

**DETERMINANTS OF INNOVATION AMONG SMALL  
AND MEDIUM-SIZED ENTERPRISES IN NYERI TOWN,  
KENYA**

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## DECLARATION

I, the undersigned, declare that this is my original work and the same has not being submitted for examination or any other award or qualification in any institution of learning

**Signature.....**

**Date.....**

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**D66/77162/2015**

This research project has been submitted for examination with my approval as the University of Nairobi supervisor.

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## **DEDICATION**

This project is dedicated to my family the Kiragus' for their sacrifice to see me through my education and to a friend and lecturer prof. Munyoki for his encouragement.

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## **LIST OF ABBREVIATIONS**

<b>RBV</b>	Resource-Based View Theory
<b>MBV</b>	Market-Based View Theory
<b>SMEs</b>	Small and Medium Enterprises
<b>SMFEs</b>	Small Medium-sized Family Enterprises
<b>CEO</b>	Chief Executive Officer

## ABSTRACT

The objective of the study was to establish the determinant of innovation among small and medium-sized enterprises (SMEs) in Nyeri, Kenya. The independent variables in this study included Customer Characteristics, Market Structure, Product Characteristics, Availability of Resources and Competitive Rivalry while the dependent variable was innovation among SMEs. This research aimed at establishing how the five independent variables presented effect the dependent variable. The study adopted a descriptive survey research design of SMEs in Nyeri, Kenya. The target population was five hundred and twenty one (521) SMEs in Nyeri town. Stratified random sampling with proportional allocation was used to come up with a representative proportion of sample of 156 respondents. Data was analyzed using descriptive and inferential Statistics using Regression, Correlations and Durbin Watson's multi-colinearity analysis models as supported by SPSS software. Tables and graphs presentations were used to present the data collected for ease of understanding and analysis. The findings indicated that two of the regression coefficients are highly significant at a confidence level of 95 % (see p-values). The coefficient are that for the customer characteristics and availability of Resources. However, the influence of the other variables i.e. Competitive Rivalry, Market Structure and Product Characteristics is insignificant as indicated by the p-values. The study recommends that SMEs should pay more attention to the various customer characteristics such as Tastes & Preferences, Peer Pressure, and Exposure to Social Media, Income Level and Motivation for Purchase to enhance innovation of their products and services. Resource Availability was also found to be statistically significant in influencing innovation among SMEs. The government agencies such as Ministry of Finance and financial institutions should develop policies to enhance access to various resources such as capital at affordable costs. This in turn will enhance innovation among SMEs.

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of the Study

Given today's surroundings of quick and unremitting globalization and mechanical change, it is generally perceived that the aggressiveness of firms relies on upon their imaginative limit (Estrada Bárcenas et al., 2009). Right now, SMEs are not yet spoke to in the worldwide economy as much as substantial firms are despite the fact that their internationalization exercises are expanding (Lamb & Liesch, 2002). Specifically constrained assets, (money related, administrative, data appear to disappoint the endeavors of SMEs to internationalize (Burpitt and Rondinelli, 2000). By method for innovation, SMEs may, be that as it may, access extra assets and enter markets or improve incomes (Contractor and Lorange, 1988; Burgel and Murray, 2000).

This research was guided by generic competitive advantage theory, resource-based view theory and market-based view theory. Generic Competitive Advantage Theory asserts that a business can expand execution either by endeavoring to be the ease maker in an industry or by separating its line of items or administrations from those of different organizations. The RBV looks inwards towards the assets accessible in the firm. A firm uses assets to create, fabricate and convey items or administrations to its clients (Barney, 1995). The MBV is centered around the market environment, where through this viewpoint, organizations ought to adjust their business technique to address advertise issues. Little and medium-sized endeavors (SMEs) therefore have had to innovate in the face of globalization and technological change.

In Nyeri Town, most SMEs are service providers and very few are involved in manufacturing which may be due to the fact that Nyeri town is predominantly a rural town with very few industries (Kirigo, 2008). It is also noted that majority of the SMEs operators are women which account to 60.4% of the business in Nyeri town. The main challenge facing SMEs in the town is challenges in accessibility of credit due to lack of collateral since most businesses are small with low turnover. The level of innovation of the SMEs is notable but not substantial. However, it is not evident whether the notable innovations are market driven or originated by the SMEs owners.

### **1.1.1 The Concept of Innovation**

Innovation is an ambiguous concept, attracting multiple and often conflicting definitions, and conveying different things to different people both in the literature and in organizations (Lees, 1992). Storey (1989, 1989) proposes that the conceptualizations about what development is, is firmly wrapped up with what it is really going after, plainly, it is not an end in itself. Thus, to a vast degree, conceptualizations must be deduced from meditations of its goals. Conventional definitions tended to place accentuation on cognizant goal as a natural component, emphasizing the formal, planned and deliberate aspects of the innovation process.

Some definitions see innovation as nonexclusive, including both instruction and preparing, formal and casual procedures. Advancement commonly includes innovativeness, however is not indistinguishable to it: development includes following up on the inventive thoughts to have some particular and unmistakable effect in the area in which the development happens. All development starts with inventive thoughts. In the current study, innovation is defined as the effective usage

of inventive thoughts inside an association. In this view, imagination by people and groups is a beginning stage for advancement; the first is fundamental however not adequate condition for the second (Chesbrough & Henry, 2003). According to Tidd and Bessant (2009), innovation is the procedure through which firms recognize new open doors for change, transform them into reality, and catch esteem for them. In view of this, it is of awesome enthusiasm to recognize the components that impact on the improvement of inventive exercises in firms (Kamalian et al., 2011).

### **1.1.2 Determinants of Innovation**

The characteristics of SMEs may influence their decisions on innovation strategies (Nieto et al., 2015). Agency theory suggests that SMEs and the involvement of family members can contribute to boosting orientation in the long term (Miller and Le Breton-Miller, 2005; Braun and Sharma, 2007) by aligning the interests of the family firm with those of its managers, increasing their desire to promote R&D despite the associated risks (Kim et al., 2008; Chen and Hsu, 2009; Munari et al., 2010).

However, on the contrary, there are also authors who believe that SMEs are less innovative for various reasons such as the fact that SMEs are very conservative and adverse to risk (Donckels and Frohlich, 1991; Lee, 2006) due to their desire to build and maintain a legacy for future generations (Fernández and Nieto, 2006), and for this reason they operate with higher levels of control over assets and are more reluctant to employ external staff (Chang et al., 2010). This also causes them to be more prudent and efficient in the allocation of resources, which also affect the SMEs heritage, meaning that they may need less investment than larger firms (Durand and Vargas, 2003; Carney, 2005).

Finally, other researchers (Voordeckers et al., 2007) suggest that SMEs objectives, such as maintaining family employment and control of the firm tend to be more important than market driven objectives, such as maximisation of profits, growth and innovation, and can make the SMES reluctant to depend on external financing (Kim et al., 2008; Gomez-Mejia et al., 2010), thereby limiting the firm's capacity to invest in innovation and accumulate better resources and capacities in relation to technology and the market for their innovative activity.

### **1.1.3 SMEs in Kenya**

SMEs are viewed as those undertakings that have less than 250 workers. In recognizing little and medium estimated undertakings, the little venture is characterized as an endeavor that has less than 50 representatives. These organizations are regularly alluded to as SMEs and are connected with proprietor proprietors (Meredith 2001; Schaper & Volery 2004). The proprietors see the business as an augmentation of their character and are bound with family needs and longings.

Small and Medium enterprises (SMEs) commitment to the Kenyan economy is broadly recognized, they cut over all parts of the economy and give numerous business openings and produce far reaching monetary advantages. However, SMEs confront a blend of progress and disappointment with past measurements showing that three out of five bomb inside the initial couple of months of operation. The present established structure and the new Micro and Small Enterprise Act 2012 give a window of chance through which the development of SMEs can be acknowledged through the devolution system. In any case, the effect of devolution of SMEs improvement relies on upon the engineering of the administrative and

institutional structure slanted to bolster SMEs in an economy (Mbugua & Makori, 2016).

The official strategy system of SMEs in Kenya is contained in the Sessional Paper No 2 of 2005: Development of Small and medium endeavors for Wealth and Employment Creation for Poverty Reduction ("Sessional Paper No. 2 of 2005"). This arrangement paper was expected to frame the reason for establishing the SME Act to standardize SME Policy in Kenya. The new SME Act would provide guidance to among others, key issues, for example, the lawful and administrative environment, markets and advertising, business linkages, the expense administration, abilities and innovation and money related administrations. Undoubtedly the Small and medium endeavors Bill 2011 authorized into law in the year 2012 was produced upon this Policy system (GOK, 2013).

Small and medium undertakings (SMEs) are generally perceived for their part in the social, political and financial advancement. Their significance is especially evident in its capacity to give sensibly valued merchandise, administrations, pay and work to various individuals as observed by Kauffmann (2006). Nabintu (2013) note that while the commitments of private companies to advancement are for the most part recognized, micro and business people confront numerous hindrances that farthest point their long haul survival and improvement. This is in line with Kenya National Bureau of Statistics (2012) report, which indicated that, three out of five businesses fail within the first few months of operation. Therefore, there has been a developing concern and enthusiasm by the administration and advancement offices for the enhanced execution and development of the smaller scale and small undertakings.



#### **1.1.4 SMEs in Nyeri, Kenya**

The Kenyan SME sector has seen a paradigm shift in the last couple of years with intensified competition and entry of new well established players, changing regulatory provisions and prudential guidelines, financial sector deepening processes, changing consumer tastes and preferences and technological advancements (Wason et al., 2014). The sessional paper No.2 of 2005, on strategy for improvement of Micro and Small undertakings observed that since autonomy, the Government has perceived the capability of the MSEs Part in work creation and neediness diminishment in its various approach reports.

In Nyeri Town, most SMEs are service providers and very few are involved in manufacturing which may be due to the fact that Nyeri town is predominantly a rural town with very few industries (Kirigo, 2008). It is also noted that majority of the SMEs operators are women which account to 60.4% of the business in Nyeri town. The main challenge facing SMEs in the town is challenges in accessibility of credit due to lack of collateral since most businesses are small with low turnover. The level of innovation of the SMEs is notable but not substantial. However, it is not evident whether the notable innovations are market driven or originated by the SMEs owners.

#### **1.2 Research Problem**

Due to the lack of conclusive results, researchers have had to consider alternative approaches and new frameworks that explore both outer components (such as market then again part ones) furthermore, interior elements (firm-particular ones) of the innovation decision (Coronado et al., 2008). Most existing studies break down interior elements (Acs and Audretsch, 1987; Chen, 1996; Hadjimanolis, 2000;

Galende and de la Fuente, 2003) separately from external ones (Levin et al., 1987; Veugelers and Cassiman, 1999), whereas the identification of both inside and outside is generally scarce in organization innovation writing ( Madrid-Guijarro 2009; López-Fernández 2011; Maria 2016). Additionally, many of such studies have been conducted elsewhere, especially in the United States of America, Europe and Asia, and very little has been done in Africa.

To fill the above knowledge gap, the researcher will employ this latter approach in an effort to analyze the determinants of the innovation in SMEs in Nyeri, Kenya by defining a model that considers the joint effect of both internal and external factors. Internal factors will include product characteristics, availability of resources and competitive rivalry. The external factors will include market structure and customer characteristics.

### **1.3 Objectives of the Study**

The goal of the study was to set up the determinant of innovation among small and medium-sized enterprises in Nyeri, Kenya.

### **1.4 Value of the Study**

The advancement of SMEs in Kenya has a direct effect on Kenya's economic performance. However, both inner elements and outside elements determine the vital heading of SMEs and consequently innovation. This study helped significantly to reveal insight into the implications for internal and external factors on the innovation in SMEs. Although many similar studies have been conducted elsewhere, especially in the United States of America, Europe and Asia, very little has been done in Africa.

This study will thus contribute to theory building by enhancing our understanding of the role played by product characteristics, availability of resources, market structure, competitive rivalry and customer characteristics in determining the innovation in SMEs in Kenya. The findings of the research will add to the improvement of hypothetical and information bases, and additionally offering comes about that will hold any importance with research and strategy makers. Due to no conclusive findings on the determinants of SMEs innovations, researchers have had to consider alternative approaches and new frameworks that explore both outer elements, (for example, as market ) and inner elements firm-particular (ones) of the development choice (Maria et al., 2016). The current research will be of great significance since most researchers in Kenya have not focused on a model combining both internal and external factors in the prediction of innovation decision in SMEs. Majority of studies that the researcher came across analyze internal factors (Acs & Audretsch, 1987; Chen, 1996; Hadjimanolis, 2000; Galende and de la Fuente, 2003) separately from external ones (Levin et al., 1987; Veugelers and Cassiman, 1999) hence the need for the current contemplate.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This Chapter analysis expert's opinion in the study area. It incorporates Theoretical Literature Review, Empirical Literature Review, Conceptual Framework plus the Operational Framework.

#### **2.2 Theoretical Literature Review**

The section aims at evaluating theories, which are relevant to the objectives of the research.

##### **2.2.1 Generic Competitive Advantage Theory**

Porters (1985) in his Generic Competitive Advantage Theory asserts that a business can boost execution either by endeavoring to be the minimal effort maker in an industry or by separating its line of items or administrations from those of different organizations. Both of these two methodologies can be joined by a center of hierarchical endeavors on a given portion of the market. Assist, a business endeavoring to join accentuations on low expenses and separation constantly will wind up "stuck in the center" (Porter, 1980, p. 41), a thought that got impressive early support (Dess and Davis, 1984; Hambrick, 1981, 1982;

Though Porter fights that the suspicions connected with low expenses and separation are contrary, those in the "mix technique school" have contended that organizations effectively joining low expenses and separation may make collaborations that beat any trade-offs that might be connected with the mix. Advocates of the mix system approach construct their contentions with respect to

wide monetary connections as well as on recounted prove showing how singular firms have distinguished such connections one of a kind to one or a little gathering of firms in an industry. Taking after this rationale, Bowman and Faulkner (1997); (see additionally Faulkner and Bowman, 1992) noticed the significance of significant worth movement aggressive techniques. Since purchasers see cost and not cost, they contended that feasible upper hand is accomplished by offering items or administrations that are seen by clients to be superior to those of the opposition paying little respect to value; equivalent to the opposition however at a lower cost; or better and less expensive.

### **2.2.2 Resource-Based View Theory**

As opposed to the MBV, the RBV looks inwards towards the assets accessible in the firm. RBV hypothesis has frequently been utilized to clarify the impacts of different assets on SCA (Wernerfelt, 1984; Barney, 1991; Amit and Schoemaker, 1993; Tuan and Yoshi, 2010). A firm uses assets to create, fabricate and convey items or administrations to its clients (Barney, 1995). These assets could be seen like a strength (or weakness, particularly if lacking); and they may be tangible or intangible (Wernerfelt, 1984). The firm resource could be termed as driver (Storto, 2011) or factor (Avella et al., 2001) in explaining their effect on firm competitiveness. To make this more comprehensible, this research work defines firm resource as driving factor (e.g. Beleska-Spasova et al., 2011) that can be related to the competitive performance of a firm.

According to the RBV, exceptional and profitable firm-level assets that are non-imitable by contenders (Barney, 1986, 1991; Peteraf, 1993; Prahalad and Hamel, 1990) give upper hand. These are regularly depicted as profitable, uncommon, incompletely imitable and non-substitutable (VRIN); and empower firms to be

more fruitful in the rising economy. As indicated by Wernerfelt (1984), an association's assets are those unmistakable and immaterial resources fixing semi-for all time to the firm. These incorporate abilities and information that permit the firm to create systems to upgrade its proficiency and adequacy (Barney, 1991, p. 101). For instance, a multi-talented specialist is not effectively supplanted and is viewed as a VRIN asset. An asset's esteem likewise relies on upon the contender's perspective of its significance.

### **2.2.3 Market-Based View Theory**

The MBV is based available environment, where through this point of view, affiliations should conform their business system to address publicize issues; while RBV focuses on the affiliation's inward resources and capacities. The MBV elucidates an affiliation's execution through the outside business structure and the fundamental lead of contenders inside the business. As demonstrated by this "outside-in" setting, the execution of a firm and its high ground can be, as it were, attributed to the structure of its industry, for instance, to entry deterrents that hold additional contenders under control and secure net incomes (Mathur, 2013).

The MBV and the RBV plainly indicate distinctive wellsprings of upper hand for firms (Roquebert et al., 1996). The MBV recommends that upgraded finished result advertise position is the establishment for reasonable future returns and expanding firms' present esteem (Caves and Porter, 1977, 1978; Porter, 1979; Tallman, 1991). The MBV sees upper hand as the hindrance shielding against rivalry emerging from market structure. The MBV model is additionally created to concentrate on the company's acquired market control. Defenders of the MBV advocate that since the change procedure unfurls continuously after some time, such market control

gives a significant base to contending in the advancing environment (Makhija, 2003). The expansion in labor costs has constrained makers universally to migrate their plant to China keeping in mind the end goal to be financially savvy while managing their piece of the overall industry (Dedrick and Kraemer, 2006).

The market environment is connected with associations managing rivals in satisfying their clients' needs to upgrade execution. Inner assets of associations include both substantial and elusive assets that decide the association's upper hand where impalpable assets are the hardest to mimic (Roquebert et al., 1996; Claudine et al., 2016). For instance, to contend comprehensively associations are expanding their interests in obtaining new and more propelled hardware keeping in mind the end goal to upgrade the productivity and nature of their generation (Yang and Meyer, 2015).

### **2.3 Empirical Literature Review**

In Kenya like other countries in Sub-Sahara Africa, the ability of SMEs to innovate largely depends on its technological capabilities, the information and skills availability. In a study that sought to investigate and document different types of innovations adopted by garment SMEs in Nairobi (Walobwa et al., 2013), the scientists assessed whether there is any impact between the developments received and development of the venture. Elucidating configuration was utilized to contemplate the examination goals. Evaluation was led on the populace. Polls were controlled to thirty-one business people/supervisors of article of clothing organizations in the study region. Clear insights and inferential measurements were utilized to break down the information before reporting and making suggestions. The study discovered that among the sorts of development dissected, promoting

advancement contributed most to the development of piece of clothing SMEs in Jericho advertise, Nairobi. In any case, it was likewise settled that a wide range of advancement were being drilled in the division and that development is exceptionally basic for SMEs to wind up and stay aggressive in the worldwide market.

There is scanty information on innovation practices in Kenyan clothing sector, particularly in the context of SMEs. However, a recent report on the same argues that mild innovation practices are taking place across all firms in the industry (Kamau & Munandi, 2009). They further found out that their new products fetched more in their respective market making them more competitive. As regards process innovation, garment-producing firms in Nairobi have introduced new machinery to aid their work (McCormick et al., 2009). Similarly, marketing innovation has being adopted by taking advantage of new market from neighboring countries (Kinyanjui & McCormick, 2009; McCormick et al., 2007). These firms have also made inroads into lucrative Nairobi's formal retail chain buyers who have grown tremendously (Kamau & Munandi, 2009). Notwithstanding the above innovation types a few researchers set unique accentuation on the significance of key development, since it might alter the course of the organization and even the standards of the amusement in an industry (Markides, 1997; Turock, 2001), Strategic innovations focused on measures to deliver a practical upper hand and reevaluate the tenets of rivalry (Turock, 2001), for example, key organizations together with contenders. The above discussions brings out that no empirical study has been carried out to establish the factors that determine innovation adopted by SMEs in particular in Nyeri Town.



The relative focal points as trailblazers of SMEs versus extensive partnerships fluctuate deliberately crosswise over assembling ventures. For instance, Audretsch (1995) has exhibited that SMEs contribute more to creative action in electronic registering gear and process control instruments, yet huge companies contribute more in pharmaceuticals and airplane. Specifically, expansive enterprises have a tendency to have preference in ventures that are capital escalated, promoting serious, concentrated, and profoundly unionized. By differentiation, SMEs have the high ground as pioneers in ventures that are profoundly inventive and included prevalently of vast partnerships. The acknowledgment that SMEs assume a dynamic part in development has prompted to various bits of knowledge about the systems by which SMEs enhance and present new items and administrations. Rothwell (1989) proposes that little firms can have an imaginative favorable position because of contrasts in market structures.

In a study that looked to decide the non-budgetary components influencing the development of SMEs in Kenya (Nyagah, 2013), the study utilized a cross sectional inquire about outline to accomplish the goals. The objective populaces under study were the authorized SMEs by Nairobi City Council in 2013. Of the authorized SMEs in Kenya, assessed 50,000-authorized SMEs are situated in Nairobi of which no less than 100 SMEs were haphazardly chosen as the specimen measure. The study utilized a survey to gather the required information. The information was gathered, coded, measured and examined quantitatively and subjectively. The findings indicate that entrepreneurial influences, advertising, technology and innovation, laws and directions, business area and rivalry impact the development of SMEs in Kenya.

Advancement is the way toward making a business item from a creation. Advancement can convey four sorts of advantages other than money: information, brand, biological community and culture. The principle goal of the study (Ngugi et al., 2013) was to build up the impact of creativity on the development of SMEs in Kenya. The study received engaging overview and exploratory plan. The study focused on 4560 SMEs in Nairobi County who are enrolled by Ministry of Industrialization and Ministry of Trade. Relapse models were utilized to analyze the impact of ingenuity abilities on development of SMEs in Kenya. Polls were utilized as the primary information accumulation. Engaging insights and inferential information examination strategy was to break down the assembled information. The discoveries demonstrated that imaginativeness impacts the development of SMEs in Kenya. The propensity of proprietor/supervisor to take part in and bolster new thoughts, curiosity, experimentation and inventive procedures brings about new items, administrations or mechanical procedures which impacts the execution of SMEs.

In a study to research the variables affecting the development of youth claimed small and medium undertakings in Nairobi County, the goals of the study (Huka, 2013) were to discover the impact of entrepreneurial abilities, credit get to, government arrangement and market access on the development of youth possessed small and medium ventures in Nairobi County. This study embraced an expressive research plan. This study utilized a stratified irregular inspecting technique to choose 10% of the objective populace. The study set up that a portion of the young who had begun SMEs had no preparation in business. This concentrate consequently prescribes that the administration of Kenya ought to set up meetings and classes to prepare business visionaries on business arranging, accounting,

advertising, monetary administration and client relations. The concentrate likewise settled that a decent number of SME proprietors did not have entry to credit. The concentrate likewise suggests that money related establishments ought to consider diminishing their necessities to subsidize the young in their organizations.

In a research conducted in Spain (Maria et al., 2016) the motivation behind the study was to add to the comprehension of the variables that impact small to medium-sized family endeavors (SMFEs) development choice. The exploration used a unique information set of 73 SMFEs utilizing 5-249 individuals to run binomial strategic relapse display, which considers the joint impact of both inner and outside variables. The outcomes affirmed, from one perspective, a noteworthy and positive relationship between the long (CEO) residency, the miner and analyzer key introduction, and the advancement choice in the Spanish family firms. Then again, the outcomes affirmed a noteworthy and antagonistic relationship between the hazard taking, the cost of development, the absence of qualified work force, a client lack of concern towards advancement, and the development choice in the Spanish SMFEs.

## **2.4 Research Gap**

From the reviewed literature, several researchers are seen to take different perspectives in their study of SMEs. There are those that focus on different types of innovations adopted by SMEs (Walobwa et al., 2013; Kamau & Munandi, 2009; Kinyanjui & McCormick, 2009; McCormick et al., 2007; Markides, 1997; Turock, 2001 and Wason & Bichanga, 2014).

A number of researchers focused on the impact of innovations adopted by SMEs on the growth, profitability, sales market share of the SMEs (Nyagah, 2013; Ngugi et al., 2013; Machira, 2015; Mbugua & Makori, 2016 and Coad & Rao, 2008). In a craft dominated industrial area of German and high tech sector of USA. Moreover, there are those researchers who focus on the relative advantage of innovators of SMEs in comparison to large corporations (Bound et al., 1984; Schwalbach & Zimmermann, 1991; Rothwell, 1989; Scherer, 1991 and Scherer, 1988).

Most of the studies on firm and industry characteristics that influence innovativeness have been founded on Schumpeter's (1934, 1942) works and have focused on firm size, advertise fixation, and mechanical attributes (Cohen and Levin, 1989; Veugelers and Cassiman, 1999). The results of this approach have been ambiguous. Some studies validate the original Schumpeterian hypothesis (Tsai, 2001; Stock et al., 2002), whilst others contradict it (Acs and Audretsch, 1987; Veugelers and Cassiman, 1999).

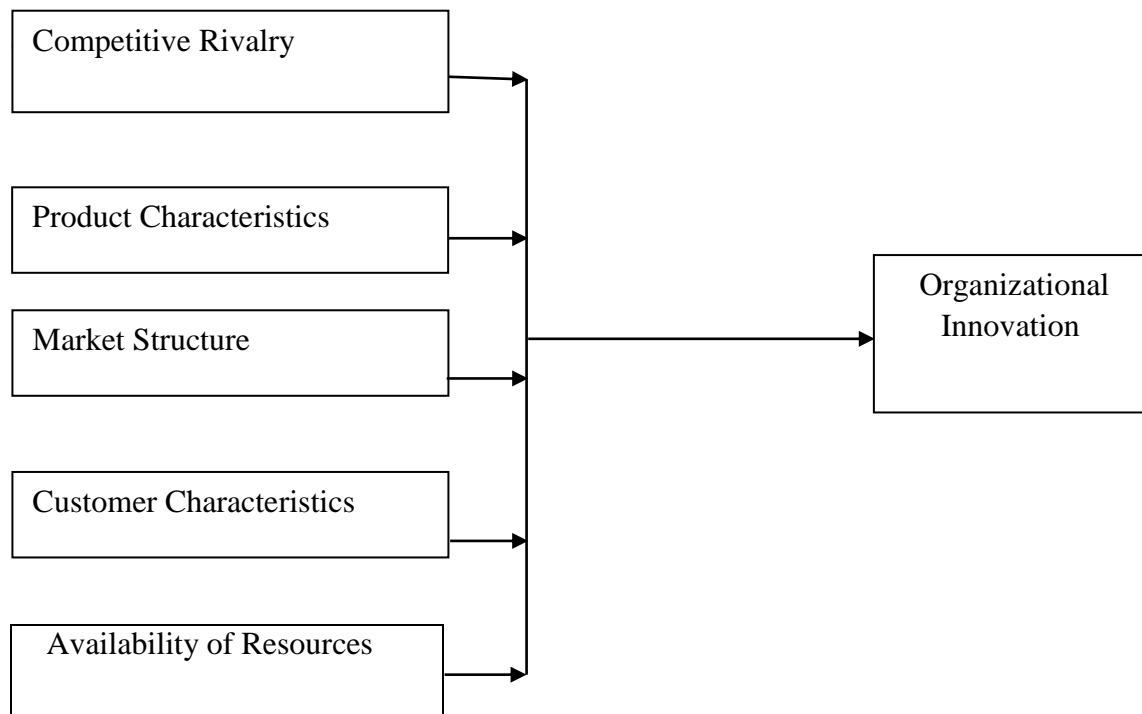
Due to the lack of conclusive results, researchers have had to consider alternative approaches and new frameworks that explore both outside variables, (for example, market or division ones) and inner elements (firm-particular ones) of the development choice (Coronado et al., 2008). Most existing studies investigate inside variables (Acs and Audretsch, 1987; Chen, 1996; Hadjimanolis, 2000; Galende and de la Fuente, 2003) independently from outer ones (Levin et al., 1987; Veugelers and Cassiman, 1999), while the recognizable proof of both interior and outside elements is moderately rare in firm development writing (Coronado et al., 2008; López-Fernández et al., 2011; Maria et al., 2016).

## 2.5 Conceptual Framework

The main role of the conceptual framework is to give relationship between the free and ward factors. Its diagrammatic representation of inter-relationships among the study variables (Philip, 2013). The independent variables in this study include Customer Characteristics, Market Structure, Product Characteristics, Availability of Resources and Competitive Rivalry while the dependent variable will be Organizational Innovation. This research is aimed at establishing how the five independent variables presented effect the dependent variable. That is, how Customer characteristics, Product characteristics, Competitive Rivalry, Market structure and Availability of Resources all determine the intensity of Organizational Innovation in SMEs in Kenya.

### Independent variables

### Dependent variable



Source: Author, (2016)

Figure 2.1: Conceptual Framework

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This area highlights the procedure utilized by the researcher to assemble the required data. It secured the population in the study, the specimen, information accumulation technique and information examination strategy.

#### **3.2 Research Design**

This study received a descriptive survey look into plan of SMEs in Nyeri, Kenya. This outline bears the specialist a chance to catch a populace's qualities and test speculations. Assist, the specialist has no control of the factors in the feeling of having the capacity to control them. Subsequently, the analyst just reported what happened since this examination plan prepares for any predisposition. The study included a spellbinding review of SMEs with a view to set up the determinants of development among little and medium-sized ventures in Nyeri, Kenya.

#### **3.3 Target Population**

The objective populace included small and medium ventures in Nyeri town. There are five hundred and twenty one (521) (Licensing Department Nyeri County) registered small and medium ventures in Nyeri town in as per the Licensing Department of the County. Since the whole population could not be studied as a whole, a target population was studied. Brinker, (1998) defines a target population as a large population from whom sample population is selected.

**Table 3.1: Classification and distribution of SMEs in Nyeri Town**

<b>Type of Target Business</b>	<b>Approximate Number Registered</b>
Large traders, shops, retail or store	405
Medium workshop/Service repair	54
Small Industrial plant up to 15 employees	34
Medium financial Services 6-25 employees	28
<b>Total Population</b>	<b>521</b>

**Source: Department of Licensing Nyeri County Government**

### **3.4 Sample Design**

According to Kothari (2006), sampling design is that part of the examination arrange for that demonstrates how cases will be chosen for perception. In this manner, stratified irregular inspecting with relative portion was utilized to concoct a delegate extent of test. This technique was fitting, as all the current subgroups were spoken to. This procedure was likewise entirely simple to apply when the populace is extensive. Each division for the business in target formed the strata and therefore a sample was drawn from each stratum by irregular inspecting to guarantee that each thing in the populace had an equivalent shot of being incorporated into the example.

In various target business, stratification by proportional allocation method was used to classify the various business into small subgroups called strata. In every stratum, samples of respondents were selected by simple random sampling method. The figure below shows how samples were selected from the stratified stratum.

**Table 3.2: Sample Size Determination**

<b>Type of Target Business</b>	<b>Number Registered</b>	<b>%</b>	<b>Sample selected</b>
Large traders, shops, retails	405	30	122
Medium workshop/Service/Repair	54	30	16
Small industrial plant up to 15 employees	34	30	10
Medium Financial services 6-25 employees	28	30	8
<b>Total</b>	<b>521</b>		<b>156</b>

### **3.5 Data Collection**

With a specific end goal to gather the Primary information, an authorization letter toward collecting study data was sought from my University administration as is required by Kenyan law. Administration of the questionnaire to the targeted respondents was done in person and an introduction letter was presented to all respondents. The study used a structured questionnaire administered to each member of the proposed population sample.

### **3.6 Test of Reliability and Validity**

In order to ensure reliability of the research instruments, a pilot test was carried out at Nyeri Slopes Supermarket to ensure that they meet the expectations of the researcher. A few questionnaires were administered in advance to assess their reliability and validity. To ensure Reliability of the research instrument, questionnaires were given to other researchers and fellow students to assess the relevance of the content used in the questionnaire and interview schedule in connection to the destinations of the study.



### 3.7 Data Analysis and Presentations

Information was broke down utilizing Descriptive and Inferential Statistics using Regression, Correlations and Durbin Watson's multi-colinearity analysis models as supported by SPSS software. The hypothesis was tested by taking the  $\beta$ -value obtained from the data analysis and a 0.05 essentialness level was utilized to acknowledge or dismiss the theory. Linear regression analysis was utilized as the way to deal with dissects the information. The regression model was as per the following:

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon$$

Where:

Y = Organizational Innovation among SMEs

$\beta_0$  = Constant Term

$\beta_1, \beta_2, \beta_3, \beta_4$  and  $\beta_5$  = Beta coefficients

$X_1$  = Competitive Rivalry

$X_2$  = Product Characteristics

$X_3$  = Market Structure

$X_4$  = Customer Characteristics

$X_5$  = Availability of assets

$\varepsilon$  = Error term - refers to changes in the needy variable that are not clarified by the model used

Descriptive statistics was utilized to break down the information. Tables and other graphical presentations as suitable were utilized to introduce the information gathered for simplicity of comprehension and investigation. Tables were utilized to compress reactions for further investigation and encourage correlation.

This produced quantitative reports through arrangements, rates, and measure of focal propensity. The mean score for every characteristic was ascertained and the standard deviation used to decipher the respondents deviation from the mean. Essential information was organized from the polls. Conclusions were drawn from the exploration discoveries.

## CHAPTER FOUR

### DATA ANALYSIS AND PRESENTATION OF RESULTS

#### 4.1 Introduction

This part investigates the information that was gathered and offers the understanding of the outcomes from the discoveries gathered from the tested respondents. The chapter covered the Response Rate, Response on Personal Information, the Empirical Finding on the relationship between the needy and free factors, which were established.

#### 4.2 Response Rate

Stratified random sampling with proportional allocation of 156 SMEs was done with a target population of 521 Brand, Marketing and Sales managers in their enterprises located in Nyeri, Kenya. Structured questionnaires were used. A total of 134 out of the 156 respondents dully filled in the questionnaires, which were collected making a 86% reaction rate. This was a satisfactory rate and could have been credited to the way that the surveys were dropped and picked by the specialist himself. The reaction rate was as per the following in Table 4.1:

**Table 4.1: Response Rate**

<b>Category</b>	<b>Targeted Sample Size</b>	<b>Response Rate</b>	<b>% Response Rate</b>
Respondents	156	134	86
<b>Total</b>	<b>156</b>	<b>134</b>	<b>100</b>

n= 134

### 4.3 Personal Information

This segment gives comes about and interpretation of the discoveries on the qualities of the respondents. The results are analyzed using tables and figures.

#### 4.3.1 Position held by the Respondents

The examination tried to set up the position held by the respondents and the discoveries were given in the table 4.2.

**Table 4.2: Position held by the respondents**

	<b>Recurrence</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Brand managers	60	44.78	44.78
Marketing managers	27	20.15	64.93
Sales managers	47	35.07	100.0
<b>Total</b>	<b>134</b>	<b>100.00</b>	

As indicated on the table, 44.78%, 20.15% and 35.07% of the respondents were Brand managers, marketing managers and Sales managers respectively. This indicates that there was balanced representation of the respondents in the SMEs that were represented.

#### 4.3.2 Age Bracket of the Respondents

The exploration looked to set up the age gathering of the respondents and the discoveries were appeared in table 4.3.

**Table 4.3: Age Bracket of the Respondents**

	<b>Recurrence</b>	<b>Percent</b>	<b>Cumulative Percent</b>
21-25	28	20.9	20.9
26-30	32	23.9	44.8
31-35	42	31.3	76.1
Over 35 years	32	23.9	100.0
<b>Total</b>	<b>134</b>	<b>100</b>	

This study found out that 20.9%, or 14 respondents were aged between 21-25 years whereas 23.9% were aged between 26 to 30 years. In addition, 31.3% of the respondents were in the age group of 31-35 years. Moreover, 23.9 % or 16 of the respondents were above 35 years. These outcomes propose that, lion's share of the respondents were moderately aged within the Kenyan youth bracket group which implies that they are energetic, efficient and productive in the economy. In fact, with such a group, an increased output in effectively marketing their SMEs product was expected.

### 4.3.3 Gender Composition

The study looked to build up the sexual orientation of the respondents and the discoveries and analysis shows that 56.7% or 76 respondents were female while 43.3% or 58 respondents were males and are provided in the table 4.4.

**Table 4.4: Gender Composition**

	<b>Recurrence</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Male	58	56.7	56.7
Female	76	43.3	100
<b>Total</b>	<b>134</b>	<b>100.00</b>	

This analysis suggests that, 30% gender presentation in the organization was achieved. This is according to the Kenya constitution, 2010. It also showed that as per the current employment trend, more women are joining the job market due to increased access to education, empowerment and opportunities offered to women. The finding agreed with that of Kirigo (2008) indicating that SMEs in Nyeri Town are predominantly owned by women.

#### **4.3.4 Highest Education Level**

The study looked to discover the most elevated amount of instruction of the respondents and the discoveries were given in the table 4.5. This analysis shows that, majority of the respondents, 59.7% or 80 respondents had Bachelor’s degree while 13.4% had attained Diploma qualification. Only, 26.9% or 36 respondents had Master degree qualification. However, none of the respondents indicated other qualification. This analysis implies that, all the respondents had formal education with majority of them having attained university qualification. These findings also indicated the conformity to the current minimum qualifications required to enter the Kenyan formal job market sector.

**Table 4.5: Highest Education Level**

	<b>Recurrence</b>	<b>Percent</b>	<b>Cumulative Percent</b>
Diploma	18	13.4	13.4
Bachelor’s Degree	80	59.7	73.1
Master Degree	36	26.9	100.0
<b>Total</b>	<b>134</b>	<b>100</b>	

## 4.4 Empirical Findings

### 4.4.1 Competitive Rivalry and Innovation among SMEs

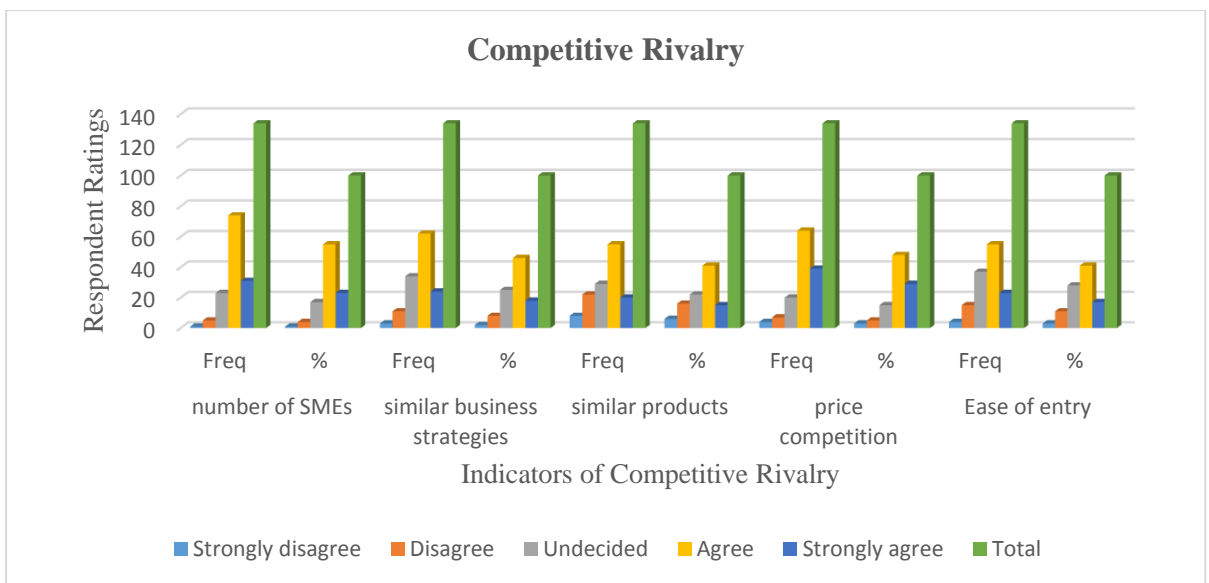
This study looked to build up the degree to which competitive rivalry has influenced the innovation among SMEs in Kenya and the responses were as shown in Table 4.6 below:

**Table 4.6: Rating on Competitive Rivalry**

	Competitive Rivalry									
	number of SMEs		similar business strategies		similar products		price competition		Ease of entry	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
<b>Strongly disagree</b>	1	1	3	2	8	6	4	3	4	3
<b>Disagree</b>	5	4	11	8	22	16	7	5	15	11
<b>Neutral</b>	23	17	34	25	29	22	20	15	37	28
<b>Agree</b>	74	55	62	46	55	41	64	48	55	41
<b>Strongly agree</b>	31	23	24	18	20	15	39	29	23	17
<b>Total</b>	<b>134</b>	<b>100</b>	<b>134</b>	<b>100</b>	<b>134</b>	<b>100</b>	<b>134</b>	<b>100</b>	<b>134</b>	<b>100</b>

This analysis indicates that, 78% or 105 respondents agreed that number of SMEs has influenced innovation among SMEs such that majority of the respondents take into account the number of SMEs when making decisions on innovation. However, 17% of the respondents were Neutral but only 4% disagreed on the same. It was also noted that 66% or 86 respondents agreed that similar business strategies has influenced innovation among SMEs. On the contrary, 25% or 34 respondents were Neutral on whether similar business strategies have influenced innovation among SMEs. In addition, 56% of the respondents agreed that similarity of products has influenced innovation among SMEs. Indeed, 77% of the respondents agreed that

price competition has influenced innovation among SMEs. Certainly, 58% of the respondents agreed that the ease of entry into the market influences innovation among SMEs. In this regard, majority of the respondents agreed that competitive rivalry influences innovation among SMEs. When the competitive rivalry in the market increases, a company's marketplace position and its profitability are seriously challenged and hence the organization will have to innovate to survive (Stephen, 2009). The rest of the results were also shown in the figure 4.1 below:



**Figure 4.1: Rating on Competitive Rivalry**

#### 4.4.2 Product Characteristics and Innovation among SMEs

The concentrate assist looked to build up the degree to which Product Characteristics have affected the development among SMEs in Kenya and the reactions are appeared in Table 4.7 below

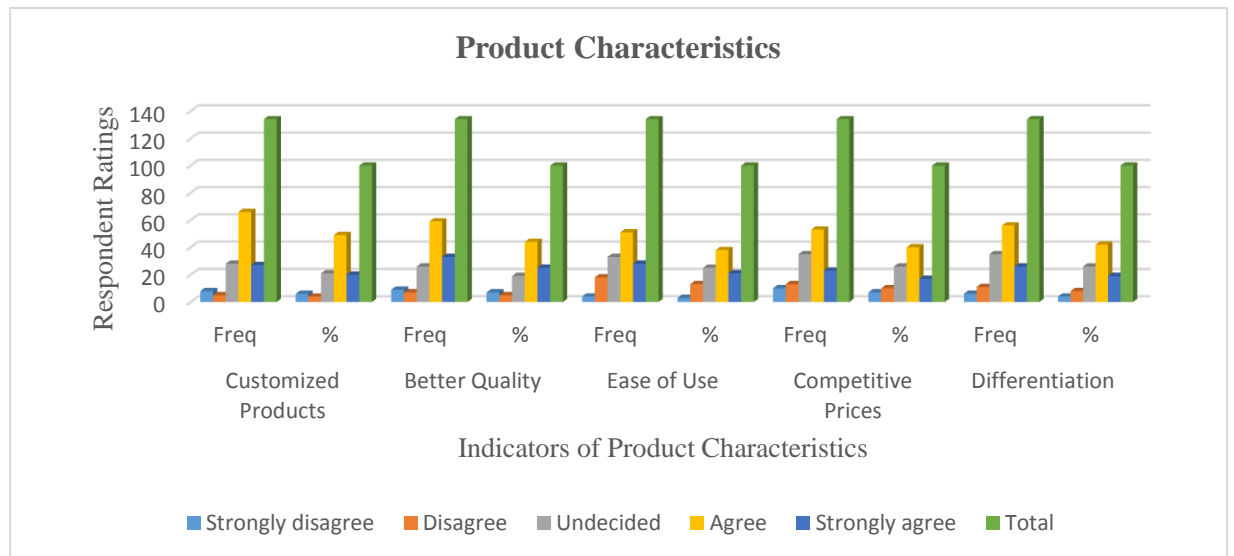


**Table 4.7: Rating the Product Characteristics**

	<b>Product Characteristics</b>									
	<b>Customized Products</b>		<b>Better Quality</b>		<b>Ease of Use</b>		<b>Competitive Prices</b>		<b>Differentiation</b>	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
<b>Strongly disagree</b>	8	6	9	7	4	3	10	7	6	4
<b>Disagree</b>	5	4	7	5	18	13	13	10	11	8
<b>Neutral</b>	28	21	26	19	33	25	35	26	35	26
<b>Agree</b>	66	49	59	44	51	38	53	40	56	42
<b>Strongly agree</b>	27	20	33	25	28	21	23	17	26	19
<b>Total</b>	<b>134</b>	<b>100</b>	<b>134</b>	<b>100</b>	<b>134</b>	<b>100</b>	<b>134</b>	<b>100</b>	<b>134</b>	<b>100</b>

This analysis indicates that, 69% or 93 respondents agreed that Customized Products have influenced the innovation among SMEs such that majority of the respondents consider the customization of their items and administrations in their effort to innovate. However, 21% of the respondents were Neutral but only 10% disagreed on the same. It was further noted that 69% or 93 respondents agreed that better quality of products and services influences innovation among SMEs. On the contrary, 19% or 26 respondents were Neutral on whether better quality of products and services has influenced innovation among SMEs. In addition, 59% of the respondents agreed that ease of use of products of the enterprise has influenced innovation among SMEs. Additionally, 57% of the respondents concurred that aggressive costs of items and administrations have influence on the innovation among SMEs. Indeed, 61% of the respondents agreed that differentiation of products and services influences innovation among SMEs. The findings therefore indicated that majority of the respondents agreed that product characteristics influences innovation among SMEs. A firm uses assets to create, fabricate and

convey items or administrations to its clients (Barney, 1995). The rest of the results are also shown in the figure 4.2 below:



**Figure 4.2: Rating the Product Characteristics**

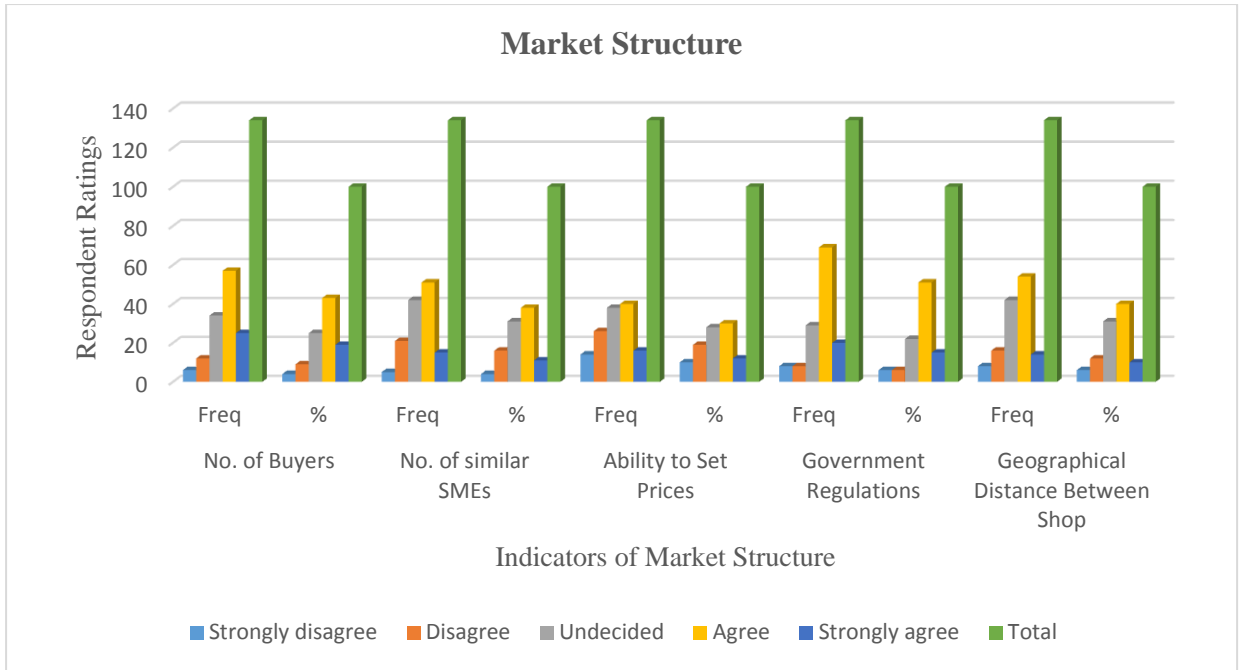
#### 4.4.3 Market Structure and Innovation among SMEs

The study looked to set up the degree to which advertise structure has impacted the development among SMEs in Kenya and the reactions are appeared in Table 4.8below:

**Table 4.8: Rating the Market Structure**

	Market Structure									
	No. of Buyers		No. of similar SMEs		Ability to Set Prices		Government Regulations		Geographical Distance Between Shop	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
<b>Strongly disagree</b>	6	4	5	4	14	10	8	6	8	6
<b>Disagree</b>	12	9	21	16	26	19	8	6	16	12
<b>Neutral</b>	34	25	42	31	38	28	29	22	42	31
<b>Agree</b>	57	43	51	38	40	30	69	51	54	40
<b>Strongly agree</b>	25	19	15	11	16	12	20	15	14	10
<b>Total</b>	<b>134</b>	<b>100</b>	<b>134</b>	<b>100</b>	<b>134</b>	<b>10</b>	<b>134</b>	<b>100</b>	<b>134</b>	<b>100</b>

This analysis indicates that, 62% or 82 respondents agreed that number the buyers in the market has influenced the innovation among SMEs such that majority of the respondents take into account the number of buyers in the market in developing innovation strategies for their SMEs. However, 25% of the respondents were Neutral but 13% disagreed on the same. It was also noted that 49% or 66 respondents agreed that the number of similar SMEs in the market has influenced innovation among SMEs. On the contrary, 31% or 42 respondents were Neutral on whether number of number of similar SMEs in the market has influenced innovation among SMEs. In addition, 66% of the respondents agreed that government regulations has influenced innovation among SMEs. Indeed, 50% of the respondents agreed that geographical distance between shops has had an influence on innovation among SMEs. In this regard , it is apparent that lion's share of the respondents concurred that market structure influences innovation among SMEs. Advertise structure assumes an extraordinary part in deciding the aggressive position of firms in an industry (Scherer and Ross, 1990).The Innovation in this regard is one way for the firm to retain its competitive advantage. The rest of the results are also shown in the figure 4.3 below:



**Figure 4.3: Rating the Market Structure**

#### 4.4.4 Customer Characteristics and Innovation among SMEs

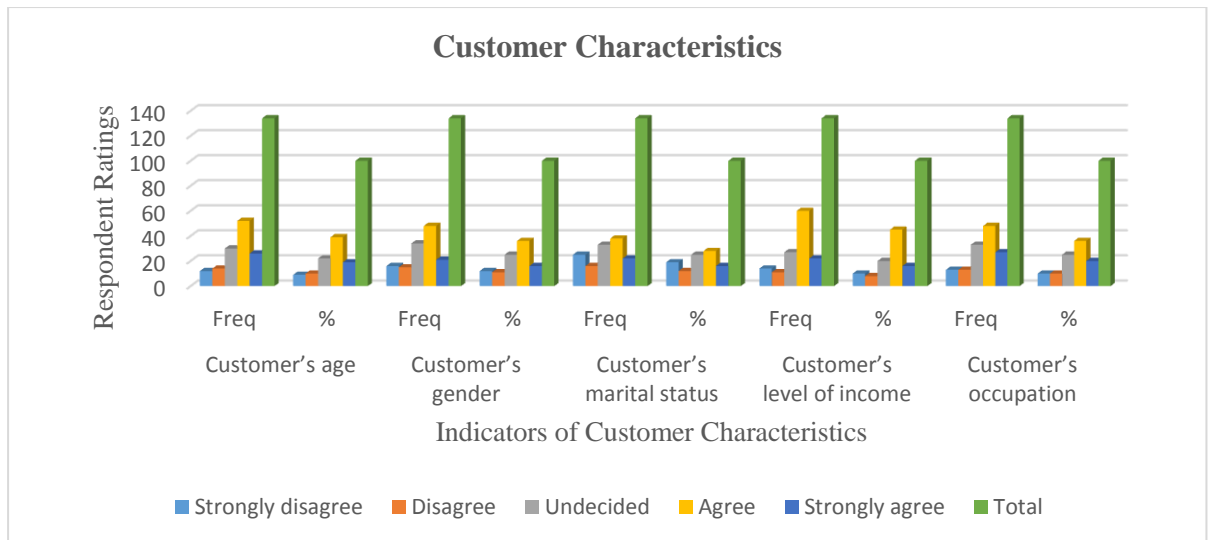
The study tried to set up the degree to which client attributes have affected the advancement among SMEs in Kenya. This analysis indicates that, 58% or 78 respondents agreed that customer's age has influenced the innovation among SMEs such that majority of the respondents take into account the customer's age when developing their innovation strategies. However, 22% of the respondents were Neutral and only 19% disagreed on the same. It was also noted that 52% or 69 respondents agreed that customer's gender has influenced innovation among SMEs. On the contrary, 25% or 34 respondents were Neutral on whether customer's gender has influenced innovation among SMEs. In addition, 44% of the respondents agreed that customer's marital status has influenced innovation among SMEs. Indeed, 61% of the respondents agreed that income level of customers has influenced innovation among SMEs. Certainly, 56% of the respondents agreed that customer's occupation influences innovation among SMEs. The responses were as shown in Table 4.9 below:

**Table 4.9: Rating the Customer Characteristics**

	Customer Characteristics									
	Customer's age		Customer's gender		Customer's marital status		Customer's level of income		Customer's occupation	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
<b>Strongly disagree</b>	12	9	16	12	25	19	14	10	13	10
<b>Disagree</b>	14	10	15	11	16	12	11	8	13	10
<b>Neutral</b>	30	22	34	25	33	25	27	20	33	25
<b>Agree</b>	52	39	48	36	38	28	60	45	48	36
<b>Strongly agree</b>	26	19	21	16	22	16	22	16	27	20
<b>Total</b>	<b>134</b>	<b>100</b>	<b>134</b>	<b>100</b>	<b>134</b>	<b>100</b>	<b>134</b>	<b>100</b>	<b>134</b>	<b>100</b>

Based on these findings, majority of the respondents agreed that customer characteristics influences innovation among SMEs. As per Porter (1980, p.3), "the aggregate quality of the strengths decides a definitive benefit potential in the business". Other than the buy sum, the recurrence of a client's rehashed buy is additionally used to characterize use levels (Meyer-Waarden, 2009). SMEs have therefore to innovate to address various customers. *See Appendix II*. Besides the purchase amount, the recurrence of a customer's repeated purchase is also used to define usage levels (Meyer-Waarden, 2009). The ability of an organization to remain competitive is highly dependent on its ability to maintain the customer base.

The rest of the results are also shown in the figure 4.4 below:



**Figure 4.4: Rating the Customer Characteristics**

#### 4.4.5 Availability of Resources and Innovation among SMEs

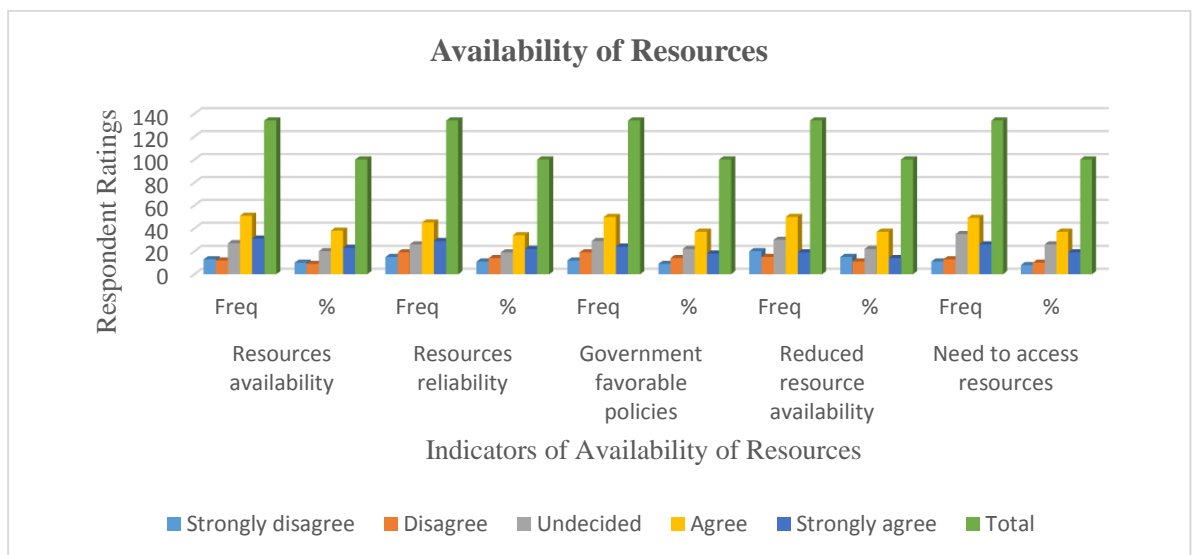
The study tried to set up the degree to which client qualities has impacted the advancement among SMEs in Kenya and the reactions were as appeared in Table 4.10 underneath:

**Table 4.10: Rating the Availability of Resources**

	Resources Availability									
	Resources availability		Resources reliability		Government favorable policies		Reduced resource availability		Need to access resources	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
<b>Strongly disagree</b>	13	10	15	11	12	9	20	15	11	8
<b>Disagree</b>	12	9	19	14	19	14	15	11	13	10
<b>Neutral</b>	27	20	26	19	29	22	30	22	35	26
<b>Agree</b>	51	38	45	34	50	37	50	37	49	37
<b>Strongly agree</b>	31	23	29	22	24	18	19	14	26	19
<b>Total</b>	<b>134</b>	<b>100</b>	<b>134</b>	<b>100</b>	<b>134</b>	<b>100</b>	<b>134</b>	<b>10</b>	<b>134</b>	<b>10</b>

This analysis indicates that, 61% or 82 respondents agreed that resources availability has influenced the innovation among SMEs such that majority of the respondents take into resources availability in their innovation strategies. However,

20% of the respondents were Neutral and only 19% disagreed on the same. It was also noted that 56% or 74 respondents agreed that reliability of resources for SMEs has influenced innovation among SMEs. On the contrary, 19% or 26 respondents were Neutral on whether reliability of resources has influenced innovation among SMEs. In addition, 55% of the respondents agreed that government favorable policies have influenced innovation among SMEs. Indeed, 54% of the respondents agreed that reduced availability of resources has influenced innovation among SMEs. Certainly, 56% of the respondents agreed that the need to access resources influences innovation among SMEs. Based on these findings, majority of the respondents agreed that customer characteristics influences innovation among SMEs. The firm resource could be termed as driver (Storto, 2011) or factor (Avella et al., 2001) in explaining their effect on firm competitiveness and hence innovativeness. *See Appendix II*. The rest of the results are also shown in the figure 4.5 below:



**Figure 4.5: Availability of Resources**

Besides the purchase amount, the recurrence of a customer's repeated purchase is also used to define usage levels (Meyer-Waarden, 2009). The ability of an organization to remain competitive is highly dependent on its ability to maintain the customer base.

#### 4.5 Regression Analysis

Regression analysis was done using five predictor variables that include product characteristics, availability of resources, competitive rivalry, market structure and customer characteristics in relation to the response variable; innovation among SMEs. Regression Analysis is a statistical process for estimating the relationships among variables. It helps one to understand how the value of the dependent variable changes when one of the independent variables are changed; while the other independent variables are held constant. Table 4.11 below shows the results of the analysis:

**Table 4.11: Model Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	3.182	0.524		6.072	0.000	2.145	4.219
Competitive Rivalry	0.001	0.079	0.001	0.009	0.993	-0.155	0.156
Product Characteristics	0.128	0.072	0.15	1.764	0.080	-0.016	0.271
Market Structure	0.079	0.076	0.085	1.035	0.303	-0.072	0.229
Customer Characteristics	0.208	0.067	0.263	3.088	0.002	0.075	0.341
Availability of Resources	-0.14	0.07	-0.166	-2.02	0.046	-0.28	-0.003

Dependent Variable: Innovation among SMEs



#### **4.5.1 Autocorrelation Amongst Predictor Variables (Durbin-Watson test)**

To test for possibility of autocorrelation amongst the five predictor variables, the researcher considered the Durbin-Watson test that allows for the determination of whether there is evidence of first-order autocorrelation; a condition in which a relationship exists between consecutive residuals values in the model. The Durbin-Watson statistic tests the following hypothesis;

$H_0$ : There is no first order autocorrelation among the residual values.

$H_1$ : There is a negative first order autocorrelation among the residual values.

According to Durbin-Watson test, the statistic estimated, lies within the interval [0, 4]. The interpretation of this estimate is that;  $d$  approaching zero, indicates that there is a strong positive first order autocorrelation amongst the residual values, (i.e.  $d < 2$ );  $d$  approaching four, indicates that there is a strong negative first order autocorrelation amongst the residual values, (i.e.  $d > 2$ );  $d = 2$ , indicates that there is no first order autocorrelation among the residual values;  $d$  approaching two, indicates that there is a weak negative or positive first order autocorrelation amongst the residual values.

The research indicated that the Durbin-Watson statistic is estimated at 1.947 (see Model Summary below Table 4.12), implying that there is a weak negative or positive first order autocorrelation amongst the residual values. This clearly indicates that the five predictor variables selected and used in the model were very good in explaining the response variable appropriately. The Independent variables were not strongly closely interrelated giving them autonomy of study without interfering with each other's position on the model.

In conclusion, majority of the respondents indicated that product characteristics, availability of resources, competitive rivalry, market structure and customer characteristics influences innovation among SMEs in Kenya. However, only Customer Characteristics and availability of resources was found to be statistically significant at 5% significance level as indicated by the regression analysis.

**Table 4.12: Model Summary**

<b>Model Summary<sup>b</sup></b>										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.382 <sup>a</sup>	0.146	0.113	0.57188	0.146	4.374	5	128	0.001	1.947

#### **4.5.2 Specification of Regression Model**

The regression equation that was fitted on the data is as shown below:

$$Y = 3.182 + 0.001X_1 + 0.15X_2 + 0.085X_3 + 0.263X_4 - 0.166X_5 + \varepsilon$$

Where:

Y = Innovation among SMEs (Improvement in the quality, improvement in newness, use of latest technology, reduced production lead time and improvement in processes)

$\beta_0$  = Constant Term

$\beta_1, \beta_2, \beta_3, \beta_4$  and  $\beta_5$  = Beta coefficients

$X_1$  = Competitive Rivalry

$X_2$  = Product Characteristics

$X_3$  = Market Structure

$X_4$  = Customer Characteristics

$X_5$  = Availability of Resources

$\varepsilon$  = Error term - refers to changes in the dependent variable that are not explained by the model used

### 4.5.3 Analysis of Variance (ANOVA)

Analysis of Variance was done using five predictor variables that include product characteristics, availability of resources, competitive rivalry, market structure and customer characteristics in relation to the response variable; innovation among SMEs. Table 4.13 below shows the results of the analysis:

**Table 4.13: Analysis of Variance**

ANOVA <sup>a</sup>					
Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	7.153	5	1.431	4.374	.001 <sup>b</sup>
Residual	41.862	128	0.327		
1 Total	49.015	133			

Predictors: (Constant), product characteristics, availability of resources, competitive rivalry, market structure and customer characteristics  
Dependent Variable: innovation among SMEs.

### 4.6 Interpretation of the Regression Analysis

Following the regression analysis, the interpretations on the output in Table 4.11 above are as follows:

#### 4.6.1 Significance of Regression Coefficients (t -test)

The t- test is used to check the significance of individual regression coefficients in the multiple linear regression models. Adding a significant variable to a regression model makes the model more effective, while adding an unimportant variable may make the model worse. The hypothesis statements to test the significance of a particular regression coefficient  $\beta_j$  are:

$$H_0 : \beta_j = 0 \quad \text{versus} \quad H_1 : \beta_j \neq 0, \text{ where } j = 1, 2, 3, 4, 5.$$

We reject the null hypothesis if the p-value <0.05.

From the output in Table 4.11, we find that two of the regression coefficients are highly significant at a confidence level of 95 % ( see p- values in Table 4.11). The coefficient are that for the customer characteristics and availability of Resources.

However, the influence of the other variables i.e. Competitive Rivalry, Market Structure and Product Characteristics is insignificant as indicated by the p –value in Table 4.11.

The regression coefficient of the ‘Competitive Rivalry = 0.001’, implies that this predictor variable has a positive effect on the response variable. The regression coefficient of the ‘Product Characteristics = 0.128’ which means that the predictor variable has a positive effect on the response variable. i.e. It will directly affect the response variable. The regression coefficient of the ‘Market Structure = 0.079’ which implies that this predictor variable has a positive effect on the response variable. The regression coefficient of the ‘Customer Characteristics = 0.208’. This variable has a positive effect on the response variable. On the other hand, the regression coefficient of the ‘Availability of Resources = - 0.14’ which means that the predictor variable has a negative effect on the response variable. i.e. it will inversely affect the response variable.

According to the model, it can be seen from the R-Squared that it’s able to explain 38.2% of the variability in the model. In addition, from the analysis of variance, the model is highly significant at a p-value of 0.001<sup>b</sup> which is <0.05. This implies that the model has a good fit to the data. With an R-Squared of 38.2%, this indicated that the independent variables selected had a relationship to the dependent variable. They explain 38.2% of the change in the dependent variable. The other variance of change in the dependent variable could have being explained by other variables not used in this study.

## **CHAPTER FIVE**

### **SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter gives the summary of major findings, conclusions and recommendations of the study. The study was guided by the following objectives: to establish the influence of product characteristics, availability of resources, competitive rivalry, market structure and customer characteristics influences innovation among SMEs in Kenya.

#### **5.2 Summary of Major Findings**

Based on the findings, majority of the respondents indicated that product characteristics, availability of resources, competitive rivalry, market structure and customer characteristics influences innovation among SMEs in Kenya.

##### **5.2.1 Competitive Rivalry and Innovation among SMEs**

This study sought to establish the extent to which competitive rivalry has influenced the innovation among SMEs in Kenya. This analysis indicates that, 78% or 105 respondents agreed that number of SMEs has influenced innovation among SMEs such that majority of the respondents take into account the number of SMEs when making decisions on innovation. However, 17% of the respondents were Neutral but only 5% disagreed on the same. It also noted that 64% or 86 respondents agreed that similar business strategies has influenced innovation among SMEs. On the contrary, 25% or 34 respondents were Neutral on whether similar business strategies have influenced innovation among SMEs. In addition, 56% of the respondents agreed that similarity of products has influenced innovation

among SMEs. Indeed, 77% of the respondents agreed that price competition has influenced innovation among SMEs. Certainly, 58% of the respondents agreed that the ease of entry into the market influences innovation among SMEs. In this regard, majority of the respondents agreed that competitive rivalry influences innovation among SMEs. When the competitive rivalry in the market increases, a company's marketplace position and its profitability are seriously challenged and hence the organization will have to innovate to survive (Stephen, 2009).

### **5.2.2 Product Characteristics and Innovation among SMEs**

The study further sought to establish the extent to which Product Characteristics have influenced the innovation among SMEs in Kenya. This analysis indicates that, 69% or 92 respondents agreed that Customized Products have influenced the innovation among SMEs such that majority of the respondents take into account the customization of their products and services in their effort to innovate. However, 21% of the respondents were Neutral but only 10% disagreed on the same. It was further noted that 69% or 93 respondents agreed that better quality of products and services influences innovation among SMEs. On the contrary, 19% or 26 respondents were Neutral on whether better quality of products and services has influenced innovation among SMEs.

In addition, 59% of the respondents agreed that ease of use of products of the enterprise has influenced innovation among SMEs. Additionally, 57% of the respondents agreed that a competitive price of products and services has influence on the innovation among SMEs. Indeed, 61% of the respondents agreed that differentiation of products and services influences innovation among SMEs. The findings therefore indicated that majority of the respondents agreed that product

characteristics influences innovation among SMEs. A firm uses resources to develop, manufacture and deliver products or services to its customers (Barney, 1995). These resources could be seen as a strength (or weakness, particularly if lacking); and they may be tangible or intangible (Wernerfelt, 1984).

### **5.2.3 Market Structure and Innovation among SMEs**

The study sought to establish the extent to which market structure has influenced the innovation among SMEs in Kenya. This analysis indicates that, 62% or 82 respondents agreed that number the buyers in the market has influenced the innovation among SMEs such that majority of the respondents take into account the number of buyers in the market in developing innovation strategies for their SMEs. However, 25% of the respondents were Neutral but 13% disagreed on the same. It was also noted that 49% or 66 respondents agreed that the number of similar SMEs in the market has influenced innovation among SMEs. On the contrary, 31% or 42 respondents were Neutral on whether number of number of similar SMEs in the market has influenced innovation among SMEs.

In addition, 66% of the respondents agreed that government regulations have influenced innovation among SMEs. Indeed, 50% of the respondents agreed that geographical distance between shops has had an influence on innovation among SMEs. In this regard, it is evident that majority of the respondents agreed that market structure influences innovation among SMEs. Market structure plays a great role in determining the competitive position of firms in an industry (Scherer and Ross, 1990). The MBV regards competitive advantage as the barrier protecting against competition arising from market structure. Innovation in this regard is one way for the firm to retain its competitive advantage.

#### **5.2.4 Customer Characteristics and Innovation among SMEs**

The study sought to establish the extent to which customer characteristics have influenced the innovation among SMEs in Kenya. This analysis indicates that, 58% or 78 respondents agreed that customer's age has influenced the innovation among SMEs such that majority of the respondents take into account the customer's age when developing their innovation strategies. However, 22% of the respondents were Neutral and only 19% disagreed on the same. It was also noted that 52% or 69 respondents agreed that customer's gender has influenced innovation among SMEs. On the contrary, 25% or 34 respondents were Neutral on whether customer's gender has influenced innovation among SMEs. In addition, 44% of the respondents agreed that customer's marital status has influenced innovation among SMEs. Indeed, 61% of the respondents agreed that income level of customers has influenced innovation among SMEs. Certainly, 56% of the respondents agreed that customer's occupation influences innovation among SMEs. Based on these findings, majority of the respondents agreed that customer characteristics influences innovation among SMEs.

According to Porter (1980, p.3), "the collective strength of the forces determines the ultimate profit potential in the industry". Besides the purchase amount, the recurrence of a customer's repeated purchase is also used to define usage levels (Meyer-Waarden, 2009). SMEs have therefore to innovate to address various customers. Besides the purchase amount, the recurrence of a customer's repeated purchase is also used to define usage levels (Meyer-Waarden, 2009). The ability of an organization to remain innovative is highly dependent on its ability to maintain the customer base.



### **5.2.5 Availability of Resources and Innovation among SMEs**

The study sought to establish the extent to which availability of resources has influenced the innovation among SMEs in Kenya. This analysis indicates that, 61% or 82 respondents agreed that resources availability has influenced the innovation among SMEs such that majority of the respondents take into resources availability in their innovation strategies. However, 20% of the respondents were Neutral and only 19% disagreed on the same. It was also noted that 56% or 74 respondents agreed that reliability of resources for SMEs has influenced innovation among SMEs.

On the contrary, 19% or 26 respondents were Neutral on whether reliability of resources has influenced innovation among SMEs. In addition, 55% of the respondents agreed that government favorable policies has influenced innovation among SMEs. Indeed, 54% of the respondents agreed that reduced availability of resources has influenced innovation among SMEs. Certainly, 56% of the respondents agreed that the need to access resources influences innovation among SMEs. Based on these findings, majority of the respondents agreed that customer characteristics influences innovation among SMEs. The firm resource could be termed as driver (Storto, 2011) or factor (Avella et al., 2001) in explaining their effect on firm competitiveness and hence innovativeness.

### **5.3 Conclusions**

In conclusion, from the output arising from regression analysis, we find that two of the regression coefficients are highly significant at a confidence level of 95 % ( see p- values). The coefficient are that for the customer characteristics and availability of Resources. However, the influence of the other variables i.e. Competitive

Rivalry, Market Structure and Product Characteristics is insignificant as indicated by the p-values.

### **5.3.1 Conclusions on Competitive Rivalry**

This study sought to establish the extent to which competitive rivalry has influenced the innovation among SMEs in Kenya. This analysis indicates that, 78% or 105 respondents agreed that number of SMEs has influenced innovation among SMEs such that majority of the respondents take into account the number of SMEs when making decisions on innovation. In this regard, majority of the respondents agreed that competitive rivalry influences innovation among SMEs. Employing 5% significance level, the results are not statistically significant with a (sig) p-value =0.993>0.05. In conclusion, the association between competitive rivalry and innovation among SMEs was insignificant at 5% significance level. To achieve innovation among SMEs in the industry, SMEs should not overlook competitive rivalry.

### **5.3.2 Conclusions on Product Characteristics**

The study further sought to establish the extent to which Product Characteristics have influenced the innovation among SMEs in Kenya. This analysis indicates that, 69% or 93 respondents agreed that Customized Products have influenced the innovation among SMEs such that majority of the respondents take into account the customization of their products and services in their effort to innovate. The findings therefore indicated that majority of the respondents agreed that product characteristics influences innovation among SMEs. Employing 5% significance level, the results are not statistically significant with a (sig) p-value =0.08>0.05. In conclusion, the association between Product Characteristics and innovation among SMEs was insignificant at 5% significance level. However, since this was

marginally insignificant at 5% significance level, Product Characteristics are seen to be an important factor in determining innovation among SMEs.

### **5.3.3 Conclusions on Market Structure**

The study sought to establish the extent to which market structure has influenced the innovation among SMEs in Kenya. This analysis indicates that, 62% or 82 respondents agreed that number the buyers in the market has influenced the innovation among SMEs such that majority of the respondents take into account the number of buyers in the market in developing innovation strategies for their SMEs. In this regard, it is evident that majority of the respondents agreed that market structure influences innovation among SMEs. Employing 5% significance level, the results are not statistically significant with a (sig) p-value =0.303>0.05. In conclusion, the association Market Structure and innovation among SMEs was insignificant at 5% significance level.

### **5.3.4 Conclusions on Customer Characteristics**

The study sought to establish the extent to which customer characteristics have influenced the innovation among SMEs in Kenya. This analysis indicates that, 58% or 78 respondents agreed that customer's age has influenced the innovation among SMEs such that majority of the respondents take into account the customer's age when developing their innovation strategies. Based on these findings, majority of the respondents agreed that customer characteristics influences innovation among SMEs. Employing 5% significance level, the results are highly statistically significant with a (sig) p-value =0.002<0.05. In conclusion, the association between Customer Characteristics and innovation among SMEs was highly significant at 5% significance level.

### **5.3.5 Conclusions on Availability of Resources**

The study sought to establish the extent to which availability of resources has influenced the innovation among SMEs in Kenya. This analysis indicates that, 61% or 82 respondents agreed that resources availability has influenced the innovation among SMEs such that majority of the respondents take into resources availability in their innovation strategies. Based on these findings, majority of the respondents agreed that customer characteristics influences innovation among SMEs. Employing 5% significance level, the results are highly statistically significant with a (sig) p-value =0.046<0.05. In conclusion, the association between availability of resources and innovation among SMEs was highly significant at 5% significance level.

### **5.5 Recommendations**

On the basis of this study, the following recommendations were made;

Since the study found out that Customer Characteristics was statistically significant in influencing innovation among SMEs, the study recommends that SMEs should pay more attention to the various customer characteristics such as Tastes & Preferences, Peer Pressure, and Exposure to Social Media, Income Level and Motivation for Purchase to enhance innovation of their products and services. Resource Availability was also found to be statistically significant in influencing innovation among SMEs. The government agencies such as Ministry of Finance and financial institutions should develop policies to enhance access to various resources such as capital at affordable costs. This in turn will enhance innovation among SMEs.

The study found out that Competitive Rivalry, Market Structure, Product Characteristics, though not being statistically significant, but have an influence on innovation among SMEs. SMEs should therefore not ignore these variables.

Among the two variables that were statistically significant, Customer Characteristics was the most significant variable. SMEs must therefore be innovative to satisfy various needs of customers and hence remain competitive.

## **5.6 Recommendations for Further Research**

Improvement in the innovation provides SMEs in Kenya with an opportunity of playing their role in reduction of unemployment in the Country in line with Vision 2030. Therefore, more study can be carried out in the following areas:

- (i) Investigate the factors influencing the high number of women owned SMEs in Nyeri Town.
- (ii) To establish the success factors in the startup of SMEs by the rural communities in Kenya.

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## APPENDICES

### APPENDIX I: QUESTIONNAIRE

I am a student at University of Nairobi pursuing a Masters in Entrepreneurship and Innovations Management degree. Currently am carrying out a research on the determinants of innovation among small and medium-sized enterprises in Nyeri town. All the information will be used for the purpose of study only and will be treated with uttermost confidence. Kindly respond to all questions as honestly as possible.

Your co-operation will be highly appreciated. Thank you in advance.

Kindly tick inside the boxes to indicate correct answer(s) where the answers are given in choices

#### A: General Information

SME stands for small medium-sized business hat are small in nature, owned by a single owner and are essentially local. They are not limited to any particular type of industry or service and can include small manufacturing facilities, small processing units, medium financial institutes, large traders etc.

1. Name of the business (SME) \_\_\_\_\_
  
2. Your position in the Enterprise
  - a. Brand manager
  - b. Marketing managers
  - c. Sales managers
  
3. How long have you worked with the Enterprise?
  - a. 1-3 Years
  - b. 4-7 Years
  - c. Above 7 Years
  
4. What is your age bracket?
  - a. 21-25 Years
  - b. 26-30 Years
  - c. 31-35 Years
  - d. Over 35 Years

5. What is your Gender?

a) Male

b) Female

6. Your highest completed level of education (please tick)

a) Below O-Level

b) Certificate

c) Diploma

d) Masters

e) Others: Specify .....

**B: COMPETITIVE RIVALRY**

7. On a scale from 1 – 5 to what extent do you think the following factors have influenced the Innovation among SMEs in Nyeri, Kenya? (Kindly tick)

(5= Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly Disagree)

	5	4	3	2	1
Large number of SMEs in the market.					
SMEs in the market having similar business strategies					
SMEs in the market having similar products					
Existence of price competition among SMEs in the					
Ease of entry of new SMEs into the market.					

**C. PRODUCT CHARACTERISTICS**

8. On a scale from 1 – 5 to what extent do you think the following factors have influenced the Innovation among SMEs in Nyeri, Kenya? (Kindly tick)

(5= Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly Disagree)

	5	4	3	2	1
Customized products for various groups of consumers with particular common interest					
Better quality compared to other similar products					
Ease of use of the products					
Competitive prices of products for various customers income					
Having differentiated products					

#### **D. MARKET STRUCTURE**

9. On a scale from 1 – 5 to what extent do you think the following factors have influenced the Innovation among SMEs in Nyeri, Kenya? (Kindly tick)

**(5= Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly Disagree)**

	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
Number of Buyers in the market					
Number of similar SMEs in the market					
Ability of SME to increase prices					
Government regulations in the market					
Geographical distance between different retail shops of the company products					

#### **E. CUSTOMER CHARACTERISTICS**

10. On a scale from 1 – 5 to what extent do you think the following factors have influenced the Innovation among SMEs in Nyeri, Kenya? (Kindly tick)

**(5= Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly Disagree)**

	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
Customer's age					
Customer's gender					
Customer's marital status					
Customer's level of income					
Customer's occupation					

**F. AVAILABILITY OF RESOURCES**

11. On a scale from 1 – 5 to what extent do you think the following information about your Enterprise is true? (Kindly tick)

**(5= Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly Disagree)**

	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
To what extent are the resources available?					
How reliable are the resources?					
Does the county government provide favorable policies to access resources					
There is reduced availability of resources					
There is need to access resources.					

**G. INNOVATION AMONG SMEs**

12. On a scale from 1 – 5 to what extent do you think the following information about your Enterprise is true? (Kindly tick)

**(5= Strongly Agree, 4 = Agree, 3 = Neutral, 2 = Disagree, 1 = Strongly Disagree)**

	<b>5</b>	<b>4</b>	<b>3</b>	<b>2</b>	<b>1</b>
There is improvement in the quality of the current products/services.					
There is improvement in newness of current products/services leading to improved ease of use for					
There is high speed in adoption of the latest technological innovations in it is processes					
There is reduced production lead time					
There is continuous improvement in processes to create value to the customer.					

## APPENDIX II: DESCRIPTIVE STATISTICS

<b>Competitive Rivalry</b>										
	number of SMEs		similar business strategies		similar products		price competition		Ease of entry	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Strongly disagree	1	1	3	2	8	6	4	3	4	3
Disagree	5	4	11	8	22	16	7	5	15	11
Neutral	23	17	34	25	29	22	20	15	37	28
Agree	74	55	62	46	55	41	64	48	55	41
Strongly agree	31	23	24	18	20	15	39	29	23	17
Total	134	100	134	100	134	100	134	100	134	100

<b>Product Characteristics</b>										
	Customized Products		Better Quality		Ease of Use		Competitive Prices		Differentiation	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Strongly disagree	8	6	9	7	4	3	10	7	6	4
Disagree	5	4	7	5	18	13	13	10	11	8
Neutral	28	21	26	19	33	25	35	26	35	26
Agree	66	49	59	44	51	38	53	40	56	42
Strongly agree	27	20	33	25	28	21	23	17	26	19
Total	134	100	134	100	134	100	134	100	134	100

<b>Market Structure</b>										
	No. of Buyers		No. of similar SMEs		Ability to Set Prices		Government Regulations		Geographical Distance Btwn Shop	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Strongly disagree	6	4	5	4	14	10	8	6	8	6
Disagree	12	9	21	16	26	19	8	6	16	12
Neutral	34	25	42	31	38	28	29	22	42	31
Agree	57	43	51	38	40	30	69	51	54	40
Strongly agree	25	19	15	11	16	12	20	15	14	10
Total	134	100	134	100	134	100	134	100	134	100

<b>Customer Characteristics</b>										
	Customer's age		Customer's gender		Customer's marital status		Customer's level of income		Customer's occupation	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Strongly disagree	12	9	16	12	25	19	14	10	13	10
Disagree	14	10	15	11	16	12	11	8	13	10
Neutral	30	22	34	25	33	25	27	20	33	25
Agree	52	39	48	36	38	28	60	45	48	36
Strongly agree	26	19	21	16	22	16	22	16	27	20
Total	134	100	134	100	134	100	134	100	134	100

Availability of Resources										
	Resources availability		Reliable are the resources		Government favorable policies		Reduced availability		Need to access resources	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Strongly disagree	13	10	15	11	12	9	20	15	11	8
Disagree	12	9	19	14	19	14	15	11	13	10
Neutral	27	20	26	19	29	22	30	22	35	26
Agree	51	38	45	34	50	37	50	37	49	37
Strongly agree	31	23	29	22	24	18	19	14	26	19
Total	134	100	134	100	134	100	134	100	134	100