovation activities (European Commission, 2016). In 2016 Kenyan SMEs were listed among trailing countries (Eurostat Statistical Books, 2016). The latest data reveal that the situation is somewhat improved. The Community Innovation Survey 2016 (CIS, 2016) reveals that 42.4% of SMEs in the construction industry in Kenya are involved in innovation activity. In comparison to previous years this is an improvement, but it is still below the percentage of innovative firms in EU 27 (that is, 52.9%) and most certainly below the percentage of innovators in Germany (79%) and Luxemburg (68%), for instance (Eurostat News Release No. 5/2016). According to IUS 2016 the rate of innovation performance in Kenya SMEs was only 0.8%, the lowest among moderate innovators. These trends are not satisfactory. More needs to be done in order to catch up with the EU average, especially knowing that the gap in innovation performance is increasing (European Commission, 2016).

As the absence of innovation and low innovation performance generally are damaging for SMEs in the construction industry and consequently for the entire economy, it is important to explore whether innovation management practices can enhance performance of SMEs in the construction industry. Identifying and understanding how innovation management practices what limits potential to innovate, or even make it impossible to innovate, help to explain low performance of the SMEs. This implies that, in spite of the legal, policy and institutional reforms so far undertaken in the SMEs sector in Kenya, SMEs in the construction industry are still unable to effectively increase their performance as expected. This is a serious problem given that these SMEs are the engine of economic growth and development needed to move the country to a middle level economy as envisaged in the development blue print of Vision 2030 (ACEPD, 2015). This presents a gap for research to establish the reasons behind such a lackluster performance of SMEs on the construction industry in Nairobi City County, Kenya.

Research Objectives

i. To assess the influence of technological innovation on performance of small and medium enterprises in construction industry in Nairobi City County, Kenya
ii. To examine the influence of product innovation on performance of small and medium enterprises in construction industry in Nairobi City County, Kenya.
iii. To determine the influence of process innovation on performance of small and medium enterprises in construction industry in Nairobi City County, Kenya
iv. To establish the influence of market innovation on performance of small and medium enterprises in construction industry in Nairobi City County, Kenya

Literature Review

Theoretical Review

Economic Theory of Entrepreneurship

Economic Theory of Entrepreneurship Mark Casson's economic theory holds that entrepreneurship is as a result of conducive economic conditions which include tax policy, industrial policy, easy availability of products, easy access to finance on favorable terms, access to information about market conditions, availability of technology and infrastructure (Plummer & Acs, 2014).According to Naudé, W. (2013), entrepreneurship and economic growth will take place in situation where particular economic conditions are most favorable. Entrepreneurship is therefore viewed as the fourth factor of production alongside land, labor, and capital. Economic incentives include taxation policy, industrial policy, sources of finance and raw material, infrastructure availability, investment and marketing opportunities are viewed as the main motivators for entrepreneurial activities. Further, Entrepreneurship and economic growth take place when the economic conditions are favorable. Mainstream economists view the supply of entrepreneurship as highly elastic.

Adaptive Structuration Theory

Based on structuration theory, the study intends to determine the effects of information technology on procurement performance. Anthony Giddens in his Constitution of Society in 1984 addresses issues of human behavior in the context of technology based on social structure. In other words, the theory looks into the process of human usage of computer systems and at the nature of group-computer interaction (Rains & Bonito, 2017). With the main focus of communication using information technology, the theory highlights the concepts of appropriation and structuration. In addition, the AST can be considered as a prime starting point to draw links between individuals and organizational learning. This is due to the core concept in AST that address issues of group interaction with technology as the basis of human activity (Schmitz, et al., 2016). AST theory presents specific advances in information technology(IT) that are driving organization changes in the areas of business alignment, IT planning and development that show how AST is being used as a driving force of effective management within organization. The study will use the theory to investigate the effect of the use of information technology on procurement management According to Widyarini and Simatupang, (2015). AST is a viable approach for studying the effect of the use of information technology on procurement management. In conclusion AST's appropriation process is a good model to analyze the utilization and penetration of new technologies in organizations.

Diffusion of Innovation Theory (DOI)

The Diffusion of Innovation Theory (DOI) approach has its primary focus on how potential adopters perceive an innovation in terms of relative advantage/disadvantage; hence some of the factors of the DOI approach help form a framework: innovativeness, complexity, compatibility and relative advantage. Furthermore, firms that intensely use a particular technology are often prime candidates for early adoption of the next generation of that technology. The diffusion of innovations approach in this study is important to understanding the dynamics at play in relation to adoption and use of innovations in SMEs. There are discourses focusing on adoption by organizations and also by individuals. These two types of adoption both play a role when investigating the diffusion and adoption of innovations by SMEs. After all, in SMEs many of the primary decisions are made by the owner-manager. The organizational decision to adopt technology becomes intertwined with personal perceptions and attitudes of the owner-manager towards that technology. Diffusion in SMEs is largely by way of interpersonal/inter-firm networks

Technology Acceptance Model

There are several models existing that have been used to investigate adoption of technology. Several studies focusing on adoption by SMEs have their roots in Technology Acceptance Model (TAM) originally proposed by Davies in 1986. The model is originally designed to predict user's acceptance of Information Technology and usage in an organizational context. TAM focuses on the attitude explanations of intention to use a specific technology or service; it has become a widely applied model for user acceptance and usage. There are a number of meta-analyses on the TAM that have demonstrated that it is a valid, robust and powerful model for predicting user acceptance (Padilla-MeléNdez, *et al*., 2013). The TAM model which deals with perceptions as opposed to real usage, suggests that when users are presented with a new technology, two important factors influence their decision about how and when they will use it (Rauniar, *et al.*, 2008).

These key factors are: Perceived usefulness, perceived ease of use and attitude towards using Actual system Use. Perceived usefulness (PU) - This was defined by Davis as "the degree to which a person believes that using a particular system would enhance his or her job performance". And Perceived ease-of-use (PEoU) - Davis defined this as "the degree to which a person believes that using a particular system would be free from effort"

Marketing Theory

The relationship between social marketing theory and profitability of business has been within for a long time now. As the name implies, is grounded in commercial marketing theory and practice. However, given that the application of social marketing is predominantly in non-commercial sectors, social marketing practice draws on a range of related disciplines including sociology, psychology and other social welfare related activities (Gummerus, 2013). As it grows in acceptance, social marketing has continued to evolve. Social media marketing is a highly dynamic field with new emphases and perspectives emerging, particularly in relation to the role that social marketers can play in contributing to structural change (Kavaratzis & Hatch, 2013). Objectives for behavioral cessation campaigns need to be carefully framed. Success, in these campaigns, needs to be the full cessation of the target behavior by an individual adopter, rather than the complete cessation of the behaviour throughout society. Many campaigns of this style believe that one person behaving in a manner contrary to the campaign means that the campaign, and social marketing, has failed. Social marketing theory is a large and sometimes complex branch of business strategy, due in part to the recent emergence of social marketing compared to other marketing endeavors Social marketing was only seen as a viable strategy in the 1980s and 1990s, and was only developed in the 2000s(Baker & Saren 2016). It has several key characteristics that can set it apart from traditional business marketing, but is inherently flexible. Depending on the company, there may not be large differences at all.
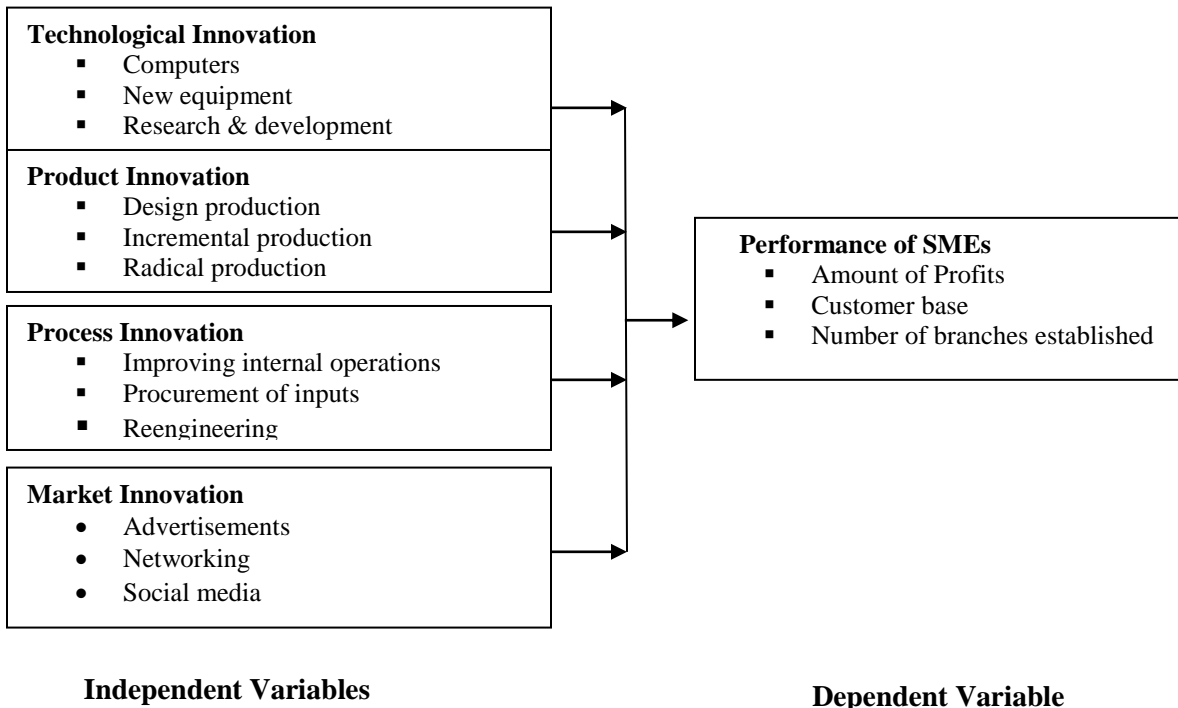
Conceptual Framework

Independent Variables   **Dependent Variable**

Figure 1: Conceptual Framework

Technological Innovation

Technological innovation is a key factor in a firm's competitiveness. Technological innovation is unavoidable for firms which want to develop and maintain a competitive advantage and gain entry in to new markets (Kogan, *et al*., 2017). Technology is important to support and promote SMEs development as it is responsive to local economies and results in distinctive products and services. Initiatives to support indigenous technology should therefore aim to link SMEs with technology specialists in order to generate an enabling environment that develops technology capacity. This is likely to result in a great performance of SMEs as it provides differentiated products, services and technical services in accordance with the resources available and the market needs in the context of these SMEs. It is generally recognized that SMEs face unique challenges, which affect their growth and profitability and hence, diminish their ability to contribute effectively to sustainable development (Baden-Fuller & Haefliger, 2013)

Product Innovation

Slater, (2014) defines product innovation as the introduction of a new good; one in which the consumers are not yet familiar with. It is a new quality of a good. Product innovation also greatly influences businesses today. Product innovation is the introduction of new functions, enhanced performance or the addition of new features into the existing products (Berends, & Stultiëns, 2014). SME's face unrelenting pressure from powerful customers to lower prices and accept shrinking margins on sales. SMEs are thereby seeking revenue growth from new products and services.

They therefore recommends that companies must offer customers new products and services to allow for a more efficient and effective use of products that they currently sell. They ascertains the fact that although only a small proportion of SMEs engage in innovative activities, those that do so appear to have a higher yield for their effort especially in number of new patents that are issued. They further recommend that SMEs should pursue product innovation strategies in emerging markets. Chatterji, and Fabrizio (2014) argues that SMEs often carry out New Product Development process less completely or thoroughly compared to the larger companies.

Process Innovation

Process innovation is the process of reengineering and improving internal operation of business process. This process involves many aspects of a firm's functions, including research, technical design, manufacturing, management and commercial activities. According to Becker and Egger (2014) process innovation concerns with the creation of or improvement in techniques and the development in process or system. For instance, innovation in technology, skill, techniques, system and procedure, which is used in the process of transforming input into output. In a production activity, process innovation can be referred to as new or improved techniques, tools, devices, and knowledge in making a product. Crucial to the manufacturing industry, process innovation should be emphasized by a firm as its primary distinctive competence for competitive advantage. Process innovation results to better ways of production which in essence leads to reduction in cost of production. For instance in manufacturing firms using new machines that use lesser energy and reduce wastages may improve the SMEs performance. Process innovation is the introduction of a new method of production; one that is yet to be tested by experience in the branch of manufacture concerned. It is a process which can also exist in a new way of handling a commodity commercially Process innovation is an aspect crucial to the success of any business.

Market Innovation

Market innovation deals with the market mix and market selection in order to meet a customer's buying preference. Continual market innovation needs to be done by a firm using state-of-the-art marketing tools, particularly through the internet, make it possible for other competitors to reach potential customers across the globe at a light speed (Brem & Schuster, 2016). In this respect, any market innovation has to be directed at meeting customers' demand and satisfaction. Market innovation deals with the market mix and market selection in order to meet a customer's buying preference. According to Vargo, *et al*., (2015) market innovation has role to meet customers demand and satisfaction. In addition market innovation ensures the SMEs are able to tap new markets and ease accessibility of their products and services. This is particularly done through internet, which enables advertise and reach customers across the globe easily. Market innovation affects sales since it leads to increase in market share or growth which results to high revenues. In addition, market innovation might result in reduction of costs (selling and distribution costs).

Research Methodology

The study adopted a descriptive survey design which according to Kimani, et al., (2017) is appropriate where the study seeks to describe the characteristics of certain groups, estimate the proportion of people who have certain characteristics and make predictions. The population of the study was 3330 SMEs in Nairobi County that are registered and licensed by National Construction Authority.

The study population consisted of randomly selected construction SMEs owners or managers in the study area while the unit of analysis was the SME in construction industry. The manual calculation method used to arrive at the sample size using the following formula: Sample Size = n / [1 + (n/population)] In which n = Z * Z [P (1-P)/(D*D)]. Where, P = True proportion of factor in the population, or the expected frequency value D = Maximum difference between the sample mean and the population mean Or Expected Frequency Value minus (-) Worst Acceptable Value Z = Area under normal curve corresponding to the desired confidence level for the study therefore the sample was n/ [1 + (n)$(\varepsilon)^2$ where n is the total population (3330), ε is the level of significance. 3330/ [1 + (3330) (0.10x0.10) = 100. The sample size therefore became 100.The study used questionnaire as the research instrument. Data collected was analyzed using quantitative and qualitative methods with the help of (SPSS) version 22 and excel. Correlation analysis was used to capture the correlation between the study variables. The linear regression analysis showed the relationship between the dependent variables. Multiple Regression model that aid the analysis of the variable relationships which was as follows:

$Y = \beta_0 + \beta_1X_1 + \beta_2X_2 + \beta_3X_3 + \beta_4X_4 + \varepsilon$, Where; Y= Performance of SMEs (dependent variable); β_0= constant (coefficient of intercept); X_1= Technological innovation (independent variable); X_2= Product innovation (independent variable); X_3= Process innovation (independent variable); X_4= Marketing innovation (independent variable); ε = Error term; $\beta_1...\beta_4$= regression coefficient of four variables.

Results

Response Rate

A response rate of 80.00% was established with 80 respondents reached, out of the 100 targeted.

Demographic Information

In this section personal characteristics of the respondents are discussed on the basis of gender, age, and years of experience and the level of education. This was important since it forms foundation under which the study can fairly adopt in coming up with conclusions which were described and presented in figures and tables.

Table 1 Demographic Characteristics

Demographic Characteristics	Category	Percentage
Gender Distribution	Male	55%
	Female	45%
Age Distribution	21-30	20%
	31-40	55%
	41-50	15%
	Above 60	10%
Level of education	Post graduate	5%
	Masters	5%
	Degree	5%
	Diploma	40%
	Certificate	45%
Work Experience	< 3 years	20%
	3-6 years	40%
	7-10 years	30%
	Above 10 years	10%

Technological Innovation

The first objective of the study was to establish the influence of technological innovation on performance of SMEs in the construction industry in Kenya. Respondents were thus asked to indicate the extent to which they agreed with various statements relating to technological innovation on performance of SMEs in the construction industry in Kenya. Responses were given on a five-point scale where: 1= Very small extent; 2= Small extent 3= Moderate extent; 4 = Great extent; 5= Very great extent. The scores of 'Very small extent' and 'Small extent' have been taken to represent a statement not agreed upon, equivalent to mean score of 0 to 2.5. The score of 'Moderate extent' has been taken to represent a statement agreed upon moderately, equivalent to a mean score of 2.6 to 3.4 the score of 'Great extent' and 'Very great extent' have been taken to represent a statement great extent upon equivalent to a mean score of 3.5 to 5.0.

Table 2 below presents the findings. With a grand mean of 3.121, a majority of respondents can be said to have highly agreed to moderate extent with most statements posed as regards influence of technological innovation on performance of SMEs. Majority particularly highly agreed to a moderate extent that the research and development enables the organization to develop adequate risk taking skills for uncertainty bearing and coordination for establishment of new branches of the business (M=3.210); The organization encourage research and development to enhance competitive advantage and gain entry into new markets (M=3.010); The research and development helps in decision making that support and promote in distinctive products and services for the increase in annual profits (M=3.221); The design of new products enables the organization to be more flexible and better placed to develop and implement new innovative ideas (M=3.187); Through research the organization has generated new and creative ideas about products and processes to increase annual profits (M=3.121); The study findings are in agreement with literature review by Wonglimpiyarat, (2014) who stated that technology is important to support and promote SMEs development as it is responsive to local economies and results in distinctive products and services. Initiatives to support indigenous technology should therefore aim to link SMEs with technology specialists in order to generate an enabling environment that develops technology capacity. This is likely to result in a great performance of SMEs as it provides differentiated products, services and technical services in accordance with the resources available and the market needs in the context of these SMEs.

Table 2: Technological Innovation

Statements	Mean	Std. Dev
The research and development enables the organization to develop adequate risk taking skills for uncertainty bearing and coordination for establishment of new branches of the business	3.231	.067
The organization encourage research and development to enhance competitive advantage and gain entry into new markets	3.210	.098
The research and development helps in decision making that support and promote in distinctive products and services for the increase of annual profits	3.010	.090
The design of new products enables the organization to be more flexible and better placed to develop and implement new innovative ideas	3.221	.087
Through research the organization has generated new and creative ideas about products and processes to increase annual profits	3.187	.143
Average	**3.121**	**0.097**

Product Innovation

The second objective of the study was to establish the influence of product innovation on performance of SMEs in the construction industry in Kenya. Respondents were thus asked to indicate the extent to which they agreed with various statements relating to product innovation on performance of SMEs in the construction industry in Kenya. Responses were given on a five-point scale where: 1= Very small extent; 2= Small extent 3= Moderate extent; 4 = Great extent; 5= Very great extent. The scores of 'Very small extent' and 'Small extent' have been taken to represent a statement not agreed upon, equivalent to mean score of 0 to 2.5. The score of 'Moderate extent' has been taken to represent a statement agreed upon moderately, equivalent to a mean score of 2.6 to 3.4. The score of 'Great extent' and 'Very great extent' have been taken to represent a statement great extent upon equivalent to a mean score of 3.5 to 5.0.

Table 3 below presents the findings. With a grand mean of 3.064, a majority of respondents can be said to have highly agreed to moderate extent with most statements posed as regards influence of product innovation on performance of SMEs in the construction industry. Majority particularly highly agreed to a moderate extent that the organization does frequent design production that offers customers new products and services to increase the profits (M=3.009); The organization does frequent design production that offers customers new products and services to increase the profits (M=3.031); the new product design introduced by the organization frequently define the physical form of the product to satisfy the customer needs (M=3.210); the incremental production helps the organization to create new products and services to meet the market demands and gain into new markets (M=3.109); the new incremental production done by the organization differentiate us from our competitors by providing solutions to the unattended needs of the customers (M=3.110).

The study findings are in line with literature review by Chen, *et al*., (2015) who established that product innovations are new products or services created to meet market needs, thus constituting a client-focused kind

of innovation. Product innovations help the SMEs to differentiate themselves from their competitors, by providing solutions to unattended needs of the customers. Examples of product innovation in finance are widespread SMEs in construction platforms (Lee, Park, & Park, 2010) They therefore recommend that companies must offer customers new products and services to allow for a more efficient and effective use of products that they currently sell. They ascertain the fact that although only a small proportion of SMEs engage in innovative activities, those that do so appear to have a higher yield for their effort especially in number of new patents that are issued. They further recommend that SMEs should pursue product innovation strategies in emerging markets. De Massis *et al* (2016) argues that SMEs often carry out New Product

Table 3: Product Innovation

Statements	Mean	Std. Dev
The organization does radical innovations by introduction of addition new features into the existing products to increase the customer base	3.009	.321
The organization does frequent design production that offers customers new products and services to increase the profits	3.031	.520
The new product design introduced by the organization frequently define the physical form of the product to satisfy the customer needs	3.210	.272
The incremental production helps the organization to create new products and services to meet the market demands and gain in to new markets	3.109	.220
The new incremental production done by the organization differentiate us from our competitors by providing solutions to the unattended needs of the customers	3.110	.524
Average mean	**3.064**	**0.371**

Process Innovation

The third objective of the study was to establish the influence of process innovation on performance of SMEs in the construction industry in Kenya. Respondents were thus asked to indicate the extent to which they agreed with various statements relating to process innovation on performance of SMEs in the construction industry in Kenya. Responses were given on a five-point scale where: 1= Very small extent; 2= Small extent 3= Moderate extent; 4 = Great extent; 5= Very great extent. The scores of 'Very small extent' and 'Small extent' have been taken to represent a statement not agreed upon, equivalent to mean score of 0 to 2.5. The score of 'Moderate extent' has been taken to represent a statement agreed upon moderately, equivalent to a mean score of 2.6 to 3.4. The score of 'Great extent' and 'Very great extent' have been taken to represent a statement great extent upon equivalent to a mean score of 3.5 to 5.0.

Table 4 below presents the findings. With a grand mean of 3.199, a majority of respondents can be said to have highly agreed to moderate extent with most statements posed as regards influence of product innovation on performance of SMEs in the construction industry. Majority particularly highly agreed to a moderate extent that the organization does a continuous reengineering on the into the existing products to increase the customer base

(M=2.987); the organization does effective procurement of inputs that offers customers new products and services to increase the profits (M=3.503); there is a continuous improving of internal operations that can reduce costs, wastes and lead time aimed at improving production efficiency (M=3.076); the new methods of production helps the organization to create new products and services to meet the market demands and gain in to new markets (M=3.058); Through the improvement of new method of production in the organization differentiate us from our competitors by providing solutions to the unattended needs of the customers (M=3.182).

The study findings corroborates with literature review by Chen, *et al*., (2015) who states that process innovation concerns with the creation of or improvement in techniques and the development in process or system. For instance, innovation in technology, skill, techniques, system and procedure, which is used in the process of transforming input into output. In a production activity, process innovation can be referred to as new or improved techniques, tools, devices, and knowledge in making a product. Crucial to the manufacturing industry, process innovation should be emphasized by a firm as its primary distinctive competence for competitive advantage. Process innovation results to better ways of production which in essence leads to reduction in cost of production. For instance in manufacturing firms using new machines that use lesser energy and reduce wastages may improve the SMEs performance.

Table 4: Process Innovation

Statements	Mean	Std. Dev
The organization does a continuous reengineering on the into the existing products to increase the customer base	2.987	.221
The organization does effective procurement of inputs that offers customers new products and services to increase the profits	3.503	.200
There is a continuous improving of internal operations that can reduce costs, wastes and lead time aimed at improving production efficiency	3.076	.110
The new methods of production helps the organization to create new products and services to meet the market demands and gain into new markets	3.058	.196
Through the improvement of new method of production in the organization differentiate us from our competitors by providing solutions to the unattended needs of the customers	3.182	.120
Average mean	**3.199**	**0.169**

Market Innovation

The fourth objective of the study was to establish the influence of market innovation on performance of SMEs in the construction industry in Kenya. Respondents were thus asked to indicate the extent to which they agreed with various statements relating to market innovation on performance of SMEs in the construction industry in Kenya. Responses were given on a five-point scale where: 1= Very small extent; 2= Small extent 3= Moderate extent; 4 = Great extent; 5= Very great extent. The scores of 'Very small extent' and 'Small extent' have been

taken to represent a statement not agreed upon, equivalent to mean score of 0 to 2.5. The score of 'Moderate extent' has been taken to represent a statement agreed upon moderately, equivalent to a mean score of 2.6 to 3.4. The score of 'Great extent' and 'Very great extent' have been taken to represent a statement great extent upon equivalent to a mean score of 3.5 to 5.0.

Table 5 below presents the findings. With a grand mean of 2.569, a majority of respondents can be said to have highly agreed to moderate extent with most statements posed as regards influence of product innovation on performance of SMEs in the construction industry. Majority particularly highly agreed to a moderate extent that the organization uses social media to understand the market mix and selection to meet the customers buying preference (M=2.885); through the uses of social media the business is able to tap new markets and ease accessibility of products and services (M=2.752); through the use of the internet the business can be able to advertise and reach customers (M=2.990); Networking creates competitiveness in the industry and guarantees the firm to keep up with the changing customer needs in the market (M=3.008); Networking act as a defensive measure against increasingly sophisticated and highly demanding consumers (M=3.112); Networking creates competitiveness in the industry and guarantees the firm to keep up with the changing customer needs in the market (M=3.208); Networking helps in escalating competition, necessity to control and reduce rising costs (M=3.118). The study findings are echoed by McDonald & Wilson (2016) market innovation has role to meet customers demand and satisfaction. In addition market innovation ensures the SMEs are able to tap new markets and ease accessibility of their products and services. This is particularly done through internet, which enables advertise and reach customers across the globe easily. The market innovation plays an important role in its competitiveness in industry as it guarantees that any firm keeps up with the changing customer needs in the market. Therefore, SMEs innovation activities support improvement in firm competitiveness and profitability. Market oriented firms will have a greater capacity to innovate, and will be more successful in responding to environmental needs that lead to competitive advantage and superior performance.

Table 5: Market Innovation

Statements	Mean	Std. Dev
The organization uses social media to understand the market mix and selection to meet the customers buying preference	2.885	.009
Through the uses of social media the business is able to tap new markets and ease accessibility of products and services	2.752	.653
Through the use of the internet the business can be able to advertise and reach customers	2.990	.129

Networking creates competitiveness in the industry and guarantees the firm to keep up with the changing customer needs in the market	3.008	.093
Networking helps to keep up with market changes especially type of product the business produces	3.112	.291
Networking act as a defensive measure against increasingly sophisticated and highly demanding consumers	3.208	.221
Networking helps in escalating competition, necessity to control and reduce rising costs	3.118	.210
Average mean	**2.569**	**0.229**

Performance of SMEs

On the extent to which performance of SMEs in the study area in terms of amount of profits, customer base, number of new markets, number of new employees' added and new branches established. The data was collected from the different indicators of the variable performance of SMEs which was ordinal categorical. The data was therefore presented in frequency tables with the mode being used as the appropriate measure of central tendency. The results were presented in Table 6. The first indicator for the dependent variable required to know what the performance of SMEs in terms of amount of profits was, 10% of the respondents had 0-10% , 30% had 10-20% , 20% had 21-30% , 15% had 31-40%, 20% had 41-50% and 5% had stated over 50% The mode was found to be 2 which imply that on average the performance of SMEs in amount of profits was between 10%-20%. The next indicator required the respondents to state level of the performance of SMEs in terms of increase of customer base was, 15% of the respondents had 0-10% , 40% had 10-20% , 10% had 21-30% , 15% had 31-40%, 15% had 41-50% and 5% had stated over 50% The mode was found to be 2 which imply that on average the performance of SMEs in the increase of customer base was between 10%-20%.When the respondents were asked what the state level of the performance of SMEs in terms of increase of customer base was, 15% of the respondents had 0-10% , 40% had 10-20% , 10% had 21-30% , 15% had 31-40%, 15% had 41-50% and 5% had stated over 50% The mode was found to be 2 which imply that on average the performance of SMEs in the increase of customer base was between 10%-20%.

In terms of rate of increase of new employees as the measurement for performance of SMEs, 55% of the respondents had 0-10% , 10% had 10-20% , 5% had 21-30% , 10% had 31-40%, 10% had 41-50% and 10% had stated over 50% The mode was found to be 1 which imply that on average the performance of SMEs in the increase of number of new employees added was between 0%-10%.When the respondents were asked what the state level of the performance of SMEs in terms of increase of new markets established was, 75% of the respondents had 0-10% , 4% had 10-20% , 4% had 21-30% , 9% had 31-40%, 8% had 41-50% and 0% had stated over 50% The mode was found to be 1 which imply that on average the performance of SMEs in terms of increase of new markets established was between 0%-10%. Finally, when the respondents were asked to indicate the state level of the performance of SMEs in terms of increase of new branches established was, 85% of the respondents had 0-10% , 5% had 10-20% , 2% had 21-30% , 2% had 31-40%, 6% had 41-50% and 0% had stated over 50% The mode was found to be 1 which imply that on average the performance of SMEs in

terms of increase of new branches established was between 0%-10%. The study findings corroborate with literature review by Hughes (2017) asserted that SMEs that succeeded in growing were more likely to have introduced product or process innovation. They were also more likely to have developed networks of collaborative partnerships and faced up to management development and reorganization needs as growth proceeded. Several studies have been conducted that show SMEs which adopt innovations in their operations recorded improved performance. This is because by adopting innovations resulted to improved products, reduction of cost and increase in market share and new branches.

Table 6: Performance of SMEs

Description	0%-10%	11%-20%	21%-30%	31%-40%	41%-50%	Above 50%
Amount of profits	10%	30%	20%	15%	20%	5%
Customer base	15%	40%	10%	15%	15%	5%
Number of markets established	75%	4%	4%	9%	8%%	0%
Number of employees	55%	10%	5%	10%	10%	10%
Number of branches established	85%	5%	4%	4%	6%	0%

Multiple Regression Analysis Model

The study adopted a multiple regression analysis so as to establish the relationship of independent variables and the dependent variable. The study applied SPSS to compute the measurements of the multiple regression analysis. According to the model summary Table 7, the coefficient of determination (R^2) is used to measure the regression model's ability to explain the variation of the independent variables. R is the correlation coefficient which shows the relationship between the independent variables and dependent variable. It is notable that there exists a strong positive relationship between the independent variables and dependent variable as shown by R value (0.823).The coefficient of determination(R^2) is between zero and one (Robinson, 2010). The data showed that the high R squared value of 0.677. It shows that the independent variables in the study were able to explain 67.70% variation in the performance of SMEs in the construction industry in the study area while the remaining 32.30.00% is explained by the other variables or other aspects outside the model.

This implies that the set of the independent variables play a significant role on the performance of SMEs in the construction industry in Kenya.

Table 7: Model Summary

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	.823	.677	.654	.020

The analysis of variance was carried ought to determine the effect of independent variables on the dependent variable simultaneously. According to Manly & Alberto (2016), F-statistic test basically shows whether all the

independent variables included in the model jointly influence the dependent variable. Based on the study results of the ANOVA Test or F-test in Table 8, obtained F-count (calculated) value was 12.4801. This is greater than the F-critical (table) value (10.123) with significance of 0.001. Since the significance level of 0.001< 0.05 we conclude that the set of independent variables affect the performance of SMEs in the construction industry in Kenya.

Table 8: ANOVA

Model	Sum of Squares	d.f	Mean Square	F	Sig.
Regression	36.908	4	9.227	12.4801	.001
Residual	55.450	75	.7393		
Total	92.358	79			

NB: F-critical value = 10.123;

The study conducted a multiple regression analysis so as to determine the relationship between the dependent variable and independent variables. With the aid of model $Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$; Y = Dependent variable (Performance of SMEs); α = Constant (The intercept of the model), β = Coefficient of the X variables (independent variables); X_1= Technological Innovation; X_2= Product Innovation; X_3= Process Innovation; X_4= Marketing Innovation; ε= is the error term. Therefore, the general form of the equation was to predict Performance of SMEs from X_1= Technological Innovation; X_2= Product Innovation; X_3= Process Innovation; X_4= Marketing Innovation is: ($Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$) becomes: **Y= 7.542 + 0.787X_1+ 0.704X_2+ 0.681X_3+ 0.590X_4 + 009.** This indicates that Performance of SMEs = 7.542 + 0.787*Technological Innovation + 0.704*Product Innovation + 0.681*Process Innovation + 0.590* Market Innovation + 0.009.

From the study findings on the regression equation established, taking all factors into account (independent variables), constant at zero performance of SMEs was 7.542. The data findings analyzed also shows that taking all other independent variables at zero, a unit increase in technological innovation will lead to a 0.787 increase in performance of SMEs; a unit increase in product innovation will lead to a 0.704 increase in performance of SMEs, a unit increase in process Innovation will lead to 0.681 increase in performance of SMEs and a unit increase in market Innovation will lead to 0.690 increase in performance of SMEs. This infers that technological innovation contributed most to performance of SMEs.

Further, based at 5% level of significance, technological innovation was found to have a calculated t =6.755 (greater than the tabulated value of t > 1.96) and a significance level of 0.002 thus the value of less than 0.05; product innovation show a calculated t =4.432 (greater than the tabulated value of t > 1.96) and a significance level of 0.003 thus the value of less than 0.05, process innovation was found to have a calculated t =4.109 (greater than the tabulated value of t > 1.96) and a significance level of 0.004 thus the value of less than 0.05, market innovation show was found to have a calculated t =3.923 (greater than the tabulated value of t > 1.96) and a significance level of 0.008 thus the value of less than 0.05 hence the most significant factor was technological innovation. The regression coefficients are summarised in Table 9.

Table 9: Regression Coefficients

Model	Unstandardized Coefficients	Standardized Coefficients	T	Sig.

	β	Std. Error	β		
(Constant)	7.542	.009		5.309	.000
X_1-TI	.787	.021	.702	6.755	.002
X_2-PRI	.704	.149	.655	4.432	.003
X_3-PCI	.681	.202	.505	4.109	.004
X_4-MI	.590	.256	.409	3.923	.008

Conclusion

The study established that technological innovation influence performance of SMEs in the construction industry. The study revealed that the variable statistically, strongly and significantly correlated to performance of SMEs in the construction industry as it had a positive relationship with the dependent variable. This reveals that technological innovation is an important factor that can enhance performance of SMEs in the construction industry. This also reveals that the more technological innovation if well managed the more the performance of SMEs in the construction industry. Therefore, from these quantitative results it can be deduced that the study which sought to establish the influence of technological innovation on performance of SMEs in the construction industry was achieved because it established that it influences performance of SMEs in the construction industry. From the study results it was established that product innovation influence performance of SMEs in the construction industry. The study revealed that the variable statistically, strongly and significantly correlated to performance of SMEs in the construction industry as it had a positive relationship with the dependent variable. This reveals that product innovation is an important factor that can enhance performance of SMEs in the construction industry. This also reveals that the more product innovation if well managed the more the performance of SMEs in the construction industry.

Therefore, from these quantitative results it can be deduced that the study which sought to establish the influence of product innovation on performance of SMEs in the construction industry was achieved because it established that it influences performance of SMEs in the construction industry. According to the study results to establish whether product innovation influence performance of SMEs in the construction industry, it was revealed that the variable statistically, strongly and significantly correlated to performance of SMEs in the construction industry as it had a positive relationship with the dependent variable. This reveals that process innovation is an important factor that can enhance performance of SMEs in the construction industry. This also reveals that the more process innovation if well managed the more the performance of SMEs in the construction industry.

Therefore, from these quantitative results it can be deduced that the study which sought to establish the influence of process innovation on performance of SMEs in the construction industry was achieved because it established that it influences performance of SMEs in the construction industry. Finally, the study established that market innovation influence performance of SMEs in the construction industry. The study revealed that the variable statistically, moderately and significantly correlated to performance of SMEs in the construction industry as it had a positive relationship with the dependent variable. This reveals that market innovation is an important factor that can enhance performance of SMEs in the construction industry. This also reveals that the more market innovation if well managed the more the performance of SMEs in the construction industry. Therefore, from these quantitative results it can be deduced that the study which sought to establish the influence of market innovation on performance of SMEs in the construction industry was achieved because it established that it influences performance of SMEs in the construction industry.

Recommendations

The study recommends for the establishment of the research and development to enable the organization to develop adequate risk taking skills for uncertainty bearing and coordination r the business activities. It will enhance competitive advantage and gain entry into new markets. It will facilitate decision making that support and promote in distinctive products and services for the increase in annual profits and to be more flexible and better placed to develop and implement new innovative ideas for the expansion of the business. The study recommends that there is need to have frequent design production that offers customers new products and services to increase the profits. The organizations should have frequent design production that offers customers new products and services to increase the profits. The new product design introduced by the organization should frequently define the physical form of the product to satisfy the customer needs. There should be the incremental production to create new products and services to meet the market demands and gain into new markets and differentiate them from their competitors by providing solutions to the unattended needs of the customers.

The study established that organizations should have a continuous re-engineering on the existing products to increase the customer base. The organization should effective procurement of inputs that offer customers new products and services to increase the profits. There is need to have a continuous improving of internal operations that can reduce costs, wastes and lead time aimed at improving production efficiency. The new methods of production can help the organizations to create new products and services to meet the market demands and gain into new markets. The study recommends for the SMEs to adopt the use of social media to tap new markets and ease accessibility of products and services. Through the use of the internet the business can be able to advertise and reach customers. The networking creates competitiveness in the industry and guarantees the firm to keep up with the changing customer needs in the market and meet the demanding consumers It can also lead to creation of competitiveness in the industry and guarantees the firm to keep up with the changing customer needs in the market and the necessity to control and reduce rising costs.

Conflict of Interest

No potential conflict of interest was reported by the authors.

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