RELATIONSHIP BETWEEN INNOVATIONS AND ENTERPRISE GROWTH AMONG SMALL AND MEDIUM ELECTRICAL MACHINERY ENTERPRISES IN KENYA

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Relationship between Innovations and Enterprise Growth Among Small and Medium Electrical Machinery Enterprises in Kenya

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other University.

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DEDICATION

To my parents: the late Simeon Gichana; and Peris Gichana for the role they played in shaping my life and for teaching me the values of hard work, integrity and excellence.

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LIST OF ACRONYMS

GCR	Global Competitiveness Report
GDP	Growth Domestic Product
ICT	Information and Communication Technology
LSEs	Large Scale Enterprises
NPD	New Product Development
OE	Entrepreneurial Orientation
R&D	Research and Development
SADC	Southern African Development Community
SME	Small and Medium-Sized Enterprise
SMEs	Small and Medium-Sized Enterprises
SMEMEs	Small and Medium Electrical Machinery Enterprises
SPSS	Statistical Package for Social Sciences
UAE	United Arab Emirates
GOK	Government of Kenya

DEFINITION OF TERMS

Enterprise: Means an undertaking or a business concern whether formal or informal engaged in production of goods or provision of services (Government of Kenya, 2012).

Enterprise growth: Is the development process that enterprise keeps the tendencies of balanced and stable growth of total performance level including output, sales volume, profit and asset gross or keeps realizing the large enhancement of total performance and the stage spanning of development quality and level (Mao, 2009).

Entrepreneurship: Identifying an opportunity in the marketplace and accessing resources to exploit it for personal gain. It is a science, art, theory, practice, process and discipline (Bwisa, 2011).

Growth: An increase in factors of production, improvements in the efficiency of allocation across economic activities, knowledge and the rate of innovation (Braunerhjelm, 2010).

Hypothesis: A proposition or explanation about phenomenon, events or occurrences that a researcher attempts to support or refute using observed data (Cooper & Schindler, 2011).

Innovation: A product, process, service or idea which is novel; an improved use of a new product, service or method in industry, business or society (GOK, 2013).

Null hypothesis: This is the proposition that states no differences or relationships between variables (Mugenda & Mugenda, 2012).

Research and development: A means of creating wealth and enhancing human development and is a critical component of higher education and training. It also plays a vital role in industrial transformation, economic growth, and poverty reduction (GOK, 2005).

Small and medium electrical machinery enterprise:

Means a firm, trade, service, industry or a business activity whose annual turnover ranges between five hundred thousand shillings and one hundred million shillings; which employs between ten and one hundred people; and whose total assets and financial investment shall be as determined by the cabinet secretary of the ministry for the time being responsible for matters relating to small and medium enterprises, and includes the manufacturing sector, where the investment in plant and machinery as well as the registered capital of the enterprise is between ten million and one hundred million shillings; and service and electrical machinery enterprises, where the equipment investment as well as registered capital of the enterprise is between ten million and one hundred million shillings (GOK, 2012).

ABSTRACT

Small and Medium Electrical Machinery Enterprises (SMEMEs) in Nairobi City County in Kenya have traditionally provided permanent employment to skilled artisans, craftsmen, technicians, engineers and managers. Their wide range of activities has also served as means of providing relevant industrial field attachment placement to trainees in tertiary institutions and universities to acquire practical skills needed for national development. Notwithstanding, the important contribution that they have made the SMEMEs have not sufficiently responded to the increasing demand for these services. This research sought to examine the relationship between innovations and enterprise growth among SMEMEs in Nairobi City County. The main objective of the study was to explore and describe the relationship between innovations and enterprise growth among SMEMEs. The study adopted a descriptive survey design. Qualitative and quantitative approaches were used to find out how and in what ways innovations were related to enterprise growth among SMEMEs in Nairobi City County. The target population was all the registered SMEMEs financing and managing their enterprises in Nairobi City County in Kenya. Both probability and non-probability sampling were used to focus on important and in-depth information given by the entrepreneurs in SMEMEs. Stratified probability and purposive non-probability sampling techniques were employed to provide required important and in-depth information with respect to how and in what ways innovations contributed and led to enterprise growth. A stratified random sample of 96 SMEMEs was drawn from a target population of 502. Structured questionnaire, interview guide, and observational form were used to get important and in-depth information on relationship between innovations and enterprise growth. Quantitative data collected was analyzed using statistical package for the social sciences (SPSS) version 18.0. This yielded descriptive and inferential statistics on relationship between innovations and enterprise growth. Relationships and predictions among variables were determined using correlation and regression techniques. The research study found that innovations had positive impact on the enterprise growth. The research recommended that the government should formulate and implement policy to support and sustain innovations and that small and medium electrical machinery enterprises should step-up their innovations for increased enterprise growth and competitiveness.

`CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Small and medium entrepreneurial enterprises play an important role in economic development of many countries in the world. This is because they have potential of employing many people in situations where formal employment may be scarce. SMEMEs are entrepreneurial as they apply creativity and innovation to enhance their performance. In Kenya several programs, policies, strategies and flagship projects on entrepreneurship development have been formulated to promote the growth of SMEMEs. Yet, the SMEMEs appeared not to have taken the advantage of innovations to develop growth. According to Braunerhjelm (2010), a society's ability to increase its wealth and welfare over time critically hinged on its potential to develop, exploit and diffuse knowledge, thereby influencing growth. This does not seem to apply in the case of the SMEMEs in Nairobi County. The role of the manufacturing sector in Kenya's vision 2030 is to support the country's social-economic development agenda by creating jobs, generating wealth, and attracting foreign direct investments (Government of the Republic of Kenya, 2008). The SMEMEs appear not prepared to make their rightful contribution to this end. It is also expected that the sector will continue to provide impetus towards achievement of the millennium development goals in both the medium and long term particularly goal one on eradication of extreme poverty and hunger and goal eight on global partnerships for development.

Over the medium term plan period 2008–2012, the overall goal of the sector was to increase its contribution to gross domestic product by at least 10% per annum. To achieve this, the following objectives were pursued: strengthen production capacity and local content of domestically–manufactured goods; increase the generation and utilization of research and development results; raise the share of products in the regional market from 7 % to 15 %; and develop niche products for existing and new markets. The contribution of the manufacturing sector to the gross domestic product

increased marginally from 10.4 % in 2007 to 10.6 % in 2008. It then declined by about one percentage point to 9.5 % in 2009. The medium term plan (2008 – 2012) envisaged the contribution of the manufacturing sector to the country's gross domestic product to increase by at least 10 % per annum (Government of the Republic of Kenya, 2011). However, the sector performance has continued to drift away from the medium term plan targets. Some of the emerging issues and challenges facing the manufacturing sector include: low value addition and narrow export base; and low technology, innovation, and research and development uptake.

On the other hand, the performance of the SMEMEs sub-sector of the manufacturing sector is not achieving the set targets. Most entrepreneurs in this sub-sector seem to be engaged in the production of low value-added and limited range of products due to limited technological capability and limited information on opportunities (Government of the Republic of Kenya, 2008). These factors, perhaps, have contributed to limited scope for product diversification and expansion of exports base. The narrow product range and focus on few markets seem to have restricted the growth of exports from the sub-sector. This appears to have hindered expansion of manufacturing activities in the SMEMEs sub-sector. Perhaps, leading to reduction in outputs and employment levels in the sub-sector. The pressing issue is that, innovation efforts of the SMEMEs appear not to have effectively kept pace with changing consumer demands and level of competition in the international markets (Government of the Republic of Kenya, 2008). The culture of embracing technology, innovation and research and development in the sub-sector seems to be non-existent for the expected level of growth to be achieved. This study sought to determine how innovation as a purposeful and focused effort might develop growth of SMEMEs in Nairobi County, Kenya. There is seemingly lack of institutionalization of incentives for promotion and efficient use of existing knowledge, creation of new knowledge and flourishing of entrepreneurship activities which will increase the capacity and competitiveness of the SMEMEs. Low capacity for intellectual property rights is perhaps another disincentive to innovation that faces the SMEMEs.

Consequently, there seems to be key innovation policy issues that need to be addressed for the SMEMEs to perform as expected. Faced with the challenges of increased globalization of markets and of technological change, SMEMEs need reinforced support through transnational research cooperation to enhance their innovation and research investment (Ebrahim, Ahmed & Taha, 2008). To compete with global competition, and overcome rapid technology change and product variety proliferation in the new manufacturing environment, SMEMEs must be able to sustain product innovation. One very important trend to enable new knowledge creation and transfer in and to SMEMEs is the development of collaborative environments and networks to increase their innovation capabilities as a single unit but also the capabilities of the network as a whole through collective learning (Flores, 2006).

SMEMEs, as an engine of growth, play a particularly important role in developing countries for poverty reduction which have attracted the attention of scholars in recent years (Talebi & Tajeddin, 2011). The trend of this sub-sector indicates that new product development is based on innovation and there are still a lot of opportunities enhancing its exploration. The expected role of entrepreneurial SMEMEs as the key source of competitive innovations is an expectation that reflects Schumpeter's (1934, 1942) continuing influence as pointed out by Talebi and Tajeddin (2011).

To survive in the new competitive environment, no SMEMEs can afford to stand still. All have to be open to new ideas, new ways of working, new tools and equipment, and should be able to absorb and benefit from them. According to Talebi and Tajeddin (2011), a policy to enhance innovations must be present in a modern Small and Medium Enterprise (SME) policy as one of its main components. Small and Medium Enterprises (SMEs) are considered to be an engine for growth in both developed and developing countries (Sharif, Ahmad & Ismail, 2009). The benefits of vibrant SMEMEs include: the creation of employment opportunities; the strengthening of industrial linkages; the promotion of flexibility and innovation; and the generation of export revenues. To sustain growth, Kenya's economy needs to be

supported by its SMEMEs, because Large Scale Enterprises (LSEs) may have negative as well as positive effects on its stability. SMEMEs have the ability to innovate, diversify, and create new jobs. Since innovation is a condition inherent in the domain of entrepreneurship, an enterprise's ability to launch successful product innovations should be considered in parallel (Avlonitis & Salavou, 2007). Hence, entrepreneurial orientation profiles of enterprises suggesting variations in product innovation dimensions of different performance potential may be crucial to become subject of investigation in order to provide additional explanations of how the enterprises adapted to a state of flux where the very basis of competition within the corporate environment is constantly and globally redefined. Adaptation to shifting landscapes through innovation aspects of entrepreneurship and successful product innovation is of major concern for SMEMEs

Among the many drivers of innovation, researchers have paid a growing attention to the internal factors leading to innovative behaviors by individuals (Marcati, Guido & Peluso, 2008). These factors are associated with the attributes of the innovative entrepreneurs and can be viewed as the psychological underpinnings of the human capital existing in an enterprise, as it referred to the stock of experience, skills, knowledge, and accumulated by its employees over time. These factors have recently been associated with different research areas such as the establishment and success of new ventures, industry-university relationships, the role of incubators and the like. Reference has very often been made in the research literature to the role entrepreneurs play in stimulating innovation according to the traditional Schumpeter's (1965) approach. It postulates the existence of a strong link between innovation and entrepreneurial activity and portrays entrepreneurs as " innovators '' (Schumpeter, 1965, p. 55), that is, as catalysts of change who continuously do things that have not been done before and who do not fit established patterns (Schwartz & Malach-Pines, 2007).

The focus on SMEs was particularly justified when investigating innovations in the context of SMEMEs, where the role of entrepreneurs in fostering innovation was especially important, since the innovation-related research had consistently shown that entrepreneurs were the main locus and driver of innovations. According to

Hisrich, Langan-Fox and Grant (2007), entrepreneurship was a major source of employment, economic growth and innovation, promoting product and service quality, competition and economic flexibility. It was also a mechanism by which many people entered the society's economic and social mainstream, aided culture formation, population integration and social mobility. Rensburg, Smit and Veldsman (2008) provided an overview of the changing emphasis that had been experienced within the system of innovation as some Southern African Development Community (SADC) information and communication technology researchers had realized the pressing need to focus more extensively on understanding and addressing business development aspects in the transferring of technology to rural areas.

In today's competitive business environment, innovations were critical not only to facilitate differentiation, but also to reduce cost and add value for the customers (Juri & Idris, 2008). Kenya vision 2030 is the new country's development blueprint covering the period 2008 to 2030 (Government of the Republic of Kenya, 2007). The aim will be making Kenya a newly industrializing, middle income country providing high quality life for all its citizens by the year 2030.This will be based on the creation of international competitiveness through more efficient productivity at the enterprise and household level, with government support. All the strategies and flagship projects will exploit knowledge in science; technology; and innovation in order to function more efficiently, improve social welfare, and also promote democratic governance. Kenya aims to become the provider of choice for basic manufactured goods for Eastern and Central Africa. This will be done through competitiveness in manufacturing in order to promote efficiencies. This was expected to be done in partnership with the government. Specific strategies will involve: restructuring key local enterprises that use local raw materials but that had no competitive edge; exploiting opportunities in adding value to imports; and capturing the last step of value addition.

The flagship projects for manufacturing for 2012 are: the development of the concept, piloting and establishment of at least two special economic clusters in related industries located together and the development of the concept and piloting and

creation of at least five SME industrial parks. Despite these strategies and flagship projects, the SMEMEs will require relevant information on innovation types for them to exploit the available opportunities for growth. The Kenyan economy exhibited limited levels on innovations required to foster increased output and productivity improvements necessary for employment and wealth creation (Government of the Republic of Kenya, 2008). The performance of the SMEMEs sub-sector of the manufacturing sector was negative. It was against this background that this study set out to investigate the innovation types that contributed and led to enterprise growth among SMEMEs in Nairobi County, Kenya.

1.2 Statement of the problem

One of the problems facing the Kenyan economy is unemployment. This is due to low economic growth, corruption, nepotism and the negative attitudes towards entrepreneurship. Approximately 503,500 graduates from a pool of 1,374,360 graduates from various tertiary academic institutions in Kenya enter the job market annually. More than 870,860 graduates remain unemployed annually because of the weak economic performance and the public sector reforms, which have adversely affected employment in Kenya. Enhancing levels of innovation and entrepreneurship to grow a more competitive economy is the focus of much government effort (Nteere, Namusonge & Mukulu, 2012). Universities and technical training institutions in Kenya aware of the significance of developing entrepreneurial potential are focusing equipping students with skills and understanding to contribute to business creation and to innovations within organizations they join through provision of transferable skills.

Manufacturing as a key sector in the Kenyan economy contributes substantially to growth in output, exports and employment. However, production in the SMEMEs sub-sector's growth declined for the fifth year in a row for the period 2006-2010 (Kenya National Bureau of Statistics, 2011). From 2005-2009 the employment obtained in the sub-sector was on a downward trend. For instance, in 2005 the numbers engaged in the SMEMEs sub-sector was 2,481; by 2009 this number had

dropped to 1,877. Value added in the sub-sector in 2005 stood at ksh. 3,054 million, declining to ksh. 2,282 million in 2009 (Kenya National Bureau of Statistics, 2010).

Based on this problematic performance in the SMEMEs sub-sector of the manufacturing sector in Nairobi County, Kenya and considering that innovation of SMEMEs may not be about having more technological innovations but about the right attitude and understanding how to make best out of innovations in a specific situation, the SMEMEs have not achieved their expected growth target. Hence, the SMEMEs have not sufficiently supported Nairobi County's social – economic development agenda. These SMEMEs are seemingly facing the challenges of entrepreneurial innovations and entrepreneurial growth. There is little information to explain causes of these challenges. SMEMEs, as an engine of growth, play a particularly important role in poverty reduction. One way of enhancing their performance is through innovation. Yet, lack of sufficient information on innovation as the creation of better or more effective products, processes, services, technologies, or ideas that are readily available to markets, governments and society has made the SMEMEs not to realize their expected growth. Not many studies have addressed this issue adequately. There was an urgent need to determine the critical innovation aspects that hindered enterprise growth among SMEMEs in Nairobi City County in Kenya. This is important because for a country like Kenya that is endeavoring to industrialize by the year 2030, the competitiveness of the SMEMEs sub-sector is critical (Government of the Republic of Kenya, 2011). The aim of this study was to establish how SMEMEs could take advantage of innovation to realize the expected growth. The study focused on entrepreneurial innovation behaviors that influenced enterprise growth among SMEMEs in Nairobi City County in Kenya.

1.3 Objectives
1.3.1 General objective
The general objective of this research was to explore the relationship between innovations and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya.

1.3.2 Specific objectives

This research was guided by the following specific objectives:

1. To establish the relationship between innovation products and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County.

2. To determine the relationship between innovation processes and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County.

3. To examine the relationship between innovation services and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County.

4. To establish the relationship between innovation technologies and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County

5. To determine the relationship between innovation ideas and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County.

6. To examine the effect of entrepreneur demographics on the relationship between innovations and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County.

7. To establish the effect of enterprise demographics on the relationship between innovations and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County.

1.4 Research questions

This research addressed the following questions:

1. How do innovation products relate to enterprise growth of small and medium electrical machinery enterprises in Nairobi City County?

2. In what ways do innovation processes relate to enterprise growth of small and medium electrical machinery enterprises in Nairobi City County?

3. How do innovation services relate to enterprise growth of small and medium electrical machinery enterprises in Nairobi City County?

4. In what ways do innovation technologies relate to enterprise growth of small and medium electrical machinery enterprises in Nairobi City County?

5. How do innovation ideas relate to enterprise growth among small and medium electrical machinery enterprises in Nairobi City County?

6. How do entrepreneur demographics affect the relationship between innovations and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County?

7. How do enterprise demographics affect the relationship between innovations and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County?

1.5 Research hypothesis

In order to answer the research objectives that were set out, this study was guided by the following research hypotheses:

$H_{o1:}$ There is no relationship between innovation products and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County in Kenya.

$H_{a1:}$ There is a relationship between innovation products and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County in Kenya.

$H_{o2:}$ There is no relationship between innovation processes and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County in Kenya.

$H_{a2:}$ There is a relationship between innovation processes and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County in Kenya.

$H_{o3:}$ There is no relationship between innovation services and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County in Kenya.

$H_{a3:}$ There is a relationship between innovation services and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya.

$H_{o4:}$ There is no relationship between innovation technologies and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County in Kenya.

$H_{a4:}$ There is a relationship between innovation technologies and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County in Kenya.

$H_{o5:}$ There is no relationship between innovation ideas and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County in Kenya.

$H_{a5:}$ There is a relationship between innovation ideas and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County in Kenya.

$H_{o6:}$ There is no effect of entrepreneur demographics on the relationship between innovation and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County.

$H_{a6:}$ There is an effect of entrepreneur demographics on the relationship between innovations and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County.

$H_{o7:}$ There is no effect of enterprise demographics on the relationship between innovations and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County.

$H_{a7:}$ There is an effect of enterprise demographics on the relationship between innovations and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County.

1.6 Significance of the study

The importance of the SMEMEs targeted to raise the national gross domestic product growth rate to 10 % per annum cannot be over-emphasized. SMEMEs were major actors of value, production, and employment generation. Unfortunately, the

SMEMEs have continuously registered declines in output. Their performance in output, exports, and employment was dismal. This decline had been occasioned by increased global metal prices, counterfeit dry cells and cheap imports. This had made it difficult for the SMEMEs to contribute adequately to the expected level of the manufacturing sector. Imbuga (2008) pointed out that we were living in a hyper-competitive global environment where businesses and organizations must constantly invent, evolve and refine their products and services if they were to remain competitive and profitable and avoid being outpaced by more innovative competitors. In today's competitive world, for businesses and organizations including universities, nothing would do without scientific technology and innovation. Accelerating innovation and globalization are transforming the drivers of economic growth and development in our time (Lonyangapuo, 2008). SMEMEs have to constantly undertake scientific research and development and be innovative enough to survive the dynamics of globalization and become competitive. The more innovative SMEMEs will be competitive and grow, while the less innovative ones will be overtaken by events which might occasion their loosing local market. Innovation was one of the 12 pillars of competitiveness that the Global Competitiveness Report (GCR) of the world economic forum used as an indicator of an economy's level of competitiveness. Bor, Konditi and Rurimo (2008) in their lead paper: Design, fabrication and analysis of a tunable semiconductor laser, stated that compared to the commercially made tunable diode lasers, this innovation was ten times cheaper in terms of cost and manufacture as it involved the use of locally available materials and machinery.

This study formed a basis for the measurement framework for entrepreneurial innovations in SMEMEs. The research was designed to highlight, among other things, the driving forces behind innovations, the importance, not only of products, processes, services, technologies and ideas but also of organizational and marketing practices, the role of linkages and diffusion, and the view of innovation as a system. The link between entrepreneurial innovation and economic change was of central interest and therefore was the main reason as to why this study was undertaken in Nairobi City County in Kenya. This was due to the premise that through innovation, new knowledge was created and diffused thus expanding the County's economic

potential to develop new products and more productive methods of operation. Such improvements depended not only on technological knowledge, but also on other forms of knowledge that were used to develop products, processes, organizational and marketing innovations. Most importantly, specific types of innovation could differ greatly in their impact on firm performance and on economic change. For this reason, it was important to investigate implementation and impacts of relationship between innovations and enterprise growth among SMEMEs in Nairobi City County in Kenya.

There was an urgent need to investigate the critical effect of entrepreneurial innovation on the entrepreneurial growth of SMEMEs to initiate and constitute change in the county. This change would be accompanied by growth and increased output, which allowed more wealth, output and exports, new enterprises, employment and income generation in the sub-sector. That will lead to poverty alleviation, increased government revenue, higher productivity and innovations in the sub-sector. It is true that the SMEMEs in Nairobi City County in Kenya cannot solve all the unemployment problems in the county, but there was need to determine the relationship between innovations and enterprise growth among SMEMEs in an effort to revamp the economy of this County. And at the same time make their expected contribution to the overall performance of the economy thus, confirming the true and fair share of the SMEMEs in curbing unemployment in Nairobi City County in Kenya. It is expected that the knowledge gained from this study will provide some insight into the state of the art for SMEMEs in Nairobi City County. The knowledge gained from this study will help policy makers, managers, administrators, entrepreneurs, researchers, consultants, scholars and trainers involved in entrepreneurship development.

1.7 Scope

This research was limited to those SMEMEs in Nairobi City County in Kenya. This was because a strong foundation has been put into place. Sensible pro-growth government policy, more diversified economy, and an innovation ecosystem of startups, international companies and universities (Court, 2015). Nairobi has the

opportunity to build an exciting future for its citizens, businesses and institutions. According to Intelligent Community Forum 2015, "intelligent communities" are those that have taken "conscious steps" to create an economy that can prosper in the "broadband economy". Kenya's busy capital City, Nairobi, has been crowned the most intelligent City in Africa by Intelligent Community Forum. City was particularly well placed to deal with the challenges of the broadband economy.

The statistical unit for the research was the enterprise. An enterprise refers to a business, company or firm and can range from a very small concern with only one or two employees to a much larger and more formal business or firm. The research concentrated on relationship between innovations and enterprise growth among SMEMEs in the manufacturing sector in Nairobi City County in Kenya. Field studies covered Nairobi West, Nairobi East, Nairobi North and Westlands. The study explored the relationship between innovations and enterprise growth among SMEMEs involved in design, fabrication, and commercialization of products, processes and services in Nairobi City County in Kenya.

1.8 Limitations of the study

The major challenge faced during the research was accessibility to the entrepreneurs. Most of them were busy hence offering limited time to acquire the information required. This was however adequately addressed by use of persuasion. The researcher created a rapport with the respondents by breaking the ice through small talk upon first introduction and then explaining the purpose of the research and the usefulness of the information collected. This helped the respondents to view themselves as contributing positively to the outcome of the research. The researcher in this study pointed out to the respondents that the information requested would be confidential and the respondent's name would not be used in the research report. Ideally, no respondent for this study was coerced into giving information.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This review: provides an overview of what is known about the forces that underpin the creation of knowledge, its diffusion and commercialization through innovation, and the role of the SMEs in the growth process; examines a hyper-competitive global environment where SMEs must constantly invent, evolve and refine their products and services if they are to remain competitive and profitable and avoid being outpaced by more innovative competitors; focuses on innovation as the process by which SMEs convert opportunities into marketable solutions; makes an assessment on the fact that despite innovation and growth being key to economic revival, the economy remain weak, growth has stalled, and unemployment is high; identifies innovation as inextricably linked with economic growth and as the primary driver behind job creation and the rising quality of life; examines innovation as the creation of better or more effective products, processes, services, technologies, or ideas that are readily available to markets, governments, and society.

2.2 Theoretical framework

The theoretical framework of this research encompassed empirical and theoretical literature relevant to innovations and enterprise growth of SMEs locally, nationally, regionally and internationally. The research was built on economic, cultural, sociological, psychological, resource-based, and opportunity-based entrepreneurship theories. The theoretical framework of this study summarizes what has been done by other researchers on enterprising behaviors. The methodologies used by these researchers were also taken into consideration. The framework identified gaps relevant to entrepreneurial innovations and entrepreneurial growth of SMEs.

2.2.1 Economic entrepreneurship theory

Schumpeterian economic growth theory that included an entrepreneur was an innovator, the economy moved through leaps and bounds, and the prime mover was the entrepreneur through the process of creative destruction. According to Schumpeter (1934, 1939, 1942) an entrepreneur was one who perceived the opportunities to innovate, that was to carry out new combinations or enterprise. The concept of new combinations leading to innovation covered the following five cases. First, the introduction of new goods. Second, the introduction of new method of production. Third, the opening of new market. Fourth, the conquest of new source of supply of raw material. Fifth, the carrying out of new organization.

The Schumpeterian theory of economic growth that is referred to as Schumpeter's theory of innovation had the following four features: distinction between invention and innovation; emphasis on entrepreneurial function in economic development where development meant basic transformation of the economy that was brought about by entrepreneurial functions; presentation of disequilibrium situation through entrepreneurial activity – the entrepreneurial activity represented a disequilibrium situation, a dynamic phenomenon and a break from the routine or a circular flow or tendency towards equilibrium; and entrepreneurialism dream and the will to found a private kingdom – the motives of creating things and applying these things into practice inspired the entrepreneur to innovate. According to Trott (2012), Schumpeter (1934, 1939, and 1942) was among the first economists to emphasize the importance of new products as stimuli to economic growth.

Schumpeter argued that the competition posed by new products was more important than marginal changes in the prices of existing products. This means that economies are more likely to experience growth due to the development of new products than to reductions in prices of existing products. One important insight arising from Schumpeter's ideas is that innovation can be seen as creative destruction waves that restructure the whole market in favor of those who grasp discontinuities faster (Trott, 2012). Moreover, it is the recognition of the entrepreneur's desire to change things

that is so important within innovation. The role of an entrepreneur is central to innovation management.

2.2.2 Cultural entrepreneurship theory

Cultural entrepreneurship model says that new venture is created by the influence of one's culture (Simpeh, 2011). Cultural practices lead to entrepreneurial attitudes such as innovation that also lead to venture creation behavior.

The cultural entrepreneurship model says that new venture is created by the influence of one's culture (Simpeh, 2011). Cultural practices lead to entrepreneurial attitudes such as innovation that also lead to venture creation behavior. Culture reflects origin, developments, customs, and beliefs of a community.

2.2.3 Sociological entrepreneurship theory

Sociological enterprise focuses on the social context (Simpeh, 2011). In other words, in the sociological theories the level of analysis was traditionally the society. Four social contexts that were related to entrepreneurial opportunity are identified. The first one was social networks where the focus was on building social relationships and bonds that promoted trust and not opportunism. In other words, the entrepreneur should not take undue advantage of people to be successful; rather success came as a result of keeping faith with the people.

The second was called the life course stage context which involved analyzing the life situations and characteristic of individuals who had decided to become entrepreneurs. The experiences of people could influence their thought and action so they wanted to do something meaningful with their lives. The third context was ethnic identification. One's sociological background was one of the decisive "push" factors to become an entrepreneur. For example, the social background of a person determined how far he/she could go. Marginalized groups might violate all obstacles and strive for success, spurred on by their disadvantaged background to make life better.

The fourth social context was called population ecology. The idea was that environmental factors played an important role in survival of businesses. The political system, government legislation, customers, employees and competition were some of the environmental factors that might have impact on survival of new venture or the success of the entrepreneur (Simpeh, 2011).

2.2.4 Psychological entrepreneurship theory

The Psychological entrepreneurship theories emphasized personal characteristics that defined entrepreneurship (Simpeh, 2011). Personality traits need for achievement and locus of control were reviewed and empirical evidence presented for three other new characteristics that had been found associated with entrepreneurial inclination. These are risk taking, innovativeness and tolerance for ambiguity.

Some of the characteristics or behaviors associated with entrepreneurs are that they tended to be more opportunity driven (they nosed around), demonstrated high level of creativity and innovation, and showed high level of management skills and business know-how. Entrepreneurs have also been found to be optimistic, (they saw the cup as half full than as half empty), emotionally resilient and had mental energy, they were hard workers, showed intense commitment and perseverance, they thrived on competitive desire to excel and win, entrepreneurs were dissatisfied with status quo and desired improvement, entrepreneurs were also transformational in nature, who were lifelong learners and used failure as a tool and springboard. They also believed that they could personally make a difference, are individuals of integrity and above all visionary (Simpeh, 2011). However, the trait theory was still not being supported by research evidence.

2.2.5 Resource-based entrepreneurship theory

Financial, social and human capital represents three classes of theories under the resource-based entrepreneurship theories (Simpeh, 2011). By implication this theory suggests that people with financial capital are more able to acquire resources to effectively exploit entrepreneurial opportunities, and set up a firm to do so (Clausen, 2006). In his view, this does not necessarily rule out the possibility of starting a firm without much capital. Entrepreneurs are embedded in a larger social network

structure that constitutes a significant proportion of their opportunity structure (Clausen, 2006). Underlying the human capital entrepreneurship theory are two factors, education and experience (Simpeh, 2011).

2.2.6 Opportunity-based entrepreneurship theory

The opportunity-based entrepreneurship theory is anchored by names such as Peter Drucker and Howard Stevenson. Entrepreneurs do not cause change (as claimed by the Schumpeterian or Austrian School) but exploit the opportunities that change (in technology, consumer preferences etc.) creates (Drucker, 1985). This defines entrepreneur and entrepreneurship, the entrepreneur always searches for change, responds to it, and exploits it as an opportunity. What is apparent in Drucker's opportunity construct is that entrepreneurs have an eye more for possibilities created by change than the problems.

Stevenson (1990) extends Drucker's opportunity-based construct to include resourcefulness. This is based on research to determine the differences between entrepreneurial management and administrative management. He concludes that the hub of entrepreneurial management is the pursuit of opportunity without regard to resources currently controlled. The hypothesized variables in the literature review that formed a framework that helped in analysis in this study follow.

2.3 Conceptual framework

The purpose of the conceptual framework is to help the reader to quickly see the proposed relationship. A conceptual framework of this study was based on the Kenyan experience, and drawn upon numerous works of professional and distinguished authors in entrepreneurship, innovation, and economic growth theories. The independent variables were innovation products, innovation processes, innovation services, innovation technologies, and innovation ideas. They influenced the dependent variable. The dependent variable was enterprise growth of SMEMEs. Enterprise growth of SMEMEs was measured using number of employees, approximate total turnover and innovations. The conceptual framework is shown graphically in Figure 2.1.

```
┌─────────────────────┐
│ Innovation Products:│
│   - New             │
│     products        │
│   - Product         │
│     design          │
│   - R & D           │
│   - Capacity        │
│   - Customers       │
└─────────────────────┘

┌─────────────────────┐
│ Innovation processes:│
│   - New             │
│     processes       │
│   - Transformatio   │
│     nal             │
│   - Production      │
│     method          │
└─────────────────────┘

┌─────────────────────┐
│ Internal Antecedents:│
│   - Management      │
│   - Organization    │
│   - Partnership     │
│ External Antecedents:│
│   - Policy          │
│   - Resources       │
│   - Market          │
│   - Collaboratio    │
│     ns              │
└─────────────────────┘

Antecedent variables

┌─────────────────────┐
│ Innovation services:│
│   - New services    │
│   - Internet        │
│   - Intangibility   │
└─────────────────────┘

┌─────────────────────┐
│ Innovation technologies:│
│   - Development of  │
│     new             │
│     technologies    │
│   - Enabler         │
│   - Strategic trust │
└─────────────────────┘

┌─────────────────────┐
│ Innovation ideas:   │
│   - Conversion of   │
│     new ideas       │
│   - Scanning        │
└─────────────────────┘

Independent variables

┌─────────────────────┐
│ Entrepreneur        │
│ demographics:       │
│   - Age             │
│   - Education       │
│ Enterprise          │
│ demographics:       │
│   - Legal status    │
│   - Geographic      │
│     market          │
└─────────────────────┘

Moderating variables

┌─────────────────────┐
│ Enterprise growth:  │
│   - Size            │
│   - Employees       │
│   - Turnover        │
│   - Profit          │
│   - Net asset       │
└─────────────────────┘

Dependent variable
```

Figure 2.1: Conceptual Framework of Enterprise Growth

2.3.1 Antecedent variables

According to Mugenda and Mugenda (2012), antecedent variable is a variable that comes before the independent and dependent variables in a linear sequence. The researcher in this study hypothesized that antecedent variables would enable independent variables that would in turn lead to increased performance of the dependent variable. Antecedent variables did not interfere with the established relationship between the independent and dependent variables but they tended to clarify the influence that preceded such a relationship.

The antecedent variables in this research were categorized into two environments. The first environment was the internal environment that comprised of micro-environmental determinants such as management orientation, organizational culture, technology orientation, alliance and cooperation and market orientation that could facilitate or hinder the enterprise's ability to innovate, either by enhancing or inhibiting its innovative behaviors (Al-Ansari, 2014).

The second environment was the external environment that consisted of macro-environmental determinants such as government supported developments, financial resources, academic-industry collaborations and market dynamics that could directly affect the enterprise's attitude toward innovation, either by stimulating or inhibiting its innovative activities (Al-Ansari, 2014).

All the variables, including the antecedent variable, were related in some logical time sequence. When the influence of the independent variable on the dependent variable is statistically removed, there should not be any relationship between the antecedent variable and the dependent variable. Probing into causal sequences is of great importance in understanding many phenomena; it is possible to carry linear relationship as far back as is theoretically meaningful (Mugenda & Mugenda, 2012).

2.3.2 Innovation products

The innovation products variable was guided by economic entrepreneurship theory that explored the economic factors that enhanced entrepreneurial innovation behavior. The innovation products is also steered by resource –based entrepreneurship theory that argues access resources by founders is an important predictor of opportunity based entrepreneurship and new venture growth (Alvarez & Businitz, 2001).

Trott (2012) places particular emphasis on need to view innovation as a management process. A cyclic innovation model is introduced which emphasized importance of internal processes and external linkages. Innovation has long been argued to be an engine of growth. Success in the future, as in the past, will surely lie in the ability to acquire and utilize knowledge and apply this to the development of new products. Uncovering how to do these remained one of today's most pressing management problems (Trott, 2012).

Product innovation is about making beneficial changes to physical products (O'sullivan, & Dooley, 2009). Related terms that are often used interchangeably include product design, research and development (R&D), and new product development (NPD). Each of these terms offers a particular perspective on the degree of changes to products. The degree of change could include the following: incremental improvements, additions to product families, next – generation products and new core products. The product development process for next-generation and new core products followed a familiar cycle in most organizations (Cooper, 2000): ideation, preliminary investigation, detailed investigation, development, testing and validation, market launch and full production. Each of these steps involves interaction with customers, who may participate in idea generation and feature recognition.

Key performance criteria in the design process revolved around the following (Smith & Reinertsen, 1995): time to market, product cost, and customer benefit delivery and

development costs. Three design methods have established themselves as providing a management system for effective product innovation: phase review, stage gate and cycle time excellence. The phase review method divides the product development life cycle into a series of distinct phases. A significant criticism of this approach was the poor coordination between phases, which could result in significant delays and rework. The stage gate method was a concurrent product design process that followed a predetermined life cycle from concept generation to market launch (Cooper, 2000). This method identified a number of roles for people involved in the process. The product and cycle time excellence method was concerned primarily with developing product development strategies. The method linked product strategy with the overall strategy and vision of the organization. A key feature was deploying the voice of the customer throughout the product design process. Strategies are divided into six product strategic thrusts: expansion, innovation, strategic balance, platform strategy, product line strategy and competitive strategy. As customer needs change and as markets adapt to a changing competitive environment, design teams often failed to recognize changes or disruptions to existing product requirements. Successful organizations were capable of taking a broader perspective, recognizing the potential of disruptive technologies and then creating new products that meet the unforeseen needs of customers.

According to Gathenya, Bwisa and Kihoro (2011) SMEs can improve their performance through entrepreneurial strategic planning practices. Innovativeness and creativity geared towards enhancing performance should be core for these SMEs in fostering competitive advantage. Small and Medium Enterprises (SMEs) are increasingly gaining prominence the world over as effective and efficient vehicles for job creation, poverty reduction and economic development (Gakure & Kirima, 2011). SMEs required particular and special consideration to unlock their potentials by putting in place mechanisms which encourage and facilitate enterprises to be innovative and become globally competitive. Enterprises achieved competitive advantage through acts of innovation, which could be manifested in a new product design, a new production process, a new marketing approach or a new way of doing business.

Avlonitis and Salavou (2007) looks beyond the entrepreneurial orientation (OE) – performance link and focused on identifying EO profiles of SMEs to suggest variations in product – innovativeness dimensions of different performance potential. Based upon a sample of 149 manufacturing companies, Avlonitis and Salavou (2007) identified two opposite groups with the help of a cluster analysis, namely the active entrepreneurs and passive entrepreneurs. The SMEs under analysis came from two traditional, though dynamic, manufacturing industries, those of food and beverage and textile. Both industries accounted for the 39% of the total sales and 35% of the total net profits in the Greek manufacturing sector while constituting approximately 44% of the total number of manufacturing enterprise. The following points also dictated their choice: the importance of these industries for the Greek economy in terms of manufacturing employment (51%), manufacturing production (50%) and contribution to GDP (39%); and the opportunity they provided for studying how SMEs, faced with heightened global competition, shaped EO profiles along with aspects of product innovativeness and performance.

Product innovativeness is a concept of emerging attention to both researchers and practitioners, since it referred to the level of innovativeness embodied in each new product. A significant part of research used product innovativeness to explore its relationship with product performance. Unfortunately, few entrepreneurship research studies focused on combining the key concepts of EO and product innovativeness. There is no study addressing specifically the question of how product innovativeness dimensions vary among divergent entrepreneurial postures of SMEs and how they might be related to product performance. This study attempted to narrow this gap, at least partially, by extending the first question to include this investigation.

According to Bwisa (2011), Peter Drucker agreed with Schumpeter and elaborated that innovation is the means by which the entrepreneur either creates new wealth-producing resources or endows existing resources with enhanced potential for creating wealth. Successful innovation was a systematic, purposeful, visionary and mission-oriented activity. Trott (2012) and Bwisa (2011) used an equation to show

the relationship between innovation and invention. Innovation was a function of theoretical conception, technical invention and commercial exploitation. This equation suggested three major foundations through which innovation occurred. The science foundation dominated R&D institutions including R&D departments in industry, the development foundation dominated by industry and the market foundation. Bwisa (2011) argues that an entrepreneur systematically and purposefully tries to create new and different values and new and different satisfactions, to convert a material into a resource or combine existing resources in a new and more productive configuration.

On models of innovation, Bwisa (2011) identifies three schools of thought. They include social deterministic school, which argues that innovations are a result of a combination of external social factors and influences such as demographic changes, economic influences and cultural changes; individualistic school, which argues that innovations are a result of unique individual talents and innovators are born; and unexpected discovery school, which highlights the importance of the unexpected discovery. The role of serendipity or luck was offered as an explanation for innovations. Yet, entrepreneurship refuses mere luck and advocates for systematic, purposeful effort if success had to be achieved (Bwisa, 2011). The innovation products variable was operationalized by the following indicators: degree of satisfaction with products, level of contribution of products and level of development of new products

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2.3.3 Innovation processes

The innovation processes variable was directed by sociological entrepreneurship theory, opportunity-based entrepreneurship theory and psychological entrepreneurship theory. Relating to sociological theory of entrepreneurship, the level of analysis was the society. The social contexts that relates to entrepreneurial opportunity include: social networks, life course stage, ethnic identification and population ecology. Concerning opportunity-based entrepreneurship theory, the entrepreneur always searches for change, responds to it and exploits it as an opportunity. The hub of entrepreneurial management was the pursuit of opportunity without regard to resources currently controlled. According to Psychological entrepreneurship theory; risk taking, innovativeness, need for achievement and tolerance for ambiguity had positive and significant influence on entrepreneurial inclination.

Process innovation was viewed as the introduction of a new or significantly improved method for the production or delivery of output that added value to the organization (O'sullivan & Dooley, 2009). The term process refers to an interrelated set of activities designed to transform inputs into a specified output for the customer. It implied a strong emphasis on how work is done within an organization rather than what an organization does (Davenport, 1992). Processes relate to all operational activities by which value is offered to the end customer, such as the acquisition of raw materials, manufacturing, and logistics and after - sales services. Process

innovation gave industries a competitive advantage that allows them to dominate some global markets with products. Similarly, process innovation allowed organizations to gain competitive advantage by providing higher – quality products, delivered faster and more efficiently to the market than by the competition. The Process innovation results in organizational improvements such as lower stock levels, faster, more agile manufacturing processes and more responsive logistics. A number of common approaches to process innovation have emerged through the work of operations and quality management movements over the past 24 years. Although these might not be applicable to all organizations, they could stimulate the innovation process. The more common approaches put forward by O'sullivan and Dooley (2009) include: just-in-time, total quality management, lean manufacturing, supply chain management and enterprise resource planning.

Talebi and Tajeddin (2011) explored the capacity of SMEs in absorbing and managing knowledge as a prior condition to innovations and entrepreneurial growth. They examined the effects of experiential and formal knowledge on the development of SMEs absorptive capacity. The mixed method was used as the research method. Talebi and Tajeddin (2011) made a significant contribution to the identification of priorities for public SME development support and areas where entrepreneurship trainers could maximize their economic and developmental impact. The evolutionary approach to innovation and economic growth emphasized the complex, uncertain and interdependent nature of technological change. Central to this conception of the process of innovation was the role of SMEs and entrepreneurs. These individual economic agents and organizations were endowed with an access to different knowledge – bases in different sets of organization and technological capabilities and even with different risk profiles.

The innovation process within the SME is characterized by uncertainty and develops through a variety of heuristic search techniques. SMEs faced major challenges such as keeping the firm's capabilities, resources and routines up to date, maintaining the owner/manager's entrepreneurial and management competences and acquiring new knowledge, which raised issues concerning the source of information. ICT was seen

as providing support for these processes, both internally and, also in relations, externally with other firms. The development of ICT – mediated formal and informal links between SMEs and the growth of virtual clusters or industrial districts fits the knowledge management approach, but it was an under – researched area, and as such, little is yet known about it.

Much of the past literature reflected a belief that the nature of the entrepreneur allied to the particular properties of the small enterprise as a method of organization was particularly appropriate for innovative or creative activities. Various factors have contributed to this belief that: the notion of the entrepreneur as a mold maker, the link between open and organic organization and creativity; the proportion that smallness, decisiveness and flexibility counterbalance absolute investment and the evidence that small businesses accounted for a disproportionate number of new processes and products. Trait descriptions for the innovation scale of Jackson Personality Inventory (JPI) revealed that: description of high scorer: creative and inventive individual; capable of originality of thought; motivated to develop novel solutions to problems; values new ideas; likes to improvise. Defining trait adjectives: ingenius, original, innovative, productive and imaginative. And description of low scorer: has little creative motivation; seldom seeks originality; conservative thinker; prefers routine activities. Defining trait adjectives: unimaginative, deliberate, practical, sober, prosaic, literal, uninventive, routine. However, the existing research seemed to agree that market-oriented innovativeness was the key factor that defined an entrepreneur.

Empirical studies have gone so far as to suggest that innovativeness was the most significant component of the entrepreneurial personality. Innovativeness is a factor distinguishing entrepreneurs from less innovative managers and small business owners. Studies of differences in preferences for innovation between these two groups have showed that entrepreneurs tend to set up a business principally for profit and growth. The less innovative ones, small business owners and managers often found a business primarily in order to attain personal goals and/or to provide family income. Founders of fast-growing firms scored significantly higher on

innovativeness than individuals holding managerial positions. It was also established that entrepreneurs expressed desire to introduce novel and innovative solutions. These studies have led researchers to the assumption that entrepreneurs tend to be more innovative in their predisposition than their corporate counterparts.

Aside from schools of thought on innovation, literature has some models of the process of innovation. These models purport to explain how innovation occurs. Drucker (1986) gives seven sources of entrepreneurial innovative opportunities four of which lie within the firm and three involving changes outside the firm. They include: the unexpected, the incongruities, the need process, the industry and market structures, demographics, changes in perception, and new knowledge. Linear models of innovation reflect linear sequential processes and explain the initial stimulus of innovation, that is, where the trigger for the idea or need was born. The two basic variations of the linear model are: the technology-driven model of the 1950s-1960s that is often referred to as technology push originating from R&D to manufacturing to marketing and finally to user; and the market-pull model or the customer need-driven model of the 1970s advanced by Von Hippel (1978) as pointed out by Bwisa (2011) that emphasizes the role of the marketing as an initiator of new ideas resulting from close interactions with customers. The needs are in turn conveyed to R&D for design and engineering and then to manufacturing for production of products demanded by the market.

The simultaneous coupling model suggested that it was the result of a simultaneous coupling of knowledge within all the three functions of the linear models that would foster innovation. It was characterized by an emphasis on integrating R&D and marketing. The point of commencement for innovation is not known in advance (Bwisa, 2011). The origin of innovation and the point of exit to the user were not known as in the linear models. The interactive model linked the two linear models together hence it was characterized by the combination of pull and push forces. It emphasized that innovation occurred as a result of the interaction of the marketplace, the science foundation and the organizational capabilities. But like in the coupling model, there was no explicit starting point as indicated by Trott (2012) and Bwisa

(2011). Because innovations were improvements on existing phenomena, their achievement must be a result of a process. This meant that innovation was multifaceted.

A specific model of the process of innovation was that which suggested that implementable innovations originated from two broad spheres (Bwisa, 2011). Notably, current state of the art that involved inventory of technical knowledge from which innovators base estimates of technical feasibility, and current state of social and economic utilization in which innovators recognized existing and potential demand. A fusion of technical feasibility and recognized potential demand for the innovation would create a concept to be evaluated by referring to the two spheres. Innovation processes was depicted as the link between technology transfer and commercialization process. Innovation processes variable was operationalized by the following indicators: degree of satisfaction with processes, level of contribution of processes and level of development of new processes.

2.3.4 Innovation services

Innovation services variable was steered by sociological entrepreneurship theory and economic entrepreneurship theory. Sociological enterprise focused on the social context. In the sociological entrepreneurship theory, the level of analysis was the society. Four social contexts that are related to entrepreneurial opportunity were identified. The social networks focused on building relationships and bonds that promoted trust and not opportunism. Life course stage context involved analyzing the life situation and characteristic of individuals who have decided to become entrepreneurs. Ethnic identification context, pointed out that an individual's sociological background was one of the decisive push factors to become an entrepreneur. Population ecology context postulated that environmental factors played an important role in the survival of enterprises. The economic entrepreneurship theory had deep roots in the classical and neo-classical theories of economics and the Austrian market process. These theories explored economic factors that enhanced entrepreneurial innovation behavior.

Service innovation was about making changes to intangible products. A key attribute of a service was a very high level of interaction with the end customer. The internet was a valuable resource on which new service relationships between organizations and their customers were being developed every day. The concept of service quality was of particular relevance to entrepreneurs. The unique characteristics of services, such as intangibility, customer contact, inhomogeneity and perishable production, also offered significant scope for innovation (O'sullivan & Dooley, 2009).

Braunerhjelm (2010) in his survey of entrepreneurship, innovation and economic growth, past experience, current knowledge and policy implications asserts that considerable advances, even breakthroughs, have been made during the last decades in our understanding of the relationship between knowledge and growth on one hand, and entrepreneurship and growth on the other. Similarly, more profound insights have also been gained as to how entrepreneurship, innovation and knowledge are interrelated. Yet, a comprehensive understanding was still lacking concerning the interface of all those variables: knowledge, innovation, entrepreneurship and growth. The link between the micro-economic origin of growth and the macro-economic outcome was still too rudimentary modeled to grasp the full width of these complex and intersecting forces.

Braunerhjelm (2010) sheds light on recent advances in our understanding of the forces that underpinned the creation of knowledge, its diffusion and commercialization through innovation, and the role of the entrepreneur in the growth process. Braunerhjelm has pointed out that important policy implications referred to the design of regulation influencing knowledge production, ownership, entry barriers, labor mobility and financial markets. Knowledge creation matched incentives that induce mechanisms that convert knowledge into societal and useful needs. Despite the fact that there was a general presumption within the economic discipline that micro-level processes played a vital role in the diffusion of knowledge, and thus the growth process, there was lack of stringent theoretical framework but also of empirical analyses to support this allegation.

The economic variables knowledge, entrepreneurship, innovation hang together in a complex manner but were treated as different and separate entities, or reduced to a constant or stochastic process. Braunerhjelm (2010) argues that literature had emerged that aims at integrating these economic concepts into a coherent framework. Thus, knowledge concerning micro-economic processes that leads to growth was still incomplete. In the neoclassical growth models, production of knowledge was exogenous – the technical residual – whereas the diffusion of knowledge was either exogenous, stochastic or allotted large firms. But knowledge was developed, applied and diffused in many other ways, often through smaller innovative firms and by entrepreneurs. The uncertainty, asymmetries and high transaction costs inherent in knowledge also generated a divergence in assessment and evaluation of the expected value of new ideas. Innovation services variable was operationalized by degree of satisfaction with services, level of influence of services and level of introduction of new services.

2.3.5 Innovation technologies

Innovation technologies variable was governed by resource-based entrepreneurship theory and opportunity-based entrepreneurship theory. Clausen (2006) argues that people with financial capital were more able to acquire resources to effectively exploit entrepreneurial opportunities and set up a firm to do so. Drucker (1985) postulates that entrepreneurs did not cause change (as claimed by the Schumpeterian or Austrian school) but exploited the opportunities that change (in technology, consumer preferences etc.) created.

Emerging technologies had the potential for significant innovation across the organization and could be the basis for innovative products, processes and services that could revolutionize the fortunes of an organization. Sources of innovation technologies could include universities, high technology startups and competing organizations. Technology was a high-level strategic thrust popular in many organizations (Hayes, Wheelwright & Clark, 1988) which deals with decisions about the technology used in the organization such as technological platforms employed in products and services, machinery and computer networks and telephone exchanges.

Many organizations used technology as an enabler to enhance knowledge better, improve process efficiency and enhance product offerings.

According to Magu (2011) growth in the manufacturing sector was widely considered a great vehicle for economic development, a fact taken up by Kenyan policy makers by setting a policy of ensuring industrialization by the year 2020. Magu (2011) contends that as evidence by the case of newly developed countries, meaningful industrial development was preceded by technological advancement. In Kenya, performance of the manufacturing sector had been on a decline in the last decade. This had been attributed to lack of adequate technical and entrepreneurial skills coupled with inadequate R&D, which constrained technological advancement. In the electrical/electronics sub-sector, most of the enterprises had engaged in production of traditional electrical products, such as electric cables, lamps, electrodes and fans. Only a few had been involved in the manufacture of the more modern and high growth potential products such as computation, automation and communication equipment.

Yet, studies in more successful economies such as USA and South Korea have shown that manufacture of modern and dynamic electrical/electronic products to be the growth vessel in the sub-sector. Magu (2011) focused on modern technology adoption trends of small and medium electrical/electronics manufacturing enterprises registered in Nairobi. The main objective was to find out how the small and medium electrical/electronics manufacturing enterprises in Nairobi, and by extension, Kenya, could build up their technological capabilities which would in turn raise their product quality, productivity, product variety and engage in production of the modern high growth potential products. Study carried out between May and December 2004, in Nairobi industrial area, Parklands and Baba Dogo road, among 14 small and medium electrical/electronics manufacturing enterprises that employed between 10 and 249 employees. Magu (2011) used a face-to-face interview, conducted data collection with the entrepreneurs, using interview guides. Descriptive statistics were used for data analysis and presentations.

Ebrahim et al. (2008) provides a comprehensive review on different aspects of virtual teams based on authentic and reputed publications. The purpose of their state of the art literature gave an overview of what was known about the structure and dynamics of research and development (R&D) collaboration in small and medium enterprises. Ebrahim et al. (2008) sought to address some of the gaps in the existing literature review on virtual R&D teams in new product development (NPD) in SMEs as a concentrate topic. The extensive review showed that while a considerable number of studies and research efforts had been conducted and concentrated on NPD, SMEs or virtual R&D teams, limited work had been directed towards exploring and analyzing the existing interrelation. Ebrahim et al. (2008) however, pointed out that there was need to unlock growth opportunities for SMEs through research and help them carry out or outsource research in order to develop new technology based products, processes and services, exploit research results, acquire technological know-how and train their employees to incorporate new development processes. Future research should be aimed at shifting away from investigating NPD, SMEs and virtual R&D teams separately to the formation and development of a collaborative system which could support a dispersed team effectively. Keeping virtual R&D teams in NPD processes, operating innovatively and effectively was of a high importance, but the issue had been poorly addressed simultaneously in the previous studies, especially from the perspectives of SME collaboration.

Trott (2012) illustrates that Joseph A. Schumpeter was regarded to be the founder of modern growth theory. In the 1930s Schumpeter realized that the development and diffusion of new technologies by profit seeking entrepreneurs formed the source of economic progress. Robert Solow, advanced this theory in the 1950s. Paul Rome had developed these theories further and was responsible for the modern theory of economic growth, sometimes called neo-Schumpeterian economic growth theory. It argues that sustained economic growth arose from competition among firms. Firms try to increase their profits by devoting resources to creating new products and developing new ways of making existing products. It was this economic theory that underpinned most innovation management theories. When entrepreneurs devoted their resources to creating new products they rarely did it as a single activity.

Innovation technologies variable was operationalized by the following indicators: degree of satisfaction with innovation technologies, level of contribution of innovation technologies and level of development of new innovation technologies.

2.3.6 Innovation ideas

Innovation ideas variable was managed by the following entrepreneurship theories: sociological, opportunity-based, economic and psychological. The political system, government legislation, customers, employees and competition were some of the environmental factors that might have an impact on survival of new enterprise or the success of the entrepreneur. An opportunity-based approach provided a wide-ranging conceptual framework for entrepreneurship research. Entrepreneurs had an eye more for possibilities created by change than the problems. Entrepreneurs effectuated knowledge when they believed it would obtain some individually-defined benefits. The level of analysis in psychological theory was the individual. Personal characteristics explained entrepreneurship. Personality traits, need for achievement, locus of control, risk taking, innovativeness and tolerance for ambiguity characteristics had been found to be associated with entrepreneurial propensity.

O'sullivan and Dooley (2009) postulates that idea generation was the first stage of innovation process which relates to the creative activity of generating an opportunistic idea. This stage involved the continuous scanning of the internal and external environment for threats and opportunities that might be developed into an innovation by the organization. The stage involves mining the sources of innovation for new ideas and evaluating solutions to identified problems. An organizational culture that encouraged creativity and empowerment could significantly support this phase of the process.

The input typically stem from a technical insight about a service. In some cases ideas arose from observed problems that had occurred in the past or might occur in the future. Ideas could also be stimulated by the goals of the organization or an unanticipated opportunity. Tidd, Bessant and Pavitt (2005) identifies aspects of leadership such as shared vision of the future, extensive communication, the desire to

innovate and the achievement of high involvement in the innovation process as key components of an innovative organization.

According to Hisrich, Peters and Shepherd (2009) entrepreneurship could be conceptualized along a continuum ranging from entrepreneur at one end to administrator at the other. It could also be viewed in absolute terms, new firm versus no new firm, or in relative terms, more entrepreneurial versus less entrepreneurial. An important distinction was that between invention (opportunity discovery) and innovation (opportunity exploitation). Innovation, creating a new organization, product or process, might be further distinguished from imitation, entering an established market as pointed out by Ruef, Aldrich and Carter, (2003). Thus, reflecting Schumpeter's (1952) notion of the entrepreneur as an innovator. Innovation was the improving (adding value) to something already existing; the successful implementation of novel and appropriate ideas; the commercialization of an invention (Trott, 2012; Bwisa, 2011). Innovation ideas variable was operationalized by the following indicators: degree of satisfaction with innovation ideas, level of influence of innovation ideas and level of conversion of new innovation ideas.

2.3.7 Moderating variables

Mugenda and Mugenda (2012), define moderating variable as a variable that has an effect on the relationship between the independent and dependent variables, but is not related to or affected by the independent variable. Moderating variables tend to be demographic in nature and come between other variables and moderate their relationships. The moderating variable was a variable that had an effect on the relationship between the independent and dependent variables, but it was not related to or affected by the independent variable. The moderating variable came between other variables and moderated their relationships.

The moderating variables in this research are of two categories: entrepreneur's demographics such as age that was operationalized by years and education that was operationalized by highest level; and enterprise's demographics in terms of size that

was operationalized by number of full time employees, age of enterprise that was operationalized by number of years that the enterprise had been in business and legal status that was operationalized by number of enterprises in the various legal forms. The moderating variables came between the independent and dependent variables in a linear sequence.

2.3.8 Enterprise growth

According to Kothari (2011), a concept which can take on different quantitative values is called a variable. If one variable depends upon or is a consequence of the other variable, it is termed as a dependent variable, and the variable that is antecedent to the dependent variable is termed as an independent variable (Kothari, 2011).

The over-arching theory that guided enterprise growth in this study was the entrepreneurial innovation theory. Diffusion of innovations theory sought to explain how, why and at what rate new ideas and technology spread through cultures. Enterprise growth is the dependent variable in this study. Enterprise growth is influenced or changed by innovation products, innovation processes, innovation services, innovation technologies and innovation ideas. These are the five independent variables in this study. Enterprise growth was expected to change as a result of manipulation of the independent variables. Enterprise growth is preceded by independent variables so that magnitude of changes or effects can statistically be determined. Innovation was the technological precondition for growth (Eustace, 2009).

According to Njeru, Namusonge and Kihoro (2012) growth enterprises were entrepreneurial firms with high possibilities to grow. Yet, not all enterprises' first and foremost objective was growth. Some enterprises were established merely to exploit a short-time opportunity. Other enterprises liked to maintain the enterprise at its existing size. Enterprises that were seeking growth were likely to be interested in innovation than those that were not. Enterprises whose objective was to grow the enterprise, innovation provided a means to achieving growth. Growth-oriented

enterprises are characterized by a commitment to long-term growth than short-term profit. Measures of growth of enterprises variable include: employees, turnover, net assets and size. Growth of enterprises variable in this study was operationalized by the following indicators: annual employee increase, degree of satisfaction on levels of turnover and degree of satisfaction on innovation types.

2.4 Empirical review

The extensive literature review shows that: while a considerable number of studies and research effort have been conducted and concentrated on NPD, SMEs or virtual R&D teams, limited work have been directed towards exploring and analyzing the existing interrelation (Ebrahim *et al.*, 2008); policy-makers needed to reappraise the role of technical and vocational education not only at all levels in the educational system, but also with respect to the development of absorptive capacity in SMEs to encourage more entrepreneurial identification and exploitation of business opportunities in our changing economies (Talebi & Tajeddin, 2011); further empirical evidence on how EO profiles of SMEs are related to product innovativeness dimensions of different performance potential in similar national settings would help to confirm and generalize the conclusions (Avlonitis & Salavou, 2007); how SME entrepreneur's innovativeness and their basic personality traits, as key psychological aspects of the human capital existing within their organizations, could   stimulate the adoption of innovations (Marcati, Guido & Peluso, 2008); and there was a wealth of research on entrepreneurship in business, economics, management and sociology, but psychology's contribution was yet to be fully exploited, demanding this call to action for psychology (Hisrich *et al.*, 2007).

The economic growth theory is criticized on the following five grounds. First, the theory has the scope of entrepreneurialism in the sense that it has included the individual businessman along with the directors and managers of the company. Second, the innovating entrepreneurs represent the enterprise with the R&D and innovative character, but developing countries lack this character. Third, the theory emphasizes on innovation and excludes the risk taking and organizing aspects.

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Fourth, Schumpeter's entrepreneurs are large scale businessmen who introduce new technology and method of production. Finally, Schumpeter remained silent about as to why some economics had more entrepreneurial talent than others. However, despite these criticisms, the Schumpeterian theory is regarded as one of the best theories in the history of entrepreneurship development.

2.5 Research gaps

Braunerhjelm (2010) illustrated the relationship between knowledge, entrepreneurship and innovation on the one hand, and how that related to enterprise growth on the other. Based on a (partial) survey of recent and previous theoretical and empirical contributions in this vein of research, ambition had been to pinpoint some of the weak spots in our current understanding of enterprise growth, and to provide some recent insight to the growth process. We do not yet fully comprehend the micro-economic mechanisms of enterprise growth. Thus, the challenges are still there for us to deal with. Kuratko (2009) postulated that researchers and authors in the field of entrepreneurship agreed, for the most part, with the renowned consultant and author, Peter F. Drucker, about the concept of innovation. That innovation was specific function of entrepreneurship. Innovation was the means by which the entrepreneur either created new wealth-producing resources or endowed existing resources with enhanced potential for creating wealth. Yet, the small and medium electrical machinery enterprises in Nairobi City County in Kenya continued to register declines in their enterprise growth

Despite innovation and enterprise growth being key to economic revival in Europe, the European economy remained weak (Hague & Mladenov, 2012). Enterprise growth had stalled across the continent. Unemployment was high. Plevneliev (2012) had pointed out that innovation was at the heart of growth Europe must create the environment for entrepreneurs and innovators to turn their ideas into commercial projects, and thus create jobs. Innovation had been identified as inextricably linked with economic growth and as the primary driver behind job creation and the rising quality of life (Comstock, 2012). Yet, the performance of SMEMEs in Nairobi City

County in Kenya remained untenable. The annual global barometer (2011), a survey of nearly 3,000 U.S. and foreign business executives on innovation found that companies were moving beyond the traditional, closed model of innovation and embracing a new paradigm. This new model fostered collaboration between several partners, values, the creative power of smaller organizations and individuals, and tailors solutions to meet local needs. On the flip side, the survey found that the lingering global economic uncertainty had hampered the ability of companies to innovate by making it harder to raise external funding and access venture capital. The 2012 global marketplace and uncertainties inherent in today's economics environment were challenging business' ability to innovate. Innovation strategies challenged and to drive to new models. Innovation was a powerful lever to address the challenges of a growing world. It allowed the use of resources more efficiently, produced more with less and delivered better technologies to help markets drive economic and better quality of life (Comstock, 2012).

Empirical studies have showed that innovation was not invention. Innovation was the use of better and, as a result, novel idea or method, whereas invention referred more directly to the creation of the idea or method itself. Innovation differed from improvement in that innovation referred to the notion of doing something different (Lat. Innovare: "to change") rather than doing something better. Entrepreneurs continuously looked for better ways to satisfy their customer base with improved quality, durability, service, and price which came to fruition in innovation with advanced technologies and organizational strategies (Heyne, Boettke & Prychitko, 2010).

In Kenya, enterprise growth in manufacturing sector was widely considered a great vehicle for economic development (Magu, 2011). Yet, performance of the manufacturing sector had been on a decline in last decade. In the electrical/electronic sub-sector, most of the enterprises had engaged in production of traditional electrical products. Yet, studies in more successful economies had shown manufacture of modern and dynamic electrical/electronic products to be the enterprise growth vessel in the sub-sector. Innovation was the process by which entrepreneurs converted

opportunities into marketable solutions. Trott (2012) had helped illustrate the complex nature of innovation management and identified some of the limitations of various models and schools of thought. Variations on linear thought continued to dominate models of innovation. Most innovation models show innovation paths, representing a stage-gate type of activity, controlling the progress from idea to market introduction, rather than giving insight into the dynamics of actual innovation processes. Science is viewed primarily as technology orientated (physical sciences) and R&D is closely linked to manufacturing, causing insufficient attention to be paid to the behavioral sciences. As a consequence, service innovation was hardly addressed. The complex interactions between new technological capabilities and emerging societal needs are a vital part of the innovation process, but they were underexposed in current models. The role of the entrepreneur was not captured.

Current innovation models were not embedded within the strategic thinking of the firm; they remained isolated entities. The role of innovations in the performance of SMEs in Kenya was articulated and documented. Unfortunately, continued decline in enterprise growth of small and medium electrical machinery enterprises was still being observed in Kenya. The reasons for this decline in performance were not known. Getting to the bottom of this problem would revamp performance of small and medium enterprises in Nairobi City County in Kenya. This would add value to the small and medium electrical machinery enterprises in areas critical to enterprise growth. Establishing how and in what ways innovations relate to performance of enterprises would perhaps produce expected enterprise growth target. Innovations in enterprises encompasses enterprising behaviors that include: making things happen, seeking opportunities, solving problems/conflicts creatively, persuading others, acting independently on own initiative, actively seeking to achieve goals, flexibly responding to challenges, coping with and enjoying uncertainty and taking actions in uncertain environments

2.6 Summary
This study focused on innovations and firm performance among small and medium electrical machinery enterprises in Nairobi City County in Kenya. The study

identified innovation products that relate to enterprise growth of small and medium electrical machinery enterprises. This study determined innovation processes that relate to enterprise growth of small and medium electrical machinery enterprises. The study attempted to establish innovation services that relate to enterprise growth of small and medium electrical machinery enterprises. This study examined innovation technologies that relate to enterprise growth of small and medium electrical machinery enterprises. Finally, the study explored innovation ideas that relate to enterprise growth of small and medium electrical machinery enterprises in Nairobi City County Kenya. Innovation has been described as an information-creation that arose out of social interaction. Trott (2012) suggested that adopting a business strategy perspective, presented a persuasive argument that the process of innovation had shifted from one of closed systems, internal to the firm, to a new mode of open systems involving a range of players distributed up and down the supply chain.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The main focus of this chapter is the research design, population, sampling frame, sample and sampling technique, instruments, data collection procedure, pilot test, and data processing and analysis. The chapter has provided explicit details and reasons for using these particular methods rather than employing them. The principles that determined how best such methods and procedures were deployed and interpreted have been included. The researcher based his methods and procedures on his assumptions about reality.

3.2 Research design

Research design was defined as the blueprint for fulfilling research objectives and answering questions. The research used survey design of mixed method consisting of both qualitative and quantitative approaches explore relationship between innovations and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County in Kenya. Qualitative and quantitative approaches were utilized in this research to explore and describe innovations that were related to enterprise growth of small and medium electrical machinery enterprises.

Qualitative approach was used to explore innovations related to enterprise growth of small and medium electrical machinery enterprises in Nairobi City County in Kenya. Qualitative research was designed to tell the researcher how (process) and why (meaning) things happen as they do (Cooper & Schindler, 2011). Mugenda and Mugenda (2003) attest that qualitative research included techniques and measures that did not produce discrete numerical data. Qualitative approach permitted research to go beyond statistical results. Innovation aspects that supported performance of enterprises were best explained by using qualitative approach. Human phenomena

that could not be investigated by direct observation such as attitudes and other emotions were best studied using qualitative method. Qualitative approaches in research were increasingly being used to address social and economic problems. Qualitative approach detected and interpreted value judgments of relationship between innovations and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County. Case studies and observational studies were used to yield qualitative data.

Quantitative methodology was used to describe innovations that relate enterprise growth of small and medium electrical machinery enterprises. Quantitative methodology encompassed principles and procedures used conduct research using scientific method. The key assumption in scientific inquiry was there existed a stable reality that could be fragmented into concepts and variables. These variables could be described, observed and measured. This assumption led the researcher in this study to use techniques that provided numerical data on innovations that related to enterprise growth of small and medium electrical machinery enterprises in Nairobi City County in Kenya.

Besides the qualitative and quantitative approaches, the researcher in this study used survey research design that comprised of studies that investigated social issues in a cross-section of the small and medium electrical machinery enterprises in Nairobi City County at a particular point in time. The researcher collected information that described, explored and quantified social phenomena, particularly issues, conditions and problems that were prevalent in Nairobi City County in Kenya. The researcher focused on the links among a number of key variables across a sample of cases depending on the resources available and the size of the target population.

In practice, most social surveys are based on written questionnaires although survey data is also collected through interviews, observations or other techniques (Mugenda & Mugenda, 2012). According to Mugenda and Mugenda, surveys can be used to provide descriptive statistics for national, regional or local populations; to examine the clustering of social phenomena; to identify the social location and characteristics

of subgroups for more intensive follow-up case research; and to analyze associations or relationships among phenomenon in the population

3.3 Population

The population of this study was all registered small and medium electrical machinery enterprises in Nairobi City County in Kenya. The target population was 502 small and medium electrical machinery enterprises financing and managing their enterprises in Nairobi City County (TelcomKenya, 2012). This was the absolute population to which the researcher in this study generalized results obtained. It was often impractical to select a representative sample from the target population because of the difficult to identify individual members. In order to select a representative sample the researcher in this study drew a sample from the accessible population comparable to target population in the characteristics that appeared most relevant to the study. This ensured that the population validity was attained. Population validity justified that the accessible population was representative of the target population. Generalizations to accessible population was applied to the target population with 95 percent confidence level at z value = 1.96. The accessible population of this study was all registered small and medium electrical machinery enterprises in Nairobi City County in Kenya

3.4 Sampling frame

Entrepreneurs of the small and medium electrical machinery enterprises formed the target population that was randomly selected from the accessible population of small and medium electrical machinery enterprises in Nairobi City County. A complete list of all the small and medium electrical machinery enterprises in Nairobi City County in Kenya was used in this study. The sampling frame was as complete, accurate and up to date as possible (Zikmund, Babin, Carr &Griffin, 2010) to yield best results of this study. The listing of all population elements from which the sample was drawn was called sample frame (Cooper & Schindler, 2011).

The sampling frame for this study was composed of following small and medium electrical machinery enterprises drawn from four districts in Nairobi City County in

Kenya: 5 electric cables, 6 electric fences, 32 electric generators, 6 electric light and power companies, 6 electric lighting systems, 4 electric motors, 27 electric pumps, 5 electric tools, 39 electrical appliances, 3 electrical appliances - wholesalers and manufacturers, 18 electrical appliances - repairing, 79 electrical contractors, 42 electrical engineers, 41 electrical equipment, 13 electrical fittings, 2 electrical heating equipment and systems, 3 electrical and plumbing works, 44 electrical supplies, 4 electro - plating, 24 electronic components, 9 electronic equipment repairing, 52 electronic equipment and supplies, 28 electronic products, and 10 elevators and escalators. The basic idea of sampling was that by selecting some elements in population researcher in this study drew conclusions about the entire population. A random sample was one in which the individual in defined population had an equal chance of being selected.

3.5 Sample and sampling technique

Mugenda and Mugenda (2012) defined a sample as a group of individuals, objects, items or cases already selected from the accessible population. A sample of 96 entrepreneurs was selected to represent the listed small and medium electrical machinery enterprises in Nairobi City County in Kenya. This was 19.1% of the accessible population. Gay (1983) in Mugenda and Mugenda (2003) suggests that for correlational research, 30 cases or more are required; for descriptive studies, ten percent of accessible population was enough and for experimental studies, at least 30 cases were required per group. To gain an understanding of how small and medium electrical machinery enterprises in Nairobi City County innovated enterprise growth a sample of 96 entrepreneurs selected was adequate.

The sampling issues were based on nominal and ordinal data. The precision desired and how it was quantified was that the confidence wanted in the estimate was 95% confidence at z =1.96. The size of the interval estimate accepted was ± 0.10 (10 percent). The expected range in the population for the question used to measure precision was 0 to 100%. The measure of central tendency sample proportion of population with the given attribute being measured was 50%. The measure of

dispersion measure of sample dispersion was pq = (0.50)(0.50) = 0.25. Finite population adjustment was not used. Estimate of standard deviation of population on standard error of the proportion was 0.10/1.96 = 0.051. Sample size calculation (see Appendix 4) yielded a sample size of 96 entrepreneurs. This sample size was based on an infinity population assumption. Cooper and Schindler (2011) attests that if the sample size was less than 5 percent of the population there was little to be gained by using a finite population adjustment

The sample selection was based on the premise these entrepreneurs had reached executive level and had been successful in managing their own enterprises they were most likely to be able to offer insights from which this study could build understanding. The assumption was that a census would not necessarily provide more useful results than collecting data from a sample which represented the entire population. Sampling provided a valid alternative to a census when (Saunders, Lewis & Thornhill, 2009): it would be impracticable to survey the entire population; the budget constraints prevented one from surveying the entire population; time constraints prevented one from surveying the entire population; one had collected all the data but needed the results quickly. Saunders, Lewis and Thornhill (2009) have pointed out that many researchers, for example Henry (1990) argued that using sampling made possible a higher overall accuracy than a census.

The study adopted both probability and non-probability sampling technique. With probability samples the chance, or probability, of each case being selected from the population was known and was equal for all cases (Saunders, Lewis & Thornhill, 2009). In probability sampling, every element in the population had a known, nonzero probability of selection (Zikmund, Babin, Carr & Griffin, 2010). Stratified sampling was used to ensure that the groupings in the population were represented. The goal of probability sampling technique was to select a reasonable number of entrepreneurs that represented the target population. The goal of stratified random sampling was to achieve desired representation from various subgroups in the population. According to Kothari (2011), if a population from which a sample was drawn does not constitute a homogeneous group, stratified sampling technique was

generally applied in order to obtain a representative sample. Under stratified sampling technique the population was divided into several sub-populations that were individually more homogeneous than the total population. The different sub-populations were called strata. Items were selected from each stratum to constitute a sample. Since each stratum was more homogeneous than the total population, it was possible to get more precise estimates for each stratum and by estimating more accurately each of the component parts, a better estimate of the whole was obtained. Stratified sampling technique resulted in more reliable and detailed information.

In the context of stratified sampling: the strata was formed on the basis of common characteristics of the items put in each stratum in such a way as to ensure elements being most homogeneous within each stratum and most heterogeneous between the different strata were purposively formed and based on past experience and personal judgment of the researcher; the usual method for selection of items for the sample from each stratum used was that of simple random sampling; and how many items to be selected from each stratum or how to allocate the sample size of each stratum, the method of proportional allocation under which the sizes of the samples from the different strata were kept proportional to the sizes of the strata. That was, if p_i represented the proportion of population included in stratum $_i$, and n represented the total sample size, the number of elements selected from stratum $_i$ was $n.p_i$ (Kothari, 2011). Thus, using proportional allocation, the sample sizes for different strata were determined in proportion to the sizes of the strata (see Appendix 5). Proportional allocation was considered most efficient and an optimal design when the cost of selecting an item was equal for each stratum, there was no difference in within-stratum variances, and the purpose of sampling happened to estimate the population value of some characteristic.

Non-probability sampling technique did not afford any basis for estimating the probability that each item in the population had been included in the sample. Non-probability sampling technique was adopted to focus on in-depth information. Non-probability sampling was also known by different names such as deliberate sampling, purposive sampling and judgment sampling (Kothari, 2011). In this type of sampling,

items for the sample were selected deliberately by the researcher; his choice concerning the items remained supreme. Purposive sampling was a non-probability sampling technique that required the researcher to choose subjects or units according to the type of information needed. The researcher purposely looked for units or subjects that possessed the required characteristics on innovations that relate enterprise growth of small and medium electrical machinery enterprises in Nairobi City County in Kenya. Purposive sampling was used to have the required information with respect to the objectives of this study.

3.6 Instruments

Mugenda and Mugenda (2012) define instrument as a tool that was used to measure a variable. This study utilized structured questionnaire, interview guide and observational form. The questionnaire was used to obtain important information on innovations that contributed and led to enterprise growth of small and medium electrical machinery enterprises in Nairobi City County, Kenya. Each item in the questionnaire was developed to address a specific objective of this study. An interview schedule was a set of questions that the researcher asked when interviewing. The interview guide made it possible to obtain data required to realize the five specific objectives of this study. Individual depth interview encouraged entrepreneurs to talk extensively, share as much information as possible, and last about one hour.

The observation form was used by the researcher in this study to record the behaviors on innovations that related to enterprise growth of the small and medium electrical machinery enterprises. Qualitative research instruments focused more on qualities than quantities. The principal advantage of qualitative research was the additional information that it provided beyond that associated with quantitative research.

3.7 Data collection procedure

The questionnaire, interview guide and observation form targeted the entrepreneurs drawn from small and medium electrical machinery enterprises' population in

Nairobi City County in Kenya. Entrepreneurs of the small and medium electrical machinery enterprises were the most knowledgeable with respect to the overall situation of their enterprises. A questionnaire was used to obtain important information about the population. Thus, the questionnaire was employed to collect relevant information about the small and medium electrical machinery enterprises in Nairobi City County in Kenya. Each item in the questionnaire was developed to address a specific objective of the study (see Appendix 1). The questionnaire was well thought out to avoid: confusing respondents as to the nature of information required; discouraging respondents to the extent of discarding the questionnaire; and leaving out important information required in the study.

Structured or closed-ended category of questions were accompanied by a list of all possible alternatives from which respondents selected the answer that best described their situation. In many cases, it was impossible to exhaust all the categories since the researcher might not know all possible answers. Under such cases, a category called 'other' was included in the questions to take care of all those responses which might not fit in the given categories. The main advantages of closed-ended questions was they were easier to analyze and administer, and economical to use in terms of time and money.

Unstructured or open-ended questions gave the respondent complete freedom of response. They permitted entrepreneur to respond in his/her own words. The amount of space provided was a good indicator of whether a brief or lengthy answer was desired. Open-ended questions permitted a great depth of response from entrepreneurs. The entrepreneur's responses gave an insight into his/her feelings, background, hidden motivation, interests and decisions. Open-ended questions stimulated an entrepreneur to think about his/her feelings or motives and express what he/she considered to be most important.

Contingency or filter questions were used to probe more information from the entrepreneur. The study used matrix questions that shared the same set of response categories. Likert type scale with 1-5 rating scale was used beside each statement

presented. The entrepreneur indicated whether he/she was extremely satisfied (5), satisfied (4), neutral (3), dissatisfied (2), or extremely dissatisfied (1). The advantages of matrix questions were that: when questions or items were presented in matrix form, they were easier to complete; space was utilized efficiently; and it was easy to compare responses given to different items.

The Likert type scales were used in questionnaires and interview schedules in this research study. These types of scales were used to measure perception, attitude, values and behavior. Rating scales consisted of numbers and descriptions which were used to rate or rank the subjective and intangible components of relationship between innovations and enterprise growth among small and medium electrical machinery enterprises. The numerical scale helped to minimize the subjectivity and made it possible to use quantitative analysis. The items that were used in Likert scales were declarative in form. The numbers in a Likert scale were ordered such that they indicated the presence or absence of the characteristic being measured.

Before constructing a questionnaire, a list of objectives that required the questionnaire to accomplish was drawn. Double-barreled items that had two separate ideas in one question were avoided. Leading or biased questions that suggested that one answer might be better than the other were also avoided. Items in a questionnaire were arranged in a logical sequence so that respondents could find their way around with ease. Well organized questionnaires are also easy to code. Presentation of the questionnaire was attractive to respondents. This increased the response rate.

The questionnaire was pretested to a selected sample which was similar to the actual sample which the researcher planned to use in this study. Subjects in the actual sample were not used in the pretest. Procedures that were used in pretesting the questionnaire were identical to those which were used during the actual data collection. This allowed the researcher to make meaningful observations. The number of cases in the pretest was 9. According to Mugenda and Mugenda (2003), normally the pretest sample is between 1% and 10% depending on the sample size. The bigger the sample, the smaller the percentage. The subjects were encouraged

make comments and suggestions concerning instructions, clarity of questions and relevance.

Pretesting the questionnaire was important because of the following reasons: enhancing the validity and reliability of instrument; improving the questionnaire; revealing and correcting deficiencies in the questionnaire; and checking if the methods of analysis are appropriate. The study used the researcher-administered questionnaire to interview the respondents. This was mostly done when the subjects might not have the ability to easily interpret the questions probably because of their educational level. Mugenda and Mugenda (2003) assert that in such cases, the researcher read the items and the categories to the subjects and the responses were written down. Response rate was the percentage of subjects from a probability sample who actually participated in a study (Mugenda & Mugenda, 2012). A response rate of 50% was considered adequate for analysis and reporting. A response rate of 60% was good and a response rate of 70% and over was very good. These figures had no statistical basis and were taken only as guidelines. The researcher used all means available to increase the response rate in order to have a representative sample for meaningful generalization.

Cooper and Schindler (2011) define an interview as a technique of collecting data in which the researcher asked the respondent to respond to a number of questions. Interview schedule, a research tool used by researcher to guide an open-ended interview was used (see Appendix 2). It consisted of the questions that the researcher would ask the respondent arranged in a logical order. The researcher then would use probing to clarify issues and obtain information that would enrich data on innovations that relate to growth of enterprises among small and medium electrical machinery enterprises in Nairobi City County in Kenya.

The research interviews that included two broad types that were generally referred to as in-depth or unstructured interviews and semi-structured interviews (Saunders et al., 2009; King, 2004) were used to explore innovations and explain other findings of this research study. The data collection procedure entailed nature of research strategy,

established personal contact, nature of research questions, and length of time required from participants who provide data. The other data collection procedure considerations included data quality issues, researcher level of competence, logistical, and resource matters when using in-depth and semi-structured interviews. The researcher in this research study listed themes and questions to be covered. A participant interview was one where interviewer directed the interview and the interviewee responded to questions of the researcher (Easterby-Smith, Thorpe & Jackson, 2008; Ghauri & Grønhaug, 2005; Robson, 2002). The interview was conducted on a one-to-one basis between the researcher and a single participant. The interview was conducted by researcher meeting participant face-to-face. The non-standardized interview was used to gather data that was analyzed qualitatively.

The nature of the qualitative data collected had implications for its analysis (Saunders *et al*., 2009). Analysis was through conceptualization. During analysis, the non-standardized and complex nature of the data that was collected was summarized, categorized or restructured as a narrative to support meaningful analysis. These data are likely to be used not only to reveal and understand what and the how but also to place more emphasis on exploring the why (Saunders *et al*., 2009). In an exploratory study, in-depth interviews could be very helpful to find out what was happening and to seek new insights (Robson, 2002: 59).

The semi-structured interview was used in this research study to explore the relationship between innovations and enterprise growth of the small and medium electrical machinery enterprises. In this research study, semi-structured interview was used in order to understand relationship between variables, such as those revealed from a descriptive study. Increasingly authors also emphasized how semi-structured or in-depth interviews, might also be used as part of mixed methods research, such as a means to validate findings from questionnaires (Bryman, 2006). However, key point to consider was the consistency between the research questions and objectives, strategy that was used and methods of data collection that was used and their fitness for the purpose. The situations in which the use of non-standardized research interview as a method of data collection was advantageous to this research

study include: the purpose of the research; the significance of establishing personal contact; the nature of the data collection questions; length of time required and completeness of the process.

Observation, in research, the concept referred to a technique of collecting data but could also mean a single measurement (Mugenda & Mugenda, 2012). As a technique of data collection, observation would require the researcher to record what he observed in a sample of subjects. The researcher used a structured observation checklist to record the information observed on innovations that related enterprise growth of the small and medium electrical machinery enterprises. First, the researcher in this study defined the behaviors to be observed and then developed a detailed list of behaviors (see Appendix 3). During data collection, the researcher checked off each behavior as it occurred. This permitted the observer to spend time thinking about what was occurring rather than on how to record it and this enhanced the accuracy of the study

This research study required that rating scales be used so that the observer not only observed the behavior but also evaluated that behavior on a rating scale. According to Mugenda and Mugenda (2003) the most commonly used rating scales were Likert type scales with 3 or 5 response categories. This type of procedure needed a higher level of inference on the part of the observer since it involved observation and evaluation. The points that were taken into account when using observation form, included: pretesting the observation form to correct any mistakes that might be discovered; about seven behaviors were considered satisfactory in order to ensure reliable data; because of time and other logistics, the behavior of ten entrepreneurs were observed for reliability; and the behavior to be observed was defined in sufficient detail for the researcher to determine whether a particular behavior had occurred or not.

3.8 Pilot test

Although the interview could provide valuable data, it was a highly subjective technique. However, this research put in place all possible controls and safeguards

necessary to obtain reasonably objective and unbiased data. A careful pilot study was the best insurance against bias and flaws in design. After the interview guide had been developed, a pilot test was conducted to evaluate and improve the guide and the interview procedure and help the interviewer develop experience in using the procedure before any research data for the main study was collected. The number of subjects that were interviewed in this pilot test was nine. The subjects interviewed in the pilot study were taken from the same population as the main research sample. The pilot test was carried out with specific objectives in mind.

The interviewer determined from pilot test whether the planned procedures actually produced data desired. The interviewer was alert to communication problems, evidence of adequate motivation, and other clues that suggested a rephrasing of questions or revision of procedure. The pilot test was also used to identify threatening questions. Several methods of opening the interview were also tried and perfected. Unwillingness of the respondent to cooperate was an indication that the techniques that had been established were not sufficient for motivation and maintenance of rapport. The pilot study also gave the interviewer an opportunity to evaluate methods of recording the interview data and determine whether adequate information was being recorded, whether recording method caused excessive breaks in the interview situation, and mechanics of reporting could be improved. During the pilot study, the interviewer assessed carefully methods he had planned to use for quantifying and analyzing his interview data.

Kuder-Richardson formula (KR_{20}) was used to measure the overall internal consistency of dichotomously-scored items in this study. The calculated KR_{20} index for this research study was 0.896. According to Mugenda and Mugenda (2012) the KR_{20} had a normal range between zero and 1.00 with higher numbers indicating higher internal consistency of items. A score near 1.00 implied that most of the items included in the tool defined one common construct.

Cronbach's alpha ( ) technique was used to estimate the internal consistency of items that measured a given construct (Gathenya, Bwisa & Kihoro, 2011).

Cronbach's alpha for this research study was computed as a coefficient that stood at 0.989. It was calculated as:

$$= N r / (1 + r (N-1),$$

where:

r was the mean inter-item correlation and

N was the number of items in the tool.

Uni-dimensionality was the assumption that selected indicators or items measured the same construct or underlies characteristic. The uni-dimensionality of these items as a group was tested using Cronbach's alpha or the coefficient of consistency. To satisfy the assumption of uni-dimensionality, the computed value of the Cronbach's alpha should be greater than 0.7. Mugenda and Mugenda (2012) suggested that factor analysis was also used with a cutoff value of the factor loading being higher than 0.3.

3.9 Data processing and analysis

Data processing and analysis was categorized into: processing of data by preparing data for analysis through editing, coding, classifying, tabulating and use of percentages; and analysis of data by descriptive and causal analyses and inferential and statistical analyses (Kothari, 2011). Descriptive and causal analyses accomplished by uni-dimensional analysis through calculation of several measures concerned one variable. These included measures of central tendency; measures of dispersion; measures of skewness; one way analysis of variance (ANOVA); and others including simple correlation and regression in simple classification of paired data.

Descriptive and causal analyses were also realized by bivariate analysis through simple regression and simple correlation in respect of variables; association of attributes and two ways ANOVA. Finally, descriptive and causal analyses were achieved by multi-variate analysis through multiple regressions and multiple correlation and partial correlation in respect of variables; multiple discriminant analysis in respect of attributes; multi-ANOVA in respect of variables; canonical

analysis in respect of both variables and attributes; and other types of analyses such as factor analysis and cluster analysis.

Inferential and statistical analyses were accomplished by estimating parameter values by use of point and interval estimates. Inferential and statistical analyses were also achieved by testing hypotheses through parametric and non-parametric tests or distribution free tests (Kothari, 2011). The mass of raw data collected was systematically organized in a manner that facilitated both quantitative and qualitative analyses. Quantitative data collected was analyzed by descriptive statistics and presented through tables, charts and in prose. These were achieved through frequency distributions, means, modes, percentages, standard deviations and simple and cross tabulations. Quantitative data was coded after all the data had been collected.

Summary statistics was computed on variables from a sample of small and medium electrical machinery enterprises. Summary statistics included: measures of central tendency (mean, median and the mode); measures of dispersion (variance, standard deviation and the range); measures that describe the shape of a distribution (kurtosis and skewness) and standard errors, sums, sums of squares and sums of cross-products for a set of data. The entries in other statistical outputs such as analysis of variance (ANOVA) table and regression results (regression coefficients, R^2 and p-values) are also referred to as summary statistics but should not strictly be confused with descriptive statistics.

Measurement of variables was in the form of numbers. These numbers were entered in the computer and analyzed. Data was analyzed using statistical package for the social sciences (SPSS) version 18.0, which yielded descriptive and inferential statistics. This was widely used software in analyzing data in the social sciences. It provided a range of statistical options including data summary, graphics, tabulations, multivariate analysis and virtually all tests of statistical significance appropriate for sample survey data. Quantitative data analysis took place after data collection.

Qualitative data collected was an interactive process in data processing and analysis. Data collection, data analysis and the development and verification of propositions were much an interrelated and interactive set of processes (Saunders *et al*., 2009). Analysis occurred during the collection of data as well as after it (Saunders *et al*., 2009; & Kvale, 1996). This analysis helped in shaping the direction of data collection when following a more inductive, grounded theory approach. As propositions emerged from these data, or if commencing these data collection with a theoretical framework or propositions already worked out, sought to test these by comparing them against the cases in this research study. The key point here was the relative flexibility that this type of process permitted this research study.

The interactive nature of data collection and analysis allowed the researcher in this research study to recognize important themes, patterns and relationships as data was being collected: in other words, to allow these to emerge from the process of data collection and analysis. As a result, the researcher in this research study was able to re-categorize the existing data to see whether these themes, patterns and relationships were present in the cases where data had already been collected. The researcher in this research study was also able to adjust future data collection to see whether data existed in cases where the study intended to conduct the research (Strauss & Corbin, 2008). The concurrent process of data collection and analysis had implications for the way in which the researcher in this study needed to manage time and organize data and related documentation.

Qualitative data coding started in the field and was done as data was collected. Codes were assigned to emerging themes. Data was analyzed by coding and organizing it into themes and concepts from which theories and generalizations were formulated. Data collection and analysis was conducted simultaneously. Marshall and Rossman (1989) argued that field notes from interviews were edited and cleaned up as data was being organized. Data collection and analysis in qualitative research went hand in hand and were one simultaneously. The data collection and analysis was approached from an inductive perspective to build theory. These processes and aids enabled the researcher to interact with qualitative data in order to: comprehend them;

integrate related data drawn from different notes; identify key themes or patterns from them for further exploration; develop and/or test theories based on these apparent patterns or relationships; and draw and verify conclusions (Saunders et al., 2009; Kvale, 1996; Miles & Huberman, 1994

Relationships and predictions among variables were best determined using correlation and regression techniques (Gujarati & Porter, 2010). Regression analysis was used to find out whether an independent variable predicted a given dependent variable. Simple regression was used to deal with only one independent variable and one dependent variable. According to Maddala and Lahiri (2009) many scientists (Popper, 1959; Friedman, 1953) argued in favor of simplicity, because simple models were easier to understand, communicate and test empirically with data. A simple regression model of the form: $Y = \beta_0 + \beta_1 X_1 + \epsilon$ was used in this research study. Where: β_0 was the constant or intercept; β_1 was the slope or change in Y, given one unit change in X_1; Y was the dependent variable; X_1 was the independent variable; and ϵ was the error term.

Multiple regression analysis attempted to determine whether a group of variables together predicted a given dependent variable. The researcher in this study made an assumption that enterprise growth was predicted by innovation products, innovation processes, innovation services, innovation technologies, or innovation ideas. Regression analysis was used to find out whether the five innovations each predicted enterprise growth of small and medium electrical machinery enterprises in Nairobi City County in Kenya. This model was of the form: $Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \epsilon$. Where: Y was the enterprise growth, X_{1-5} were the innovation types, β_0 was the constant, β_{1-5} were the regression coefficients, and ϵ was the error term. Pearson Product Moment Correlation (*r*) was computed to determine the relationship between dependent and independent variables, between independent variables and reveal multi-collinearity.

Multi-collinearity might be defined as a statistical phenomenon that occurred in multiple regression models in which some of the independent variables were

significantly correlated among themselves. In a regression model that best fitted the data, the independent variables correlated highly with the dependent variable but correlated, at most, only minimally with each other. Such a model was referred to as low noise model. If the correlation between any two independent variables was theoretically zero, they were said to be orthogonal to each other. In a sense, collinear independent variables contain the same information about the dependent variable and hence one of the independent variables was redundant and should be omitted from the model. A major problem associated with multi-collinearity in regression models was presence of large standard errors of the coefficients associated with the affected independent variables (Mugenda & Mugenda, 2012).

Kothari (2011) postulate that in multiple linear regression analysis, the regression coefficients became less reliable as the degree of correlation between the independent variables increased. If there was a high degree of correlation between independent variables, a problem of what was commonly described as the problem of multi-collinearity occurred. In such a situation, only one set of the independent variable was used to make the estimate. In fact, adding a second variable that was correlated with the first variable distorted values of the regression coefficients. Nevertheless, the prediction for dependent variable could be made even when the individual effect of multi-collinearity was present, but in such a situation enough care was taken in selecting the independent variables to estimate a dependent variable so as to ensure that multi-collinearity was reduced to the minimum. With more than one independent variable, the researcher made a difference between collective effect of the two independent variables and each of them taken separately.

The computation of a correlation coefficient yielded a statistic that ranged from -1 to 1. This correlation coefficient confirmed to the researcher: the magnitude of the relationship between two variables, and the direction of the relationship between the two variables. Regression analysis also yielded a statistic called coefficient of determination (R^2). R^2 was the amount of variation explained by the independent variable or variables. For every value of slope the computer gave a t-value and the probability level for each t-value. An independent variable was a significant

predictor of the dependent variable if the absolute t-value of the regression coefficient associated with that independent variable was greater than the absolute critical t-value (Kothari, 2011; Mugenda & Mugenda, 2012). Regression analysis assumed that: each independent variable was linearly related to the dependent variable, observations were independent of each other, homogeneity of variance existed, and Y values were normally distributed around the mean at each level of X in the population.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

The main concentration of this chapter is the data analysis, presentation and interpretation of the results of the data collected during the research. The interpretation is linked to the overall objectives of the research which was to investigate the relationship between innovations and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. An effort was made to address each of the five specific objectives derived from this broad objective, namely: 1) Identify relationship between innovation products and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County in Kenya, 2) Determine relationship between innovation processes and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County in Kenya, 3) Examine relationship between innovation services and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County in Kenya, 4) Establish relationship between innovation technologies and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County in Kenya and 5) Explore relationship between innovation ideas and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County in Kenya.

Findings included principal outcomes of the relationship between innovations and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County; stated what the study suggested, revealed or indicated. The findings of this research were presented in figures, pie charts and tables to give relevant meaning to findings. A discussion of research findings related study results to the research questions and existing knowledge (Mugenda & Mugenda, 2012). The

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discussion expounded on how the results were important in extending current knowledge and professional practice in entrepreneurship.

Quantitative data collected was analyzed by descriptive statistics and presented through tables, charts, figures and in prose. Qualitative data was coded into the different factors and sectors and analyzed through content analysis. Content analysis is a technique widely used in qualitative research to understand and interpret the content and internal features of written text. The objective is to determine the presence and meaning of certain themes, words, concepts, phrases, characters or sentences within texts or sets of texts and to quantify this presence in an objective manner (Mugenda & Mugenda, 2012). The analysis utilized SPSS software to facilitate all computations and output for interpretation by the researcher. The conclusions were then made using the sample results. The findings and conclusions attempted to answer the study problem and provide an entrepreneurial response to the study.

4.2 Responses rate and validity

This research study was conducted between January and June, 2014. The study covered small and medium electrical machinery enterprises in four districts of Nairobi County in Kenya. The four districts are Nairobi West, Nairobi East, Nairobi North and Westlands. In Nairobi West district, the small and medium electrical machinery enterprises that took part in this research study are shown in Table 4.1.

Table 4.1: Small and medium electrical machinery enterprises in Nairobi West district

Nature of Enterprise		Number
Electrical Contractors	6	
Electrical Engineers	4	
Electrical Equipment	3	
Elevators and Escalators	2	
Electrical Suppliers	2	
Electric Fencing	1	
Electric Cables	1	
Generators	1	
Electric Motors	1	
Electrical Appliances-Repairing	1	
Electric Tools	1	
Electric Plumbing and Works	1	

Source: TelcomKenya (2012).

The enterprises, locations and number of small and medium electrical machinery enterprises that participated in this research study in Nairobi West district are presented in Table 4.2.

Table 4.2: Small and medium electrical machinery enterprises in Nairobi West district

Nature of Enterprise	Location	Number
Electrical Contractors	Mombasa Road	3
Electrical Equipment	Mombasa Road	2
Electrical Engineers	Mombasa Road	2
Electric Fencing	Mombasa Road	1
Generators	Lusaka Road	1
Electric Motors	Lusaka Road	1
Electric Contractors	Lusaka Road	1
Electrical Appliances-Repairing	Factory Street	1
Electrical Contractors	Factory Street	1
Electric Tools	Dunga Close	1
Electrical Suppliers	Dunga Close	1

Elevators and Escalators	Haile sela ssie Avenue	1
Electrical Suppliers	Bandari Road	1
Elevators and Escalators	Mamlaka Road	1
Electric Cables	Addis Ababa Road	1
Electrical Engineers	Commercial Road	1
Electrical Engineers	Melili Road	1
Electrical Contractors	Mombasa Road	1
Electrical Plumbing and Works	Keekorok Road	1
Electrical Equipment	Off Dunga Road	1

Source: TelcomKenya (2012).

In Nairobi East district, small and medium electrical machinery enterprises that participated in this research study are presented in Table 4.3.

Table 4.3: Small and medium electrical machinery enterprises in Nairobi East district

Nature of Enterprise	Number
Electro-plating	1
Electrical Engineers	1
Electronic Equipment and Supplies	2
Electrical Supplies	3
Electronic Components	2
Electrical Equipment	1
Electric Pumps	3
Electrical Contractors	5
Electrical Appliances	1
Electronic Products	1
Generators	4

Source: TelcomKenya (2012).

The enterprises, locations and number of small and medium electrical machinery enterprises in Nairobi East district that participated in this research study are depicted in Table 4.4.

Table 4.4: Small and medium electrical machinery enterprises in Nairobi East district

Nature of Enterprise	Location	Number
Electro-plating	Enterprise Road	1
Electrical Engineers	Enterprise Road	1
Electronic Equipment and	Enterprise Road	2
2Electrical Supplies	Enterprise Road	1
Electronic Components	Enterprise Road	2
Electrical Equipment	Enterprise Road	1
Electric Pumps	Enterprise Road	1
Electrical Contractors	Enterprise Road	1
Electrical Appliances	Enterprise Road	1
Electronic Products	Enterprise Road	1
Electrical Supplies	Road A off Enterprise Road	1
Electrical Contractors	Road A off Enterprise Road	1
Electric Pumps	Road A off Enterprise Road	1
Electrical Contractors	Dar es salaam Road	1
Electrical Supplies	Electrical es salaam Road	1
Generators	Dar es salaamRoad	1
Electric Pumps	Changamwe Road off Enterprise Road	1
Electrical Contractors	Road C off Enterprise Road	1
Electrical Contractors	Busia Road	1
Generators	Kampala Road	2

Source: TelcomKenya (2012).

In Nairobi North district small and medium electrical machinery enterprises that participated in this research study are posted in Table 4.5.

Table 4.5: Small and medium electrical machinery enterprises in Nairobi North district

Nature of Enterprise	Number
Electrical Appliances	4
Electronic Equipment and Supplies	4
Electronic Components	2
Electrical Fittings	2
Electrical Equipment	2
Electrical Supplies	2
Electrical Appliances-wholesalers and	1
Manufacturers	1
Electrical Appliances-repairing	1
E1lectric Pumps	1
Electrical Contractors	1
Electrical Engineers	1
Electronic Products	1

Source: Telcom Kenya (2012).

The enterprises, location and number of small and medium electrical machinery enterprises in Nairobi North district that took part in this research study are presented in Table 4.6.

Table 4.6: Small and medium electrical machinery enterprises in Nairobi North district

Nature of Enterprise	Location	Number
Electronic Products	Outer Ring Road	1
Electrical Engineers	Outer Ring Road	1
Electrical Contractors	Outer Ring Road	1
Lighting Systems and Equipment	Road one off Baba Dogo Road	1
Electrical Supplies	Road one off Baba Dogo Road	1
Electric Pumps	Baba Dogo Road	1
Electrical Supplies	Kirinyaga Road	1
Electrical Appliances	Kirinyaga Road	1
Electrical Equipment	Kirinyaga Road	1
Electrical Appliances	Kirinyaga Road	1

Electrical Appliances	Kirinyaga Road	1
Electrical Appliances	Kirinyaga Road	1
Electrical Fittings	Kirinyaga Road	1
Electrical Fittings	Sheikh Karume Road	1
Electronic Components	Luthuli Avenue	2
Electronic Equipment and Supplies	Luthuli Avenue	3
Electrical Appliances-wholesalers and Manufacturers	Duruma Road	1
Electrical Equipment	Murang'a Road	1
Electronic Equipment and Supplies	Solai Road	1
Electrical Appliances	Tom Mboya Street	1

Source: TelcomKenya (2012).

In Westlands district small and medium electrical machinery enterprises that participated in this research study are shown in Table 4.7.

Table 4.7: Small and medium electrical machinery enterprises in Westlands district

Nature of Enterprise	Number
1 Electronic Equipment and Supplies	4
Electrical Contractors	3
Electrical Supplies	2
Electrical Appliances	2
Electrical Engineers	2
Electronic Products	2
Electronic Equipment-repairing	2
Elevators and Escalators	1
Electric Pumps	1
Electronic Components	1
Electrical Equipment	1
Electrical Appliances-repairing	1
Electrical Heating Equipment and Systems	1

Source: TelcomKenya (2012).

Westlands district small and medium electrical machinery enterprises; location and number are presented in Table 4.8.

Table 4.8: Small and medium electrical machinery enterprises in Westlands district

Nature of Enterprise	Location	Number
Electronic Equipment and Supplies	Kijabe Street	2
Electrical Contractors	Kijabe Street	2
Electrical Engineers	Kijabe Street	1
Electrical Appliances	Kijabe Street	1
Electronic Components	Kijabe Street	1
Electric Pumps	Kijabe Street	1
Elevators and Escalators	Kijabe Street	1
Electrical Supplies	Kirinyaga Road	2
Electrical Appliances	Kirinyaga Road	1
Electrical Contractors	Kirinyaga Road	1
Electronic Equipment and Supplies	Kirinyaga Road	1
Electrical Appliances-repairing	Kirinyaga Road	1
Electrical Engineers	Kirinyaga Road	1
Electrical Equipment	Kirinyaga Road	1
Electronic Equipment –repairing	Westlands Road	1
Electronic Products	Sarit Centre	1
Electronic Products	Woodvale Groove Road	1
Electronic Equipment-repairing	Ojijo Road	1
Electronic Equipment and Supplies	Chiromo Road	1
Electrical Heating and Systems	Ambala Road	1

Source: TelcomKenya (2012).

The study covered small and medium electrical machinery enterprises in Nairobi West district, Nairobi East district, Nairobi North district and Westlands district of Nairobi City County in Kenya. A total of 96 respondents of four districts were sampled in the research study (see Appendix 6). The average number of the respondents sampled per district was 24. Out of the 96 respondents sampled 94 respondents responded in the study, thus representing a 97.9 percent overall response rate. The high response rate was likely to increase the validity of results. Although the researcher in this study wanted to collect data from 96 respondents based on the calculated sample size, two respondents either refused or were not available to take part in the research study. A detailed representation of the response rate is shown in Table 4.9.

Table 4.9: Response rate of respondents from four districts of Nairobi City County

District name	Respondents sampled	Responded	No response	Response rate
	25	24	1	96
Nairobi East	24	24	0	100
Nairobi North	24	23	1	95.8
Westlands	23	23	0	100
Total	96	94	2	97.9

4.3 Demographic information of the respondents

This section presents the analysis of the demographic information of respondents as revealed from the data collected from small and medium electrical machinery enterprises in Nairobi City County in Kenya. This includes respondents' highest academic qualifications and year of birth. Research in demographic context provided a great deal of understanding of the population dynamics and their linkages to social problems.

4.3.1 Respondents' highest academic qualifications

The respondents were requested to provide information on their highest level of academic qualifications. The results indicate that majority (65%) of the respondents had attained degree level of education while higher diploma academic qualifications' respondents had a representation of 30%. The results could be interpreted to imply that higher percentage of enterprises were run by qualified staffs hence had positive impact on the innovation and enterprise growth among the small and medium electrical machinery enterprises in Nairobi City County in Kenya.

The government recognizes the strategic importance of improving the overall education level of Kenyans within the context of poverty reduction and economic growth (ROK, 2005). Education is an investment in human capital and empirical evidence, based on endogenous growth models, reveals that human capital is a key determinant of economic growth. Indeed, sustainable development is only tenable if there is a critical mass of skilled people. Studies on poverty in Kenya indicate that education is an important factor in poverty reduction. There is a positive relationship between human capital and earnings as well as the overall productivity that is well captured by measures of human capital returns. Studies of human capital returns in Kenya suggest that capital returns increase as the level of education goes higher. There are also studies suggesting that individuals benefit a great deal from the education of others. These findings point out the importance of an educated population in the context of small and medium electrical machinery enterprises in Nairobi City County, Kenya. The highest academic qualifications played a crucial role in the relationship between innovations and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County, Kenya. Details of the results on respondents' highest academic qualifications are provided in Figure 4.1.

Higher Diploma
30%

Certificate
5%

Degree 65%
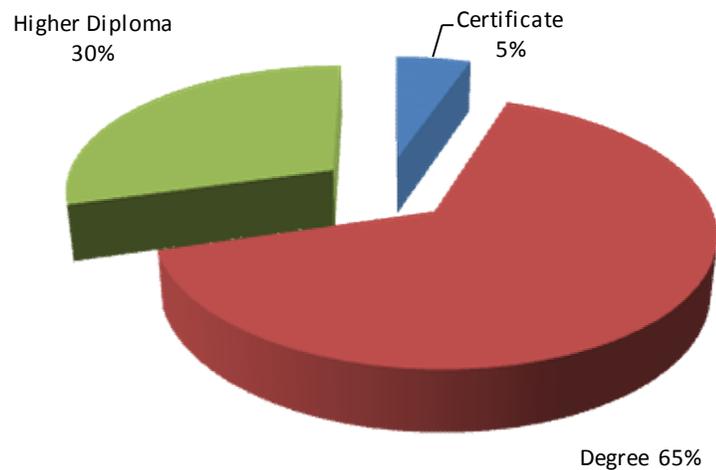
Figure 4.1: Respondents' highest academic qualifications

4.3.2 Distribution of respondents by year of birth

The study sought to establish the distribution of respondents by their year of birth. The study found that the age of the entrepreneur had a significant contribution to innovations and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. According to the findings majority of the entrepreneurs (62%) were in the birth bracket of 1961-1970 while 16% were in the birth bracket of 1971 and 1980 years. This meant that most of the respondents were energetic and could drive well the innovations and enterprise growth of small and medium electrical machinery enterprises in Nairobi County, Kenya. This is in agreement with Bwisa's (2011) argument that an entrepreneur systematically and purposefully tries to create new and different values and new and different satisfactions, to convert a material into a resource or combine existing resources in a new and more productive configuration. Details of the results on distribution of respondents by year of birth are posted in Figure 4.2.

The principal outcome of the entrepreneur is to focus on innovation, profitability and sustainable growth. This requires energy and purpose for the principal outcome to occur.
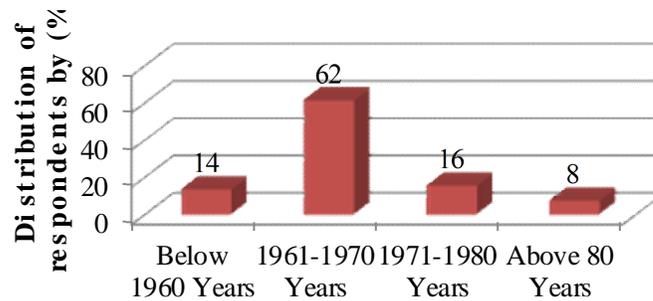
Figure 4.2 Distribution of respondents by year of birth

This would culminate into enterprise growth through wealth, outputs and exports, employment, income generation, poverty alleviation, taxes, government revenue, higher productivity and innovations in the small and medium electrical machinery enterprises in Nairobi City County in Kenya. The enterprising behaviors of entrepreneurs will include: continually making things happen, seeking opportunity, solving problems and conflicts creatively, persuading others, and acting independently on own initiative, actively seeking to achieve goals, flexibly responding to challenges, coping with and enjoying uncertainty and taking actions in uncertain environments to achieve innovations and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County.

4.4 The Demographic information of the enterprises

In this section the study sought to establish the general information of the small and medium electrical machinery enterprises in Nairobi City County, Kenya. The research study focused attention on the legal status of the enterprises, duration of enterprise operations, geographic markets enterprises sold goods and/or services, number of employees at the start of the enterprises, number of employees currently at the enterprises, total number of employees in 2009, total number of employees in 2012, total number of employees with university education in 2012 and approximate total turnover s for 2009 and 2012 in millions of Kenya shillings. The results of the study are presented in the subsequent sections.

4.4.1 Legal status of the enterprises

The research study sought to establish the legal status of the small and medium electrical machinery enterprises in Nairobi City County in Kenya. This is essential in identifying the advantages of the legal form of small and medium electrical machinery enterprises in the County as the enterprise grows and alters its operations over time. Thus, the financial and tax situations may modify the advantages of the legal form of operation of the small and medium electrical machinery enterprises in Nairobi City County in Kenya. The study found that the majority of small and medium electrical machinery enterprises (83.3%) in Nairobi City County in Kenya had limited legal status of the enterprise.

This result may be interpreted to mean that the small and medium electrical machinery enterprises in Nairobi City County in Kenya preferred the limited legal status of the enterprise due to the prevailing advantages inherent in this form of legal organization of the enterprise that would contribute and lead to innovations and enterprise growth. These advantages may include but not limited to: management specialization, enterprise continuity, transferability of enterprise ownership, limited liability, legal entity, potential tax advantages and capital mobilization possibilities for innovations and enterprise growth. Meanwhile, only 16.7% of the small and medium electrical machinery enterprises in Nairobi City County in Kenya had partnership legal status of enterprise. Details on legal status of the enterprises are presented in Table 4.10.

Table 4.10: Legal status of the enterprises

	Frequency	Percent
Sole Proprietorship	0	0
Partnership	16	16.7
Limited company	80	83.3
Total	96	100

4.4.2 Duration of enterprise operation

The study sought to determine duration the enterprises had been in operation in Nairobi City County in Kenya. The result of the study shows that 35% of the enterprises had been in operation for over 31 years while 33% of the enterprises had operated for between 21-30 years. The results were interpreted to mean that most small and medium electrical machinery enterprises had indeed been in operation for considerable number of years hence a reason for stability in enterprise growth. The results of the study on duration of enterprise operations are shown in Figure 4.3.
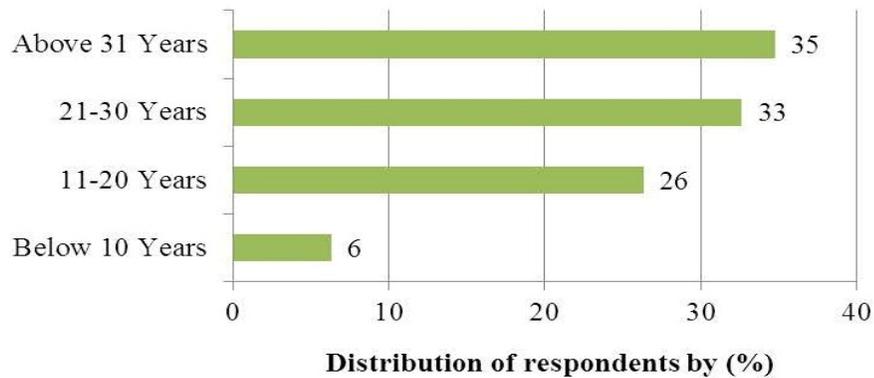
Figure 4.3: Duration of enterprise operations

4.4.3 Geographic markets enterprises sell goods or services

The respondents were requested to provide information on the geographic markets that their enterprises sell goods or services. The results of the research study indicated that an overwhelming majority (70%) of the small and medium electrical machinery enterprises in Nairobi City County in Kenya sold their goods or services within Kenya. Nevertheless, 23% of the enterprises sold their goods or services in Nairobi City County. The findings meant that most small and medium electrical machinery enterprises in Nairobi City County in Kenya have their market base in Kenya. The results of the research study on geographic markets that the small and medium electrical machinery enterprises in Nairobi City County in Kenya sold goods/services are presented in Figure 4.4.

Figure 4.4: Geographic markets enterprises sell goods/services

4.4.4 Number of employees at the start of the enterprises

The study sought to establish the number of employees at the beginning of their enterprises. The results of the study indicate that majority (92%) of the respondents actually had below 5 employees at the start of their enterprises. Only 4% of the small and medium electrical machinery enterprises in Nairobi County, Kenya had above 21 employees at the start of their enterprises. This can be interpreted to mean that most small and medium electrical machinery enterprises in Nairobi City County had few employees at the start of their businesses. The results of this study on the number of employees at the start of the small and medium electrical machinery enterprises in Nairobi City County are presented in Table 4.11.

Table 4.11: Number of employees at the start of the enterprises

	Frequency	Percent
Below 5 Employees	88	92
6-10 Employees	2	2
11-15 Employees	2	2
Above 21 Employees	4	4
Total	96	100

4.4.5 Number of employees currently at the enterprises

The study sought to establish the number of employees currently at the small and medium electrical machinery enterprises in Nairobi County, Kenya. The results of the study indicate that a simple majority (51%) of the enterprises had 11-20 employees while 20% show that they had 21-30 employees. The results imply that the increase in the number of employees is as a result of innovations and enterprise growth of the small and medium electrical machinery enterprises in Nairobi County. The results of the study on number of employees currently at the enterprises are presented in Table 4.12.

Table 4.12: Number of employees currently at the enterprises

	Frequency	Percent
Below 10 Employees	17	18
11-20 Employees	48	51
21-30 Employees	19	20
31-40 Employees	7	7
Above 41 Employees	5	5
Total	96	100

4.4.6 Total Number of Employees in 2009

The research study sought to determine the total number of employees at the enterprises in 2009. The result of the study shows that the majority (69%) of the small and medium electrical machinery enterprises in Nairobi County, Kenya had below 15 employees in 2009 while 19% had 16-25 employees in the same year. This implies that the enterprises had adequate number of employees to take part in innovations and enterprise growth. The results of the research study on total number of employees in 2009 are presented in Figure 4.5.
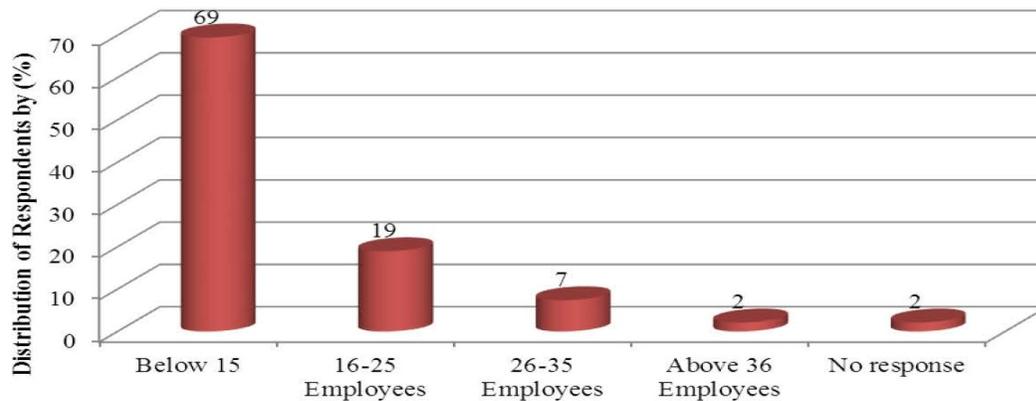
Figure 4.5: Total number of employees in 2009

4.4.7 The total number of employees in 2012

The research study sought to establish the total number of employees in small and medium electrical machinery enterprises in Nairobi City County in Kenya in 2012. The results of the study revealed that majority (50%) of respondents had between 21-30 employees. Meanwhile 6% of the respondents had between 31-40 employees. The study could be interpreted to mean that increase on the number of employees was as result of enterprise growth at the small and medium electrical machinery enterprises in Nairobi City County in Kenya. The results of the research study on total number of employees in small and medium electrical machinery enterprises in Nairobi City County in 2012 are presented in Figure 4.6.
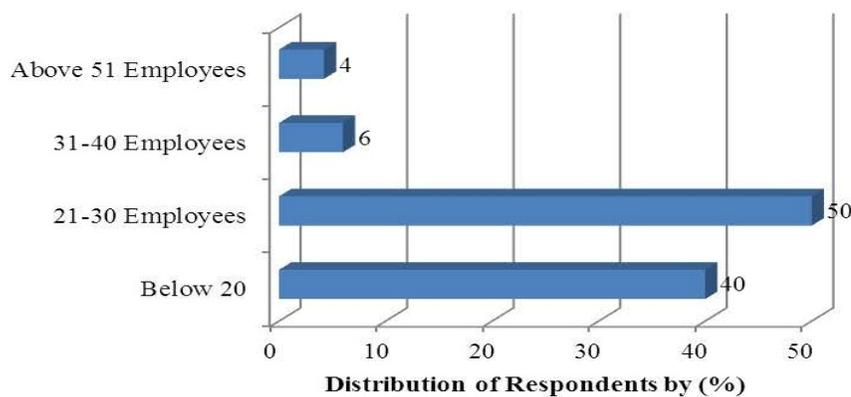

Figure 4.6: Total number of employees in 2012

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4.4.8 Total Number of Employees with University Degree in 2012

The research study sought to determine the number of employees in the small and medium electrical machinery enterprises in Nairobi City County in Kenya with university degree. The results of the study indicate that 73% of the employees had university degree. Only 27% had no degree. The results of the study can be interpreted to mean that high number of employees had attained university degree. The results of the study on total number of employees with university degree in 2012 are presented in Figure 4.7.
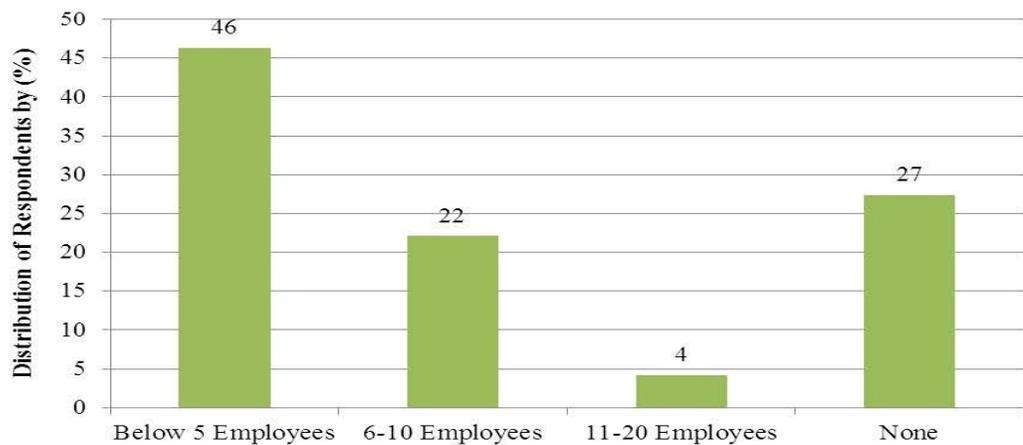
Figure 4.7: Total number of employees with university degree in 2012

4.4.9 Approximate total turnover for 2009 and 2012

The researcher of this study requested the respondents to provide information on the turnovers of their enterprises for 2009 and 2012. The results of the study indicate that in 2009, 40% of the respondents had a turnover below 25 million Kenya shillings while in 2012, 34% of the respondents had a total turnover below 25 million Kenya shillings. The results of the study again reveal that in 2009, 23% of the respondents had a total turnover above 66 million Kenya shillings. On the contrary in 2012, 42% of the respondents realized a total turnover above 66 million Kenya shillings. These results of the study could be interpreted to imply that most enterprises encountered growth in their businesses. The results of the study on approximate total turnover for 2009 and 2012 in Kenya shillings are posted in Table 4.13.

Table 4.13: Approximate Total Turnovers for 2009 and 2012

	Year 2009				Year 2012			
Turnover in Millions	Below 25	26-45	46-65	Above 66	Below 25	26-45	46-65	Above 66
Frequency	38	21	14	22	33	13	10	40
Percentages	40	22	15	23	34	14	10	42

4.5 Innovations

This section discusses the meaning of innovation to small and medium electrical machinery enterprises in Nairobi City County in Kenya, level of relationship between innovations and enterprise growth, agreement of relationship between innovations and enterprise growth and lastly whether innovations greatly improved enterprise growth. The results of the research study are highlighted in subsequent sections.

4.5.1 Meaning of Innovation

The research study sought to establish meaning of innovation to respondents in the small and medium electrical machinery enterprises in Nairobi City County in Kenya. Majority (64%) of respondents indicate that innovation is the successful implementation of new and appropriate ideas. Conversely, 19% of the respondents alluded to the fact that all the given definitions are applicable. That is, commercialization of an invention, successful implementation of new and appropriate ideas, adding value to something already existing and management process were applicable definitions to innovation. This could be interpreted to mean that innovation was a concept with varying definitions. The results of the research study on meaning of innovation are presented in Figure 4.8.
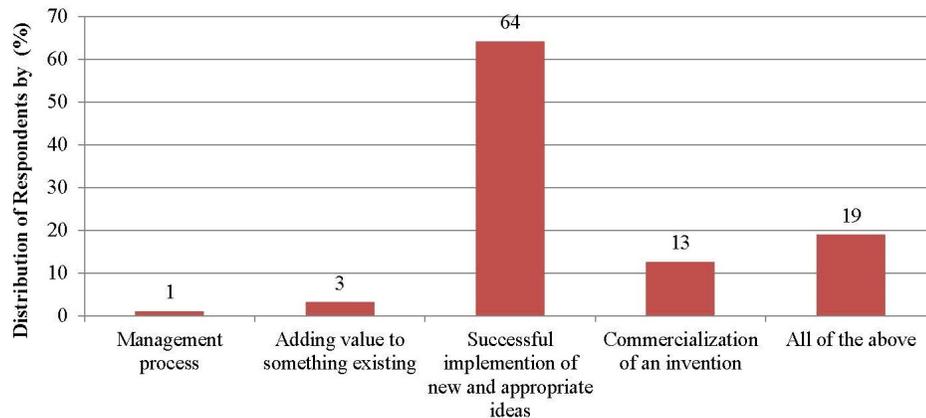
Figure 4.8: Meaning of innovation

4.5.2 Relationship between innovations and enterprise growth

The research study sought to determine whether there is any relationship between innovations and enterprise growth. The majority (93%) of the respondents indicated that indeed there was relationship between innovations and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. Nevertheless, a paltry 3% indicated otherwise. The findings of the study could be interpreted to mean that for enterprise growth to be realized innovations should be adopted by the small and medium electrical machinery enterprises in Nairobi City County in Kenya. Asked to state why innovations were valuable for enterprise growth, the majority of respondents highlighted that innovations were responsible tool, force and driver for enterprise growth. This confirms Bwisa (2011) and Trott (2012) arguments that successful innovations were systematic, purposeful, visionary and mission-oriented activity. The results of the research study on relationship between innovations and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County are presented in Figure 4.9.
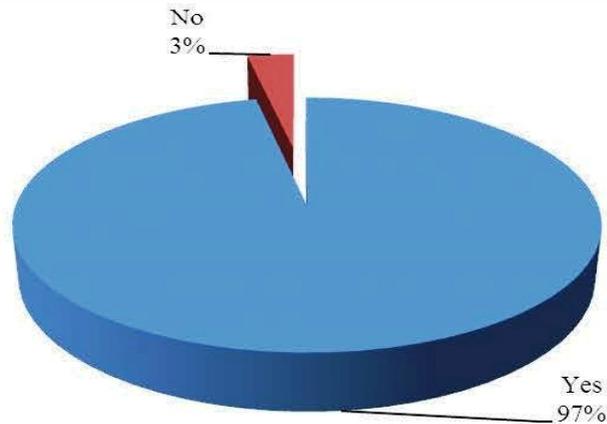
Figure 4.9: Relationship between innovations and enterprise growth

4.5.3 Relationship between innovations and enterprise growth

The research study sought to determine the relationship between innovations and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. The results of the research study indicated that 68% of respondents suggested that there was relationship between innovation products and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. The results of the research study indicated that 67% of respondents revealed that there was relationship between innovation processes and enterprise growth among small and medium electrical machinery enterprises. The findings of the research study indicated that 63% of respondents suggested that there was relationship between innovation services and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya.

The results of the research study revealed that 49% of respondents suggested that there was no relationship between innovation technologies and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. On the contrary, the results of the research study indicated that only 15% of respondents suggested that there was relationship between innovation technologies and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. Finally, results of the research study indicated that 70% of respondents suggested that there was relationship between innovation ideas

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and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya.

The findings of the research study implied that there was relationship between the five innovations and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. These findings agree with Gathenya, Bwisa and Kihoro (2011) therefore, the innovations that are actualized by both entrepreneurship and strategic planning are manifest in either the basis by which a firm differentiates itself competitively from its competitors and/or business model. The results of the research study on relationship between innovations and enterprise growth are presented in Table 4.14.

Table 4.14: Relationship bet No table of figures entries found.**ween innovations and enterprise growth**

	Extremely No Relationship (%)	No Relationship (%)	Neutral (%)	There is Relationship (%)	Extremely There is Relationship (%)	Total (%)
Relationship between innovation products	0	3	28	68	0	100
Relationship between innovation processes	0	5	27	67	0	100
Relationship between innovation services	1	2	23	63	11	100
Relationship between innovation technologies	12	49	22	15	2	100
Relationship between innovation ideas	2	0	12	70	17	100

4.5.4 Innovations greatly improve enterprise growth

The research study sought to establish whether innovations greatly improve enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. The results of the research study indicated that 64%

of respondents moderately agreed with the statement while only 8% strongly agreed. The results of the research study meant that innovations had positive impact on enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. The results of the research study on whether innovations greatly improve enterprise growth are illustrated in Figure 4.10.
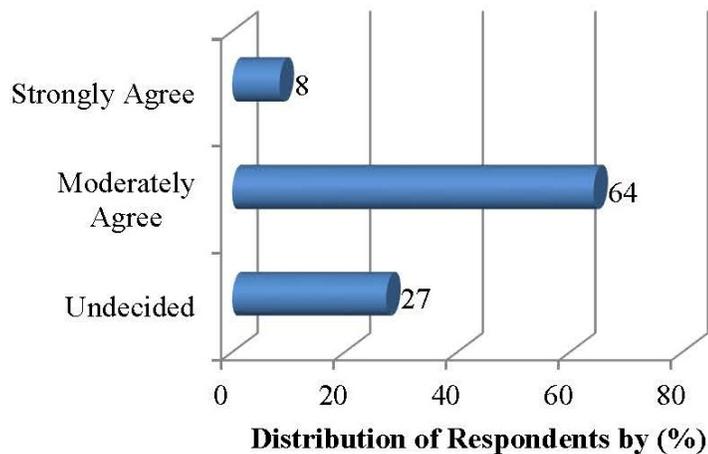

Figure 4.10: Whether innovations greatly improve enterprise growth

4.6 Interview guide for small and medium electrical machinery enterprises

In this section the research study sought to establish by means of interview guide relationship between innovations and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County Kenya. The interview guide was essentially a research tool that was used by the researcher in this study to guide an open-ended interview. The interview guide consisted of questions that the researcher would ask the respondent arranged in a logical order. The researcher in this study used probing to clarify issues of the research study and obtained further information that enriched data. The findings of the research study are presented in the subsequent sections.

4.6.1 Innovation products

The research study sought to identify relationship between innovation products and enterprise growth of respondents in small and medium electrical machinery enterprises in Nairobi City County, Kenya. The results of the research study

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indicated that 58% of respondents suggested relationship between innovation products and enterprise growth among small and medium electrical machinery enterprises was to medium extent. However, 32% of the respondents indicated that relationship between innovation products and enterprise growth was to low extent.

The results of the research study could be interpreted to mean that relationship between innovation products and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County Kenya was positive. This finding confirms the tenets of economic entrepreneurship theory that explored the economic factors that enhanced entrepreneurial innovation behavior. The innovation products outcome was also supported by resource-based entrepreneurship theory that argues that access to resources by founders was important predictor of opportunity based entrepreneurship and new venture growth (Alvarez & Busenitz, 2001). The results of the research study relationship between innovation products and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya are exhibited in Figure 4.11.
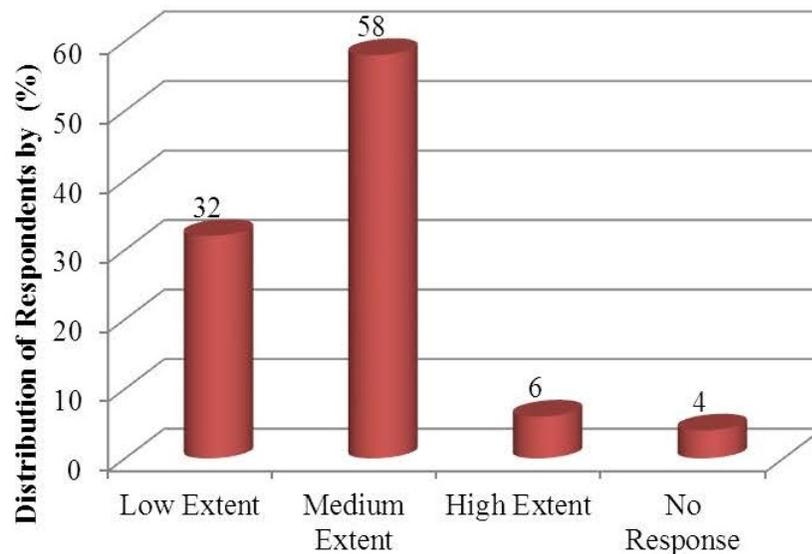

Figure 4.11: Relationship between innovation products and enterprise growth

The respondents were asked to state how innovation products relate to the enterprise growth; a high number of the respondents suggested that new, better and improved products were introduced into enterprise to promote competition among products hence enterprise growth in small and medium electrical machinery enterprises in Nairobi City County Kenya and vice versa. This result concurs with suggestion of O'sullivan and Dooley (2009) that innovation products was about making beneficial changes to physical products.

The respondents were again asked to indicate why relationship between innovation products and enterprise growth was significant; most respondents revealed that there was availability of readily new, opportunistic and improved products to the market. However, when asked to provide reasons as to why relationship between innovation products and enterprise growth was insignificant; a considerable number of respondents suggested that the products could not meet the customer demands and that other enterprises offered similar products hence stiff competition. The respondents were again asked to state problems leading to insignificance relationship between innovation products and enterprise growth. Most respondents indicated that they lacked capacity to produce needed products, lacked entrepreneurial skills to identify opportunities of needed products and lacked technical skills to produce or modify products.

The results of the research study indicated that the main effects of insignificance relationship between innovation products and enterprise growth was that it reduced market share, reduced market quality, reduced range of products and lack of quality and improved products. The results of the research study revealed that the ultimate effect of the problem of insignificance relationship between innovation products and enterprise growth was that the overall objective of relationship between innovation products and enterprise growth could not be achieved; hence small and medium electrical machinery enterprises would not adequately compete in local, national, regional and international markets and that increasing range of products and services could not be achieved.

The research study sought to determine whether the respondents considered that they had enough relationship between innovation products and enterprise growth. The majority (92%) of the respondents indicated that they had factored in enough relationship between innovation products and enterprise growth. Only 8% of the respondents objected that they had enough relationship between innovation products and enterprise growth. The results of the research study on whether the respondents have enough relationship between innovation products and enterprise growth are displayed in Figure 4.12.
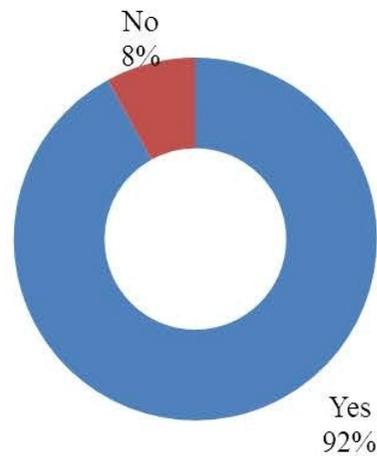
Figure 4.12: Enough relationship between innovation products and enterprise growth

When asked to provide reasons for their responses to whether they considered that they had enough relationship between innovation products and enterprise growth, the respondents suggested that innovation products made beneficial changes to physical products and that they helped meet clients' demand. The respondents revealed that in order to make relationship between innovation products and enterprise growth adequate, the government need develop a policy framework for supporting and sustaining innovation products, and the small and medium electrical machinery enterprises in Nairobi City County in Kenya attempt improve and increase the capacity for innovation products in their enterprises.

The research study reveals that there is a significant relationship between innovation products and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. This is ascertained by the respondents' satisfaction level with the innovation products in the small and medium electrical machinery enterprises in Nairobi City County. The majority of respondents indicated that they were satisfied with the innovation products while a small number of the respondents were neutrally satisfied with innovation products. A large percentage of respondents suggested that innovation products contributed to enterprise growth to a medium extent due to introduction of new, better and improved products into the enterprise which ultimately promoted competition hence growth in the small and medium electrical machinery enterprises in Nairobi City County in Kenya. This was in agreement with findings of Gakure and Kirima (2011) that enterprises achieve competitive advantage through acts of innovation which can be manifested in a new product design, a new production process, a new marketing approach or a new way of doing business. Similarly; Gathenya, Bwisa and Kihoro (2011) confirm that innovativeness and creativity geared towards enhancing performance should be core for small and medium enterprises in fostering competitive advantage.

The research study also indicated that there were definite reasons as to why innovation products contributed significantly to growth of small and medium electrical machinery enterprises in Nairobi County, Kenya. A significant percentage of the respondents revealed that innovation products had factored in adequate contribution to growth due to readily new, opportunistic and improved products to market. However, the research study suggested that there were potential reasons as to why innovation products contributed insignificantly to growth of small and medium electrical machinery enterprises in Nairobi City County in Kenya. A considerable number of the respondents indicated that the products could not meet the customer demands and those other small and medium electrical machinery enterprises in Nairobi City County in Kenya offered similar products hence stiff competition.

The research study found that lack of capacity to innovate; lack of entrepreneurial and technical skills to produce or modify products were main problems that led to insignificance relationship between innovation products and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County Kenya. This according to the study ultimately led to lack of competition in the local, national, regional and international markets.

4.6.2 Innovation processes

The research study sought to establish the relationship between innovation processes and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. Majority (58%) of the respondents indicated that the relationship between innovation processes and enterprise growth was to medium extent. This was attributed to introducing new and improved production methods to small and medium electrical machinery enterprises in Nairobi City County in Kenya and transforming inputs into specified outputs for customers. Contrary to expectation, 32% of the respondents suggested that relationship between innovation processes and enterprise growth was to low extent. The results of the study on relationship between innovation processes and enterprise growth are presented in Figure 4.13.
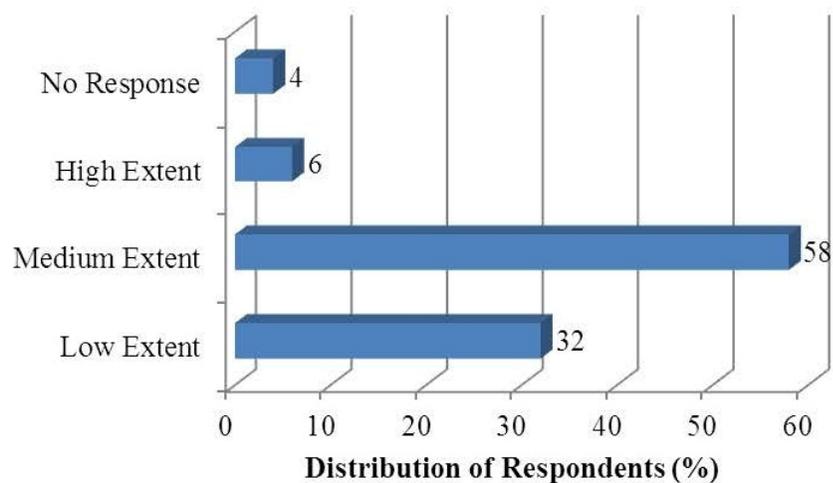

Figure 4.13: Relationship between innovation processes and enterprise growth

The results of the research study deduced that relationship between innovation processes and enterprise growth significantly improved production methods that added value to products. These findings agree with O'Sullivan and Dooley (2009) innovation processes were the introduction of a new or significantly improved method for production or delivery of output that added value to enterprise. Ideally, this was accomplished by availing needed products, increasing production quality and improving flexibility of production in small and medium electrical machinery enterprises in Nairobi City County in Kenya.

On the insignificance relationship between innovation processes and enterprise growth, most of the respondents revealed that other small and medium electrical machinery enterprises in Nairobi City County in Kenya processed similar products and that there existed inadequate production capacity in some small and medium electrical machinery enterprises in Nairobi City County in Kenya consequently insignificance of production processes.

The results of the research study revealed that lack of capacity to produce, production of products by other small and medium electrical machinery enterprises in Nairobi City County in Kenya and lack of technical and entrepreneurial skills were main causes of insignificance relationship between innovation processes and enterprise growth. The findings showed that reduced production capacity, reduced flexibility of production methods, reduced market share and increased production costs per unit of labor, electricity and materials were key effects that were realized as a result of insignificance relationship between innovation processes and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya.

The results of the research study finally suggested that the ultimate effect of insignificance relationship between innovation processes and enterprise growth was that the objective of increasing range of products could not be achieved, that small and medium electrical machinery enterprises could not compete in the local, national, regional and international markets and that the objectives of increasing production methods and techniques could not be attained.

The research study sought to establish whether there was enough relationship between innovation processes and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. The results of the research study indicated that majority (58%) of the respondents revealed that there was enough relationship between innovation processes and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. On the contrary, 36% of the respondents suggested that there was no enough relationship between innovation processes and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya.

Asked to state how the relationship between innovation processes and enterprise growth was provided, a good number of respondents revealed that small and medium electrical machinery enterprises in Nairobi City County in Kenya adapted delivery of services that added value, that most enterprises embrace commercialization of products and services and by continually increasing production capacity and applying own innovation processes. However, others suggested that more needed to be done while some indicated the reliance to what others had produced resulted to insufficient relationship between innovation processes and enterprise growth. Lastly, the respondents indicated that in order to realize enough relationship between innovation processes and enterprise growth; the government needs to initiate programs to tap and develop human resources for innovation processes, continually reduce production cost per unit and continually increase methods and techniques.

The research study found that there is a significant relationship between innovation processes and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. The study established that a large percentage of respondents in the small and medium electrical machinery enterprises in Nairobi City County were satisfied with the relationship between innovation processes and enterprise growth. However, a small percentage of the respondents confirmed that they had a neutral satisfaction level with the relationship between innovation processes and enterprise growth. Consequently, the research study determined that a reasonable percentage of the respondents revealed that relationship between innovation processes and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya was to a medium extent. This was by introducing new and improved production methods to enterprises and transforming inputs into specified output for the customers.

In relation to the findings, the research study deduced that innovation processes significantly improved production methods that added value to products, that innovation adequately helped in availing needed products and contributed significantly by increasing production quality and improving flexibility of production. This relate to the argument of O'sullivan and Dooley (2009) that process innovation is the introduction of a new or significantly improved method for production or delivery of output that added value to the organization. Similarly, the term process refers to an interrelated set of activities designed to transform inputs into a specified output for the customer. It implied a strong emphasis on how work was done within an organization rather than what an organization did (Davenport, 1992). Essentially, innovation processes gave organizations a competitive advantage that allows them to dominate some global markets with products.

On the insignificance contribution of innovation processes to growth, most respondents indicated that other small and medium electrical machinery enterprises in Nairobi City County processed similar products and that there existed inadequate

production capacity in some enterprises consequently the insignificance of production processes. The research study realized that lack of capacity to produce, production of products by other small and medium electrical machinery enterprises in Nairobi City County and lack of technical and entrepreneurial skills were the main causes of insignificance contribution of innovation processes to growth.

The findings showed that reduced production capacity, reduced flexibility of production methods, reduced market share and increased production costs per unit of labor, electricity and materials were the key effects that were realized as a result of insignificance contribution of innovation processes to growth. The research study established that the ultimate effect of the insignificance contribution of innovation processes to growth was that the objective of increasing range of products could not be achieved, that competition into the local, regional and international market could not be realized and that the objectives of increasing production methods and techniques could not be ascertained.

Regarding how the contribution of innovation processes was provided to small and medium electrical machinery enterprises in Nairobi City County in Kenya; a good number of respondents suggested that enterprises adapted delivery of services that added value, which most enterprises embraced commercialization of products and services and by continually increasing production capacity and applying own innovation processes. However, other respondents indicated that the reliance to what other entrepreneurs had produced resulted to insufficient contribution of innovation processes to growth.

The results of the research study on relationship between innovation processes and enterprise growth are exhibited in Figure 4.14.
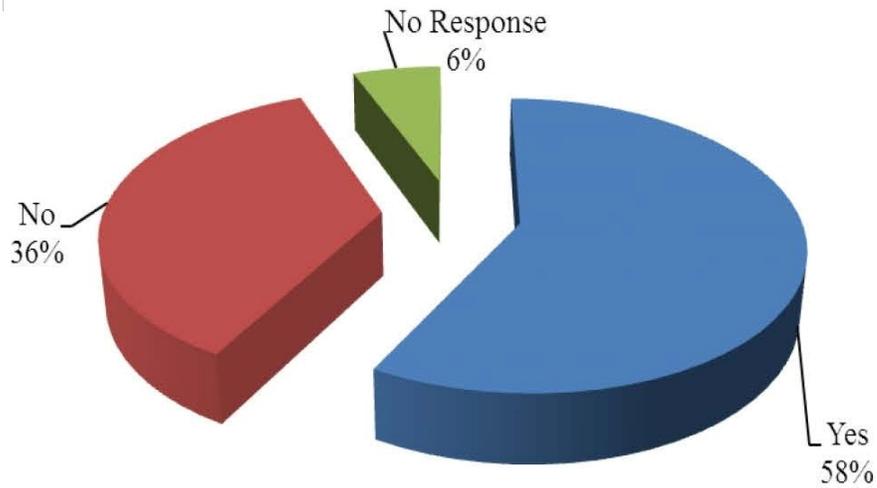
Figure 4.14: Relationship between innovation processes and enterprise growth

4.6.3 Innovation services

The research study sought to establish the relationship between innovation services and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. The majority (56%) of the respondents suggested that relationship between innovation services and enterprise growth was to a medium extent while 25% of respondents revealed that relationship between innovation services and enterprise growth was to a high extent. The respondents were then asked to provide reasons for their answers. Most of the respondents indicated that there was presence of new and opportunistic services to small and medium electrical machinery enterprises in Nairobi City County in Kenya and market and increased service quality to small and medium electrical machinery enterprises. The results of the research study on relationship between innovation services and enterprise growth are exhibited in Figure 4.15.

Figure 4.15: Relationship between innovation services and enterprise growth

The research study sought to find out reasons why there was significant relationship between innovation services and enterprise growth among small and medium electrical machinery enterprises in Nairobi City Count in Kenya. The respondents indicated that provision of new and improved opportunistic services to meet market demands were the reasons why there was significant relationship between innovation services and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya.

The results of the research study revealed that the insignificance relationship between innovation services and enterprise growth was as a result of the services being new to the small and medium electrical machinery enterprises, customer expectation not being met, innovation services available not being utilized and the lack of adequate service provision in the small and medium electrical machinery enterprises in Nairobi City County in Kenya.

In addition, results of the research study suggested that lack of technical and entrepreneurial skills and insufficient service provision capacity were causes of insignificance relationship between innovation services and enterprise growth among the small and medium electrical machinery enterprises in Nairobi City County in Kenya. The results of the research study revealed reduced service range and poor quality, unimproved flexibility of service provision are effects of insignificance

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relationship between innovation services and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. Conversely; the results of the research study deduced that the production cost per unit of labor, materials and energy increase, objective of increasing capacity services not being attained, and that competition in the local, regional and international markets not being achieved as the ultimate effect of insignificance relationship between innovation services and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya.

The research study sought to determine whether the small and medium electrical machinery enterprises in Nairobi City County in Kenya had enough support of relationship between innovation services and enterprise growth. Majority (62%) of the respondents revealed that they had enough support from relationship between innovation services and enterprise growth. However, 38% of the respondents thought objectively. The research study sought to establish means by which enough support from relationship of relationship between innovation services and enterprise growth was provided among small and medium electrical machinery enterprises. The results of the research study revealed that small and medium electrical machinery enterprises in Nairobi City County in Kenya achieved this by offering significant scope for innovation services, high interaction level with clients and by relying on internal and market sources for innovation services.

 The majority of the respondents suggested that for the enough support of relationship between innovation services and enterprise growth to be realized, government needs to formulate policy that could support and sustain innovation services, encourage adaptability and application of ICT in innovation services and improve business environment especially cost of doing of business in Nairobi City County in Kenya.

The research study reveals that there is a significant relationship between innovation services and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County in Kenya. The study found that a large percentage of the

respondents were indeed satisfied with the relationship between innovation services and enterprise growth. But, a small percentage of the respondents in the study indicated that they were neutrally satisfied with the existing relationship between innovation services and enterprise growth. Regarding the extent to which the relationship between innovation services related to enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya; the research study established that a large percentage of the respondents to a medium extent indicated that indeed the relationship between innovation services relate to enterprise growth. However, the research study found that a small percentage of the respondents to a high extent the relationship between innovation services relate to enterprise growth among small and medium electrical machinery enterprises in Nairobi City County. The research study found that this growth was attributed to presence of new and opportunistic services and increased service quality to the small and medium electrical machinery enterprises in Nairobi City County in Kenya.

O'sullivan and Dooley (2009) delineate unique characteristics of service such as intangibility, customer contact, inhomogeneity and perishable production; also offered significant scope for innovation. The concept of service quality was of particular relevance to entrepreneurs. Innovation service was about making changes to intangible products (O'Sullivan, & Dooley, 2009). A key attribute of a service was a very high level of interaction with the end customer. The research study established the reasons as to why the relationship between innovation services and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya relate significantly. The research study found that provision of new and improved opportunistic services to meet market demands related significantly to enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya.

The research study found that the insignificance relationship between innovation services and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County was as a result of the services that were new to enterprises, customer expectation not met, innovation services available but not utilized and the attendant lack of adequate service provision. In addition, the research

study realized lack of technical and entrepreneurial skills and insufficient service provision capacity were the causes that led to the insignificance relationship between innovation services and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. The research study found reduced service range; poor service quality and unimproved flexibility of service provision were the effects of insignificance relationship between innovation services and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. Conversely; the research study deduced production cost per unit of labor, materials and energy increment, unattained objective of increasing capacity services and unachievable competition in the local, national, regional and international markets as the ultimate effect on the insignificance relationship between innovation services and enterprise growth.

The research study found that a large percentage of the respondents in the small and medium electrical machinery enterprises in Nairobi City County in Kenya considered their enterprises to have good support of relationship between innovation services and enterprise growth. The research study established means by which good support of relationship between innovation services and enterprise growth was provided. The research study found that the good support of relationship between innovation services and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya was actually achieved by offering significant scope for innovation, high interaction level with the clients and by relying on internal and market sources for information on innovation services. The results of the research study on whether the small and medium electrical machinery enterprises had enough support of relationship between innovation services and enterprise growth are presented in Figure 4.16.
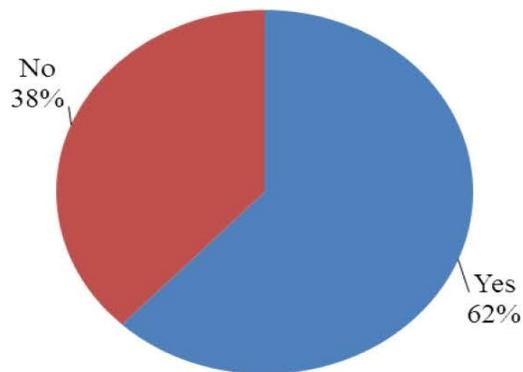
Figure 4.16: Support of relationship between innovation services and enterprise growth

4.6.4 Innovation technologies

The research study sought to establish the relationship between innovation technologies and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. The majority (60%) of the respondents indicated that the relationship between innovation technologies and enterprise growth was to a low extent. However, 28% of the respondents noted that it contributed to a medium extent. The results of the research study could be interpreted to mean that relationship between innovation technologies and enterprise growth was not much due to the fact that innovation technologies were expensive to small and medium electrical machinery enterprises, high cost of innovation technologies and that most enterprises engaged in traditional products and services hence enterprises not embracing existing technologies. The results of the research study on relationship between innovation technologies and enterprise growth are illustrated in Figure 4.17.

Figure 4.17: Relationship between innovation technologies and enterprise growth

Conversely, results of the research study indicated that the relationship between innovation technologies and enterprise growth among small and medium electrical machinery enterprises is significant. This is attributed to enhancing knowledge, better improved process efficiency and profound product and service delivery in the small and medium electrical machinery enterprises in Nairobi City County in Kenya. However, the results of the research study suggested that relationship between innovation technologies and enterprise growth among small and medium electrical machinery enterprises was insignificant due to low technologies used, advanced and expensive technologies applied. Lack of technical and entrepreneurial skills, inadequate resources and lack of capacity to innovate were the causes of insignificance relationship between innovation technologies and enterprise growth among the small and medium electrical machinery enterprises in Nairobi City County in Kenya.

Results of the research study revealed that reduced product and services quality and reduced services variety were the effects of insignificant relationship between innovation technologies and enterprise growth among the small and medium electrical machinery enterprises. Lastly, results of the research study suggested that reduced technological capacities, turnover, and employment and lack of objectives to

replace outdated products and services were ultimate effect of insignificance relationship between innovation technologies and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya.

The research study sought to examine whether there was enough support of relationship between innovation technologies and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. Results of the research study revealed that 58% of the respondents suggested relationship between innovation technologies and enterprise growth did not provide enough support. Nevertheless, 38% of the respondents indicated that relationship between innovation technologies and enterprise growth provided enough support.

Results of the research study suggested that for enough support of relationship between innovation technologies and enterprise growth to be achieved there needs to be provision of unlimited and accommodative innovation technologies among small and medium electrical machinery enterprises in Nairobi City County in Kenya. The majority of the respondents suggested small and medium electrical machinery enterprises needs to work with sources of innovation technologies such as higher learning institutions, high technology startups and competing enterprises to create room for maximum enterprise growth.

The research study established that there exists a significant negative relationship between innovation technologies and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. This is supported by the fact that a large percentage of the respondents in the small and medium enterprises in Nairobi City County were found to be dissatisfied with the innovation technologies to growth. However, a very small percentage of the respondents were found to be satisfied with the relationship between innovation technologies and enterprise growth. This is confirmed by a large percentage of the respondents who showed that relationship between innovation technologies and enterprise growth was to a low extent. The research study established that this relationship was due to the fact that innovation technologies were expensive, high cost of innovation technologies and that most enterprises engaged in traditional products and services,

lack of technical and entrepreneurial skills hence not embracing the existing innovation technologies. Magu (2011) give account of building up technological capabilities which will raise product quality, productivity, product variety and engage in production of the modern high growth potential. Technology is high–level strategic thrust popular in many organizations (Hayes, Wheelwright & Clark, 1988) that deals with decisions about technology used in organization such as technological platform products and services, machinery and computer networks and telephone exchanges. Many organizations used technology as an enabler to enhance knowledge better, improve process efficiency and enhance product offerings.

Conversely, the study found that some respondents indicated that innovation technologies contributed significantly to growth. This was accomplished by enhancing knowledge, better improved process efficiency, profound product and service delivery. In addition, innovation technologies contributed insignificantly to growth due to low technologies used, advanced and expensive technologies applied. Lack of technical and entrepreneurial skills, inadequate resources and lack of capacity were the causes of insignificance contribution of innovation technologies to growth. The study found that reduced product and service quality and reduced service variety were the effects of insignificance contribution of innovation technologies to growth of small and medium electrical machinery enterprises in Nairobi City County in Kenya. The research study found that reduced technological capacities, turnover, employment and lack of objectives to replace outdated products and services were the ultimate effects of insignificance contribution of innovation technologies to growth.

Concerning whether the respondents had enough support from innovation technologies, the study found that a large percentage of the respondents considered that innovation technologies did not offer enough support to growth of small and medium electrical machinery enterprises in Nairobi City County. Nevertheless, the study found that a small percentage of the respondents were actually in agreement that innovation technologies had enough support to growth of small and medium

electrical machinery enterprises in Nairobi City County in Kenya. This category of respondents included those whose main economic activities involved: electronic products, electronic equipment repairing, elevators and escalators, lighting systems and equipment, electronic equipment and supplies and electric cables in the small and medium electrical machinery enterprises in Nairobi City County in Kenya.

The results of the research study on whether there was enough support of relationship between innovation technologies and enterprise growth are presented in Figure 4.18.
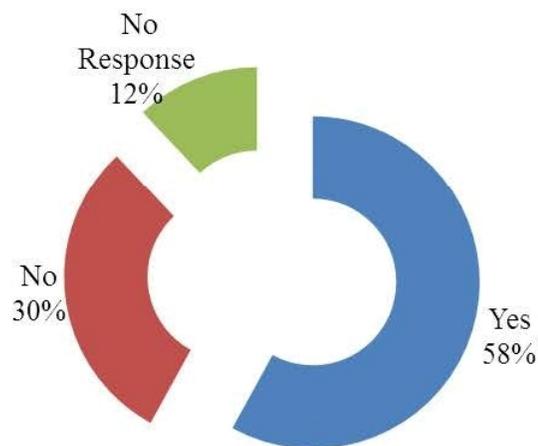
Figure 4.18: Support innovation technologies and enterprise growth

4.6.5 Innovation ideas

The research study sought to explore relationship between innovation ideas and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. The results of the research study indicated that 44% of the respondents suggested that relationship between innovation ideas and enterprise growth was to a high extent while 48% to a medium extent. The results of the research study on relationship between innovation ideas and enterprise growth among small and medium electrical machinery enterprises are presented in Figure 4.19.
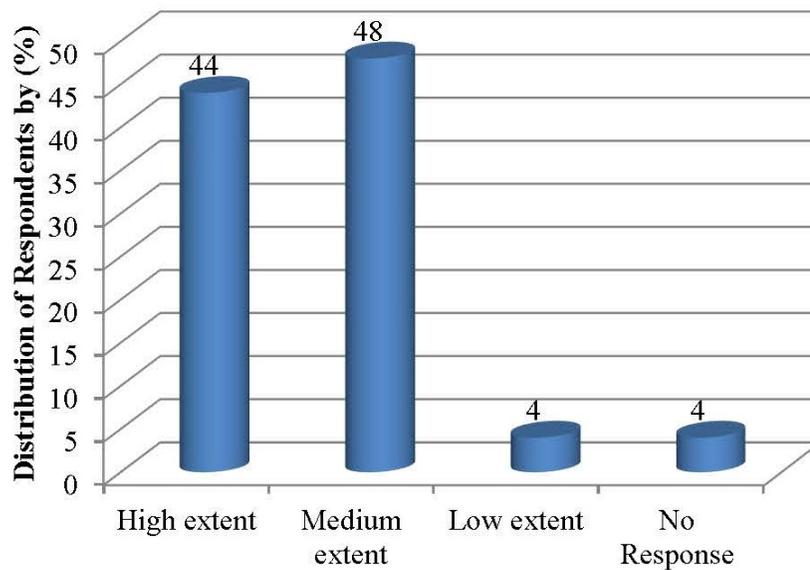
Figure 4.19: Relationship between innovation ideas and enterprise growth

Asked to provide reasons for their answers, most respondents indicated that relationship between innovation ideas and enterprise growth was due to generation of new, opportunistic and improved ideas and products. The results of the research study revealed that new products, services and ideas; better performance than other enterprises and increased sources of information for innovation ideas from internal and market sources were main significance relationship between innovation ideas and enterprise growth among the small and medium electrical machinery enterprises in Nairobi City County in Kenya. On the contrary, the respondents noted that insufficient usage of existing institutional and other cross cutting sources for innovation ideas, lack of cooperation with innovative learning institutions and failure to link with other enterprises as the key factors that led to insignificance relationship between innovation ideas and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. The results of the research study revealed that inadequate linkage with other enterprises, lack of creativity and innovation culture, failure to involve universities and other relevant cross cutting research institutions for information on innovation ideas and lack of policy as causes of insignificance relationship between innovation ideas and enterprise growth among the small and medium electrical machinery enterprises in Nairobi City County in Kenya. The respondents suggested that insignificance relationship between

innovation ideas and enterprise growth resulted into reduced business opportunities, lack of enterprise growth on the range and quality of products or services and insufficient technical and entrepreneurial skills. Results of the research study revealed that the mentioned effects ultimately translated into small and medium electrical machinery enterprises lacking competitive advantage in the local, national, regional and international markets due to lack of product or service quality.

The research study sought to establish whether enterprises had enough support of relationship between innovation ideas and enterprise growth among the small and medium electrical machinery enterprises in Nairobi City County in Kenya. The results of the research study indicated that 75% of the respondents suggested that they actually had enough support of relationship between innovation ideas and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. However, 16% of the respondents revealed had no enough support of the relationship between innovation ideas and enterprise growth.

The research study sought to find out the means by which enough support of relationship between innovation ideas and enterprise growth had been provided. The results of the research study revealed that enough support of relationship between innovation ideas and enterprise growth had been achieved by offering significant scope for innovation, high interaction level with the clients and by relying on internal and market sources for innovation ideas. However, the majority of respondents suggested that for enough support of relationship between innovation ideas and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya to be realized the study established that government needs to develop policies that could support and sustain innovation ideas, encourage adaptability and application of ICT, improve business environment especially cost of doing business and identify and recognize enterprises that excel in the field of innovation ideas.

The research study found that the majority of the respondents of the small and medium electrical machinery enterprises in Nairobi City County in Kenya were satisfied with the relationship between innovation ideas and enterprise growth.

Nevertheless, a minority of the respondents had neutral relationship between innovation ideas and enterprise growth. The research study found that a large percentage of the respondents stated that the relationship between innovation ideas and enterprise growth among the small and medium electrical machinery enterprises in Nairobi City County in Kenya was to a high extent while a small percentage of the respondents demonstrated that indeed the relationship between innovation ideas and enterprise growth was to a medium extent. The study established that this state of affairs was due to generation of new, opportunistic and improved ideas and products were achievable. The research study found that new products, new services and new ideas, better performance than other enterprises and increased sources of information for innovation ideas internal and market sources were the main significance relationship between innovation ideas and enterprise growth.

This is in conformity with the argument of O'sullivan and Dooley (2009) that idea generation is the first stage of innovation process which relates to the creative activity of generating an opportunistic idea. Ideally, this stage involved the continuous scanning of the internal and external environment for threats and opportunities (Gathenya, Bwisa, & Kihoro, 2011) that might develop into an innovation by the small and medium electrical machinery enterprise in Nairobi City County in Kenya. The stage involves mining the sources of innovation for new ideas and evaluating solutions to identified problems. Tidd, Bessant and Pavitt (2005) explain aspects of leadership such as shared vision of the future, extensive communication, desire to innovate and achievement of high involvement in the innovation process as key components of innovative organization. Similarly; Bwisa (2011) and Trott (2012) suggest that innovation is the improving (adding value) to something already existing, successful implementation of novel and appropriate ideas and commercialization of an invention.

On the contrary, the respondents noted that insufficient usage of existing institutional and other cross cutting sources for innovation ideas, lack of cooperation with innovative learning institutions and failure to link with other enterprises as key factors that led to insignificance relationship between innovation ideas and enterprise growth. The study established that inadequate linkage with other small and medium

electrical machinery enterprises in Nairobi City County in Kenya, lack of creativity and innovation culture, failure to involve universities and relevant cross cutting research institutions for innovative ideas and lack of policy frameworks as the causes of insignificance of innovation ideas to growth. The research study found that insignificance contribution of innovation ideas resulted to reduced business opportunities, lack of growth on the range and quality of products or services and insufficient technical and entrepreneurial skills.

The study found that the mentioned effects ultimately led to lack of competition in the local and regional markets and lack of products or services quality in the small and medium enterprises in Nairobi City County in Kenya. The research study found that the majority of respondents actually had enough support of relationship between innovation ideas and enterprise growth. The study established that the small and medium electrical machinery enterprises achieved this support by offering significant scope for innovation, high interaction level with the clients and by relying on internal and market sources for innovation ideas.

Results of the research study on whether enterprises had enough support of relationship between innovation ideas and enterprise growth among the small and medium electrical machinery enterprises in Nairobi City County in Kenya are presented in Figure 4.20.
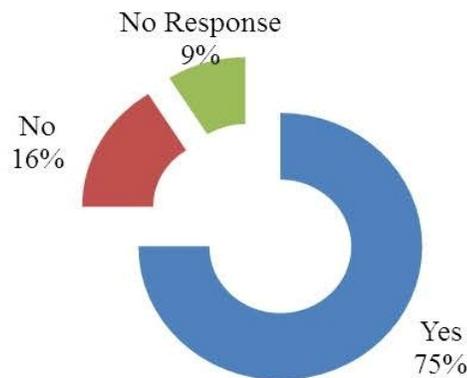

Figure 4.20: Support of relationship between innovation ideas and enterprise growth

4.7 Observation checklist for electrical machinery entrepreneur

This section highlighted statements concerning observations made on relationship between innovations and enterprise growth demonstrated by small and medium electrical machinery enterprises in Nairobi City County in Kenya. The results of the research study indicated that 51% of the respondents observed moderately agreed that small and medium electrical machinery enterprises were seen developing electrical machinery products. In this context, developing was meant to plan or design products needed by the customer. The results of the research study revealed that 55% of the respondents observed moderately agreed that small and medium electrical machinery enterprises were seen improving electrical machinery products. Improving electrical machinery products was meant to modify existing electrical machinery products to meet customer demand. According to the findings 49% of the respondents observed moderately agreed that small and medium electrical machinery enterprises were seen developing new electrical machinery processes. The results of the research study revealed that 64% of the respondents observed moderately agreed that small and medium electrical machinery enterprises were seen introducing new electrical machinery services. The research study established that 37% of the respondents observed agreed that small and medium electrical machinery enterprises were seen developing new electrical machinery systems. The results of the research study suggested that 50% of the respondents observed moderately agreed that small and medium electrical machinery enterprises were seen converting electrical machinery inventions into marketable products.

Results of the research study revealed that 47% of the respondents observed moderately agreed that the small and medium electrical machinery enterprises were seen converting electrical machinery inventions into marketable services. These findings were interpreted to imply that the small and medium electrical machinery enterprises in Nairobi City County in Kenya embraced; improved, developed, and introduced innovations in order realize enterprise growth. The results of the research

study on observations made on the small and medium electrical machinery enterprises in Nairobi City County in Kenya are shown in Table 4.15.

Table 4.15: Observations made on small and medium electrical machinery enterprises

	Strongly Disagree (%)	Moderately Disagree (%)	Undecided (%)	Moderately Agree (%)	Strongly Agree (%)	Total (%)
Developing Products	9	21	19	51	0	100
Improving Products	12	14	18	55	2	100
Developing Processes	14	16	21	49	0	100
Introducing Services	7	11	8	64	9	100
Developing Systems	18	18	27	37	0	100
Converting inventions into marketable Products	5	12	27	50	6	100
Converting inventions into marketable Services	12	10	22	47	9	100

4.8 Simple linear regression model on the input and output variables

Simple linear regression was done to determine the relationship between innovation products and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. The findings are presented in subsequent sections.

4.8.1 Hypothesis: Relationship between innovation products and enterprise growth of small and medium electrical machinery enterprises

$H_{o1:}$ There is no relationship between innovation products and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County in Kenya.

$H_{a1:}$ There is a relationship between innovation products and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County in Kenya.

The summary of simple linear regression model of this research is given in Table 4.16.

Table 4.16: Summary of simple linear regression model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.148[a]	.022	.011	.410

a. Predictors: (Constant), Relationship between Innovation Products and Enterprise Growth

Adjusted R^2 is the coefficient of determination and indicates how the enterprise growth varies with innovation products. From Table 4.16, the value of R^2 is .022. This means that, there was a variation of 2.2% of enterprise growth which is explained by innovation products and leaves 97.8% which is unexplained. The R Square showed that the innovation products explain approximately 1.1% percent of the variance of the enterprise growth. The results suggested that the variable in this model is significant predictor of enterprise growth (at the 95 percent confidence level). The research study found that relationship between innovation products and enterprise growth is essential. The estimate results on average of $R^2 = 2.2\%$ and adjusted average value of $R^2 = 1.1\%$ indicated that independent variable (innovation

products) tested was significant determinant of enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. The research therefore recommends that quick interventions by the relevant authorities are necessary for increased enterprise growth.

The coefficient of determination, R^2, provides information about the goodness of fit of the regression model: it is a statistical measure of how the regression line approximates the real data points. In this case it is identifying the strength of the relationship between the innovation products of the entrepreneur and enterprise growth.

The regression and ANOVA analysis were used to analyze relationship between independent and dependent variables. When ANOVA was carried out on the variable innovation products and enterprise growth, the results were as shown in Table 4.17. The F-test result was 2.072 with a significant of .153 as shown in Table 4.17. This meant that the probability of these results occurring by chance was greater than .05. The results of the ANOVA analysis shows there was a significant relationship between innovation products and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County in Kenya. The results of ANOVA of this research study are provided in Table 4.17.

The F-test result was 2.072 with a significant of .153. This meant that the probability of these results occurring by chance was greater than .05. Therefore there was a significant relationship between innovation products and enterprise growth of the small and medium electrical machinery enterprises in Nairobi City County in Kenya. The *p-value* of .153 greater than .05 means that the alternative hypothesis is accepted and the null hypothesis rejected. This implies that innovation products have significant relationship on enterprise growth of small and medium electrical machinery enterprises in Nairobi City County in Kenya at the 95% confidence level.

Table 4.17: ANOVA^a relationship between innovation products and enterprise growth

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	.348	1	.348	2.072	.153[b]
	Residual	15.610	93	.168		
	Total	15.958	94			

a. Dependent Variable: Enterprise Growth.

b. Predictor: (Constant), Relationship between Innovation Products and Enterprise Growth.

The regression results showed that the significance value (*p-value*) of F statistics was greater than 0.05 (it is actually 0.153). This implies that the test is statistically significant. Coefficients of simple linear regression model of this research study are shown in Table 4.18.

Table 4.18: Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	2.411	.288		8.363	.000
	Relationship between Innovation Products and Enterprise Growth	.112	.078	.148	1.439	.153

a. Dependent Variable: Enterprise Growth

The regression model is written as: Enterprise growth = 2.411 + 0.112 * innovation products. The beta coefficients in the regression analysis showed that the predictor variable (innovation products) indicated positive relationship with the criterion

variable (enterprise growth). This implies that a unit increase in innovation products will cause a 0.112 unit change in enterprise growth. Finally the regression results showed that the predictor variable, innovation products, was statistically significant as the *p-value* is greater than 0.05. This therefore implies that there are other factors that could influence the relationship between innovation products and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. Moreover, the variable innovation products had a statistically significant coefficient as indicated by a t-ratio of 1.439.

4.9 Multiple linear regressions on output and input

A multiple linear regression was done to determine the relationship between enterprise growth and all the variables i.e. between innovation ideas, between innovation technologies, between innovation products, between innovation services and between innovation processes. The results are presented in subsequent sections. A summary of multiple linear regressions model is depicted in Table 4.19.

Table 4.19: Summary of multiple linear regressions model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.254[a]	.064	.012	.410

a. Predictors: (Constant), Relationship Between Innovation Ideas, Relationship Between Innovation Technologies, Relationship Between Innovation Products, Relationship Between Innovation Services, and Relationship Between Innovation Processes.

The R Squared showed that the independent variables (relationship between innovation ideas, relationship between innovation technologies, relationship between innovation products, relationship between innovation services, and relationship between innovation processes) explain approximately at 1.2% of the variance of the enterprise growth. The model analyses of variance are shown in Table 4.20.

Table 4.20: ANOVA[a] relationship between innovations and enterprise growth

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	1.028	5	.206	1.226	.304[b]
Residual	14.930	89	.168		
Total	15.958	94			

a. Dependent Variable: Enterprise Growth

b. Predictors: (Constant), Relationship Between Innovation Ideas, Relationship Between Innovation Technologies, Relationship Between Innovation Products, Relationship Between Innovation Services, and Relationship Between Innovation Processes

The regression results showed that the significance value (*p-value*) of F statistics is greater than 0.05 (it is actually 0.304). This implies that the test is statistically significant. The unstandardized and standardized coefficients of multiple regressions model of this research study are provided in Table 4.21.

Table 4.21: Coefficients[a]

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T	Sig.
1 (Constant)	2.739	.369		7.422	.000
Relationship between Innovation Products	.090	.192	.119	.470	.639
Relationship between Innovation Processes	.112	.202	.160	.556	.580
Relationship between Innovation Services	-.117	.089	-.196	-1.314	.192

Relationship between Innovation Technologies	-.037	.047	-.085	-.780	.437
Relationship between Innovation Ideas	-.030	.105	-.051	-.288	.774

a. Dependent Variable: Enterprise Growth

The multiple regression models were written as: Enterprise Growth = 2.739 + 0.090 * innovation products + 0.112 * innovation processes + - 0.117 * innovation services + - 0.037 * innovation technology + - 0.030 * innovation ideas. The Beta Coefficients in the regression showed that the predictor variables (relationship between innovation products and relationship between innovation processes) indicated positive relationship with enterprise growth. This implies that a unit increase in innovation products will lead to a 0.090 unit change in the enterprise growth. The study again showed that a unit increase in innovation processes will lead to a 0.112 unit change in the enterprise growth. However, the Beta coefficient for innovation services, innovation technologies and innovation ideas were negative. This implies that there exists a negative relationship between the three innovation types and the enterprise growth in small and medium electrical machinery enterprises in Nairobi City County in Kenya. But the regression results showed that the two predictors, innovation products and innovation processes were statistically significant as the p-values were greater than 0.05. This therefore implied that there were other factors that could influence the relationship between innovations and enterprise growth in the small and medium electrical machinery enterprises in Nairobi City County in Kenya. Pearson's correlation coefficients of this research study are given in Table 4.22.

Table 4.22: The Pearson correlation coefficients

		Relationship between Innovation Products	Relationship between Innovation Processes	Relationship between Innovation Services	Relationship between Innovation Technologies	Relationship between Innovation Ideas
Relationship between Innovation Products	Pearson Correlation	1	.854[**]	.437[**]	.129	.217[*]
	Sig. (2-tailed)		.000	.000	.211	.034
	N	95	95	95	95	95
Relationship between Innovation Processes	Pearson Correlation	.854[**]	1	.596[**]	.051	.540[**]
	Sig. (2-tailed)	.000		.000	.625	.000
	N	95	95	95	95	95
Relationship between Innovation Services	Pearson Correlation	.437[**]	.596[**]	1	.077	.661[**]
	Sig. (2-tailed)	.000	.000		.457	.000
	N	95	95	95	95	95
Relationship between Innovation Technologies	Pearson Correlation	.129	.051	.077	1	.152
	Sig. (2-tailed)	.211	.625	.457		.140
	N	95	95	95	95	95
Relationship between Innovation Ideas	Pearson Correlation	.217[*]	.540[**]	.661[**]	.152	1
	Sig. (2-tailed)	.034	.000	.000	.140	
	N	95	95	95	95	95

.**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

The results of the correlation analysis revealed that innovation products is positively related to the innovation processes with a Pearson's Correlation Coefficient of r = 0.854 and at level of significance of 0.000, is statistically significant as the p-value is less than 0.05. The results also show that there is a strong positive relationship

between innovation products and innovation services with a Pearson's Correlation Coefficient of r = 0.437 and a level of significance of 0.000 hence statistically significant. The study results revealed that there is a positive relationship between innovation services and innovation products with a Pearson's Correlation Coefficient of r = 0.596 and 0.000 level of significance. The significance values tell us that the probability of the correlation being a fluke is very low; hence the study can have confidence that the relationship between the variables is genuine.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The purpose of this research study was to explore the relationship between innovations and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. This chapter provides a summary, conclusions, recommendations and suggestions for further research on relationship between innovations and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. Conclusions in this research study are reasoned judgements based on a synthesis of empirical findings or factual statements corresponding to specific circumstances. They are drawn from the results of data on analyses through a transparent chain of arguments. Conclusions have pointed out what has been learned from the relationship between innovations and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. Recommendations are proposals for action to be taken to solve a problem based on the research results and conclusions and mainly directed to policy makers. The intention of these recommendations was to inform policy development and implementation.

5.2 Summary of the findings

This section presents the authoritative statement about the results of the research study of the relationship between innovations and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. Findings of research study include the principal outcomes of the study; statement of what the research study indicated, revealed and suggested. A discussion of the research findings relates the study results to the research questions and existing knowledge. The discussion expounded on how results were important in extending the current knowledge and professional practices on the relationship between innovations and enterprise growth among small and medium electrical machinery enterprises in

Nairobi City County in Kenya. The researcher in this study demonstrated exactly what he knew about the research study by interpreting the findings and outlining what they meant in the wider context of the real world.

5.2.1 Innovation products

The results of the research study revealed that 58% of respondents suggested relationship between innovation products and enterprise growth among small and medium electrical machinery enterprises was to a medium extent. However, 32% of the respondents indicated that relationship between innovation products and enterprise growth was to a low extent. The results of this research study were interpreted to mean that relationship between innovation products and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County Kenya was positive.

The results of the research study indicated that the main effects of insignificance relationship between innovation products and enterprise growth was that it reduced market share, reduced market quality, reduced range of products and lack of quality and improved products. The results of the research study revealed that the ultimate effect of the problem of insignificance relationship between innovation products and enterprise growth was that the overall objective of relationship between innovation products and enterprise growth could not be achieved; hence small and medium electrical machinery enterprises would not adequately compete in local, national, regional and international markets and that increasing range of products and services could not be achieved.

5.2.2 Innovation processes

Majority (58%) of the respondents indicated that the relationship between innovation processes and enterprise growth was to medium extent. This was attributed to introducing new and improved production methods to small and medium electrical machinery enterprises in Nairobi City County in Kenya and transforming inputs into specified outputs for the customers. Contrary to expectation, 32% of the respondents

suggested that relationship between innovation processes and enterprise growth was to low extent.

The results of the research study revealed that lack of capacity to produce, production of products by other small and medium electrical machinery enterprises in Nairobi City County in Kenya and lack of technical and entrepreneurial skills were main causes of insignificance relationship between innovation processes and enterprise growth. The findings showed that reduced production capacity, reduced flexibility of production methods, reduced market share and increased production costs per unit of labor, electricity and materials were key effects that were realized as a result of insignificance relationship between innovation processes and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya.

The results of the research study finally suggested that the ultimate effect of insignificance relationship between innovation processes and enterprise growth was that the objective of increasing range of products could not be achieved, that small and medium electrical machinery enterprises could not compete in the local, national, regional and international markets and that the objectives of increasing production methods and techniques could not be attained.

5.2.3 Innovation services

The majority (56%) of the respondents suggested that relationship between innovation services and enterprise growth was to a medium extent while 25% of respondents revealed that relationship between innovation services and enterprise growth was to a high extent. The respondents were then asked to provide reasons for their answers. Most of the respondents indicated that there was presence of new and opportunistic services to small and medium electrical machinery enterprises in

Nairobi City County in Kenya and market and increased service quality to small and medium electrical machinery enterprises.

The results of the research study revealed that the insignificance relationship between innovation services and enterprise growth was as a result of the services being new to the small and medium electrical machinery enterprises, customer expectation not being met, innovation services available not being utilized and the lack of adequate service provision in the small and medium electrical machinery enterprises in Nairobi City County in Kenya.

5.2.4 Innovation technologies

The majority (60%) of the respondents indicated that the relationship between innovation technologies and enterprise growth was to a low extent. However, 28% of the respondents noted that it contributed to a medium extent. The results of the research study could be interpreted to mean that relationship between innovation technologies and enterprise growth was not much due to the fact that innovation technologies were expensive to small and medium electrical machinery enterprises, high cost of innovation technologies and that most enterprises engaged in traditional products and services hence enterprises not embracing existing technologies.

The results of the research study revealed that reduced product and services quality and reduced services variety were the effects of insignificant relationship between innovation technologies and enterprise growth among small and medium electrical machinery enterprises. Lastly, the results of the research study suggested that reduced technological capacities, turnover, and employment and lack of objectives to replace outdated products and services were ultimate effect of insignificance relationship between innovation technologies and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya.

5.2.5 Innovation ideas

The results of the research study indicated that 44% of the respondents suggested that relationship between innovation ideas and enterprise growth was to a high extent while 48% was to a medium extent.

Asked to provide reasons for their answers, most respondents indicated that relationship between innovation ideas and enterprise growth was due to generation of new, opportunistic and improved ideas and products. The results of the research study revealed that new products, services and ideas; better performance than other enterprises and increased sources of information for innovation ideas from internal and market sources were main significance relationship between innovation ideas and enterprise growth among the small and medium electrical machinery enterprises in Nairobi City County in Kenya.

On the contrary, the respondents noted that insufficient usage of existing institutional and other cross cutting sources for innovation ideas, lack of cooperation with innovative learning institutions and failure to link with other enterprises as key factors that led to insignificance relationship between innovation ideas and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. The results of the research study revealed that inadequate linkage with other enterprises, lack creativity and innovation culture, failure to involve universities and relevant cross cutting research institutions for innovation ideas and lack of policy framework as cause's insignificance relationship between innovation ideas and enterprise growth among the small and medium electrical machinery enterprises in Nairobi City County in Kenya.

The respondents suggested that insignificance relationship between innovation ideas and enterprise growth resulted into reduced business opportunities, lack of enterprise growth on the range and quality of products or services and insufficient technical and entrepreneurial skills. The results of the research study revealed that mentioned effects ultimately translated into small and medium electrical machinery enterprises

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lacking competitive advantage in local, national, regional and international markets due to lack of product or service quality.

5.3 Conclusions

The results have highlighted principal explorations in regard to innovations capacity of the County and implications to attainment of the set objectives of the study. The main purpose of the study was to explore the relationship between innovations and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. The research study established that most small and medium electrical machinery enterprises in Nairobi City County in Kenya had embraced innovation as a key driver of their continued enterprise growth and competitiveness. This is evident as exhibited by the high prevalence of innovations in a significant number of the surveyed small and medium electrical machinery enterprises in Nairobi City County in Kenya, though at the lowest level of novelty. This is confirmation that the culture of innovation was taking root in the small and medium electrical machinery enterprises in Nairobi City County in Kenya.

5.3.1 Innovation products

The research concluded that relationship between innovation products and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya was positive. This was evident as exhibited by the high number of respondents who explained that new, better and improved products had been introduced into the enterprise to promote competition among products and hence enterprise growth. Innovation products had greatly improved enterprise growth consequently reason for the respondents consider that there was relationship between innovation products and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya.

However, the relationship between innovation products and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya was low due to the fact that products did not meet customer demand and that small and medium electrical machinery enterprises in Nairobi City County in Kenya

offered similar products and hence stiff competition. The results of the research concluded that the ultimate effect of problem of low relationship was that overall objective of relationship between innovation products and enterprise growth through competition in local, national, regional and international markets and increasing range of products could not be achieved.

5.3.2 Innovation processes

The research concluded that relationship between innovation processes and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya was medium extent. This was accomplished by introducing new and improved production methods to the enterprises and then transforming inputs into specified outputs for customers. Innovation processes significantly improved production methods that added value to products which innovation adequately helped in availing needed products and contributed significantly increasing production quality and improving flexibility of production.

The research concluded reduced production capacity, reduced flexibility of production methods, reduced market share, and increased production costs per unit of labor, electricity and materials were key effects of insignificance relationship between innovation processes and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. The research found that ultimate effect of insignificance relationship between innovation processes and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya was that objective of increasing range of products and competition in the local, national, regional and international market and increasing production methods and techniques could not be attained.

5.3.3 Innovation services

The research study examined how relationship between innovation services relates enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. The study concluded that relationship between

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innovation services and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya relates to medium extent. This was evident as exhibited by the high percentage of respondents who indicated that the extent of relationship between innovation services and enterprise growth was to medium extent.

The research study found that the insignificance relationship between innovation services and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya was as a result of the services that were new to enterprises, customer expectation not met, innovation services that were available were not utilized and the lack of adequate service provision in the enterprises. The study established that lack of technical and entrepreneurial skills and insufficient service provision capacity were the causes that led to insignificance relationship between innovation services and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. The study concluded that ultimate effect on insignificance relationship between innovation services and enterprise growth among small and medium electrical machinery enterprises was increased production cost per unit of labor, materials and energy; objective of increasing capacity services and competition in the local, national, regional and international market could not be attained.

5.3.4 Innovation technologies

The research concluded that relationship between innovation technologies and enterprise growth among small and medium electrical machinery enterprises related to a low extent. This was evidenced by high percentage of respondents that suggested that relationship between innovation technologies and enterprise growth relates to a low extent. The research concluded that relationship between innovation technologies and enterprise growth among small and medium electrical machinery enterprises did not relate much to enterprise growth. This was attributed to the fact that innovation technologies were expensive to the enterprises, high cost of innovation technologies and that most small and medium electrical machinery

enterprises in Nairobi City County in Kenya engaged in traditional products and services hence did not embrace the existing technologies.

The research concluded that the relationship between innovation technologies and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya did not relate that much. This was because of the perception innovation technologies were expensive to small and medium electrical machinery enterprises in Nairobi City County, high cost of innovation technologies and that most small and medium electrical machinery enterprises engaged traditional products and services. The research confirmed that reduced technological capacities, turnover, employment and lack of objectives to replace outdated products and services was ultimate effect of insignificance relationship between innovation technologies and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya.

5.3.5 Innovation ideas

The research explored how relationship between innovation ideas related to enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. The research concluded that relationship between innovation ideas and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya related to high extent. This was evident as exhibited by large percentage of the respondents that suggested that innovation ideas actually related to generation of new, opportunistic and improved ideas and products.

The study concluded that the ultimate effect of these results led to lack of competition from small and medium electrical machinery enterprises in Nairobi City County in Kenya in the local, national, regional and international markets and lack of product or service quality. The research study concluded that the linkages within small and medium electrical machinery enterprises in Nairobi City County in Kenya were weak. The knowledge-based institutions were not actively involved as a key information source for innovations. This had a significant impact on the County's endeavor to become a knowledge-based economy.

The actors in the County small and medium electrical machinery enterprises of innovation need take advantage of the enthusiasm among enterprises to enhance cooperation for mutual benefits. The stakeholders of innovation management and development, research institutions and entrepreneurs, as well as regulatory government agencies need to establish linkage and collaborate, enabling the process of innovation and commercialization to function. There was need to create awareness among innovation actors in small and medium electrical machinery enterprises in Nairobi City County to work in a systemic fashion because innovation does not occur in isolation and that benefits arising out of successful innovation had profound effects beyond their origins.

5.3.6 Entrepreneur demographics

There is an effect of entrepreneur demographics on the relationship between innovations and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County in Kenya. Education is an investment in human capital and empirical evidence, based on endogenous growth models, reveals that human capital is a key determinant of economic growth (ROK, 2005). The highest academic qualifications played a pivotal role in the relationship between innovations and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. Age of the entrepreneur had a significant contribution to innovations and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County.

5.3.7 Enterprise demographics

There is an effect of enterprise demographics on the relationship between innovations and enterprise growth of small and medium electrical machinery enterprises in Nairobi City County in Kenya. Most of the small and medium electrical machinery enterprises in Nairobi City County in Kenya preferred the limited legal status of the enterprise due to the prevailing advantages inherent in this form of legal organization of the enterprise that would relate to innovations and enterprise growth. On the geographic markets, the research concluded that most of

the small and medium electrical machinery enterprises in Nairobi City County in Kenya, had their market base in Kenya.

5.4 Recommendations

Despite existence of positive relationship with respect to innovations, there is still need to conduct a more comprehensive survey, possibly involving a much larger population of the small and medium electrical machinery enterprises in Nairobi City County in Kenya in order to accurately capture this relationship. Nevertheless, the results of the survey could be used to make initial policy recommendations based on the emerging relationship. It will also be a basis to engage actors in the County system of innovations to use the results to evaluate their performance and make appropriate adjustments based on the evidence adduced.

The research study has put forward the following recommendations for consideration in order to stimulate entrepreneurship and economic growth through innovations in small and medium electrical machinery enterprises in Nairobi City County in Kenya. This will enable the small and medium electrical machinery enterprises in Nairobi City County in Kenya to spur their enterprise growth and competitiveness. There is need to make innovation products contribute adequately to enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. The study recommends that in order to make innovation products relate adequately to enterprise growth; the government should develop a policy framework for supporting and sustaining innovation products. In addition, the small and medium electrical machinery enterprises in Nairobi City County in Kenya should improve and increase the capacity for innovation products. This will enable entrepreneurs in the small and medium electrical machinery enterprises in Nairobi City County in Kenya to make beneficial changes to physical products that help in meeting customer demands and minimize the stiff competition.

There is need to realize enough relationship between innovation processes and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. The study recommends that to realize enough relationship between innovation processes and enterprise growth the government

should initiate programs to tap and develop human resources for innovation processes and to continually reduce production cost per unit labor, materials and energy. The study also recommends that the small and medium electrical machinery enterprises in Nairobi City County in Kenya should increase methods and techniques of innovation processes to enterprise growth.

There is need for the small and medium electrical machinery enterprises in Nairobi City County in Kenya to have good support between innovation services and enterprise growth. The study recommends that the government should develop a policy framework that could support and sustain innovation services, encourage adaptability and application of ICT in innovation services and improve business environment especially cost of doing of business. The research study recommends that the small and medium electrical machinery enterprises in Nairobi City County in Kenya should be flexible enough and reach out for other enterprises for exchange of knowledge of innovation services to enterprise growth.

There is need for good support of innovation technologies to enterprise growth of small and medium electrical machinery enterprises in Nairobi City County in Kenya. The research study recommends that for adequate support of relationship between innovation technologies to be realized the government should develop a policy framework to support and sustain innovation technologies. The government should also identify and recognize small and medium electrical machinery enterprises that excel in innovation technologies.

Finally, there is need for adequate support of relationship between innovation ideas and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. The study recommends that for adequate support of innovation ideas to be achieved there should be provision of unlimited and accommodative innovation ideas. The research study recommends that the small and medium electrical machinery enterprises in Nairobi City County in Kenya should work with sources of innovation ideas such as higher learning institutions, high ideas startups and competing innovative enterprises to create room for maximum enterprise growth.

5.5 Areas for further research

The purpose of this research was investigate relationship between innovations and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. The researcher in this study has exactly done that to the best of his capacity. The researcher has used knowledge and technical skills, resources, attitudes, values and practices that were needed to perform a function or a task successfully. It will not have been possible to achieve objectives of this research study successfully without this capacity. This research study was conducted between January and June, 2014. The research study required resources in terms of effort, funds and equipment to bring it to its final conclusion. The researcher in this study used best practices such as techniques, methodologies or processes that, through experience and research, have proved to reliably lead to desired results in this study.

The research study recommends that a more comprehensive survey, possibly involving a much larger population of the small and medium electrical machinery enterprises in Nairobi City County in Kenya be conducted in order to accurately capture the positive relationship between innovations and enterprise growth. This will shed a lot of light where the policy efforts should be concentrated so as to improve on the overall relationship between innovations and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. The researcher also recommends that a research study can be carried out to determine whether there are other innovations that significantly relate to enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. The study can be conducted on relationship between other innovations and enterprise growth among small and medium electrical machinery enterprises in Nairobi City County in Kenya. This is important because an enterprise whose objective is to grow the enterprise, innovations provides a means to achieving it.

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APPENDICES

Appendix 1: Questionnaire for electrical machinery entrepreneur

Name of enterprise:

_____

Physical address:

_____

Telephone number:

_____

E-mail address:

_____

Main economic activity:

_____

Year of establishment:

_____

Please answer all questions.

1. What is the legal status of your enterprise? Sole

proprietorship_____,

   Partnership_____, Limited Company_____, Other

(Specify)_____.

2. What is the number of years your enterprise has been in operation in Nairobi

County,

Kenya?_____

3. In what sub-sector is your enterprise?

_____

4. What is your highest academic qualification?

_____

5. What is your year of birth?

_____

6. In which geographic markets does your enterprise sell goods or services?

_____

_____

7. How many employees did you have at the start of your enterprise?

_____

8. How many employees do you have in your enterprise now?

_____

9. What was your enterprise's total number of employees in 2009?

_____

10. What was your enterprise's total number of employees in 2012?

_____

11. What was the total number of employees in 2012 with a university

degree?_____

12. What was your enterprise's approximate total turnover for 2009?

Ksh._____

13. What was your enterprise's approximate total turnover in 2012?

Ksh._____

14. a). What is innovation to you? Management process_____, Adding

value to something already existing_____, Successful

implementation of new and appropriate ideas _____, Commercialization of

an invention_____,

All of the above_____, Other (Specify)

_____.

14. b). Is there any relationship between innovations and enterprise growth? If,

Yes_____,

Why?_____.

No_____,

Why?_____.

15. On a scale of 1 (Extremely Dissatisfied) – 5 (Extremely Satisfied) beside each of

the   statements presented below, please put a tick in the box next to the right

response. Rating scales are: 1 = Extremely Dissatisfied, 2 = Dissatisfied, 3 = Neutral,

4 = Satisfied, 5 = Extremely Satisfied. How satisfied are your innovation products:

Item	Statement	1	2	3	4	5
a)	Innovation Products	☐	☐	☐	☐	☐
b)	Innovation Processes	☐	☐	☐	☐	☐
c)	Innovation Services	☐	☐	☐	☐	☐
d)	Innovation Technologies	☐	☐	☐	☐	☐
e)	Innovation Ideas	☐	☐	☐	☐	☐

16. The above innovations have greatly improved my enterprise growth. Put a tick in the

   Box next to the right response based on the following rating scales.

_____

1 = I Strongly Disagree   ☐

2 = I Moderately Disagree   ☐

3 = I am Undecided   ☐

4 = I Moderately Agree   ☐

5 = I Strongly Agree   ☐

_____

Appendix 2: Interview guide for small and medium electrical machinery enterprise

A. Innovation products:

1. To what extent does innovation products relate to your enterprise growth?
   a) How?
   b) Can you give me an example (if possible) of why innovation products related significantly to your enterprise growth?

c) Can you give me an example (if possible) of why innovation products related insignificantly to your enterprise growth?

i) What were the causes of this problem?

ii) What effects does this problem have on your enterprise growth?

iii) What ultimate effect does this problem have on your enterprise growth?

2. Do you consider you have enough relationship between innovation products and growth?

a) How is this contribution provided?

b) What else (if anything) could usefully be done?

B. Innovation processes:

1. To what extent does innovation processes relate to your enterprise growth?

a) In what ways?

b) Can you give me an example (if possible) of why innovation processes related significantly to your enterprise growth?

c) Can you give me an example (if possible) of why innovation processes related insignificantly to your enterprise growth?

i) What were the causes of this problem?

ii) What effects does this problem have on your enterprise growth?

iii) What ultimate effect does this problem have on your enterprise growth?

2. Do you consider you have enough relationship between innovation processes and growth?

a) How is this relationship provided?

b) What else (if anything) could usefully be done?

C. Innovation services:

1. To what extent does innovation services relate to your enterprise growth?

a) How?

b) Can you give me an example (if possible) of why innovation services relate significantly

to your enterprise growth?

c) Can you give me an example (if possible) of why innovation services relate

insignificantly to your enterprise growth?

i) What were the causes of this problem?

ii) What effects does this problem have on your enterprise growth?

iii) What ultimate effect does this problem have on your enterprise growth?

2. Do you consider you have enough support of relationship between innovation services and

enterprise growth?

a) How is this support provided?

b) What else (if possible) could usefully be done?

D. Innovation technologies:

1. To what extent does innovation of technologies relate to your enterprise growth?

a) In what ways?

b) Can you give me an example (if possible) of why innovation technologies related

significantly to your enterprise growth?

c) Can you give me an example (if possible) of why innovation technologies related

insignificantly to your enterprise growth?

i) What were the causes of this problem?

ii) What effects does this problem have on your enterprise growth?

iii) What ultimate effect does this problem have on your enterprise growth?

2. Do you consider you have enough support of relationship between innovation technologies and enterprise growth?

a) How is this support provided?

b) What else (if possible) could usefully be done?

E. Innovation ideas:

1. To what extent does innovation ideas relate to your enterprise growth?

 a) How?

   b) Can you give me an example (if possible) of why innovation ideas related significantly

      to your enterprise growth?

   c) Can you give me an example (if possible) of why innovation ideas related insignificantly

      to your growth?

   i) What were the causes of this problem?

   ii) What effects does this problem have on your enterprise growth?

   iii) What ultimate effect does this problem have on your enterprise growth?

2. Do you consider you have enough support relationship between innovation ideas and

      enterprise growth?

   a) How is this support provided?

   b) What else (if anything) could usefully be done?

Appendix 3: Questionnaire for small and medium electrical machinery enterprise

On a scale of 1 (Strongly Disagree) – 5 (Strongly Agree) check off the following statements
concerning observations made on innovations demonstrated by small and medium electrical machinery enterprises in Nairobi City County in Kenya. Rating Scales: 1 = Strongly Disagree, 2 = Moderately Disagree, 3 = Undecided, 4 = Moderately Agree, 5 = Strongly Agree. Small and medium electrical machinery enterprise was seen:

      .

Item	Statement	1	2	3	4	5
a) Developing new electrical machinery products		☐	☐	☐	☐	☐
b) Improving electrical machinery products		☐	☐	☐	☐	☐
c) Developing new electrical machinery processes		☐	☐	☐	☐	☐
d) Introducing new electrical machinery services		☐	☐	☐	☐	☐
e) Developing new electrical machinery systems		☐	☐	☐	☐	☐
f) Converting inventions into marketable products		☐	☐	☐	☐	☐
g) Converting inventions into marketable services		☐	☐	☐	☐	☐

Appendix 4: Calculation of the sample size for questions involving proportions

$$\sigma_p = \sqrt{pq/n}$$

$$n = pq/\sigma^2_p$$

$$n = (0.50)(0.50)/(0.051)^2$$

$$n = 0.25/(0.051)^2$$

$$n = 96$$

where

pq = measure of sample dispersion

n = sample size

σ_p = standard error of the proportion

Source: Cooper & Schindler (2011).

Appendix 5: Sample sizes for the different strata

Strata, Sample sizes, S for $S_1...S_{24}$ $n_1...n_{24}$	Proportion of Population, p_i	Total sample size, n	Population, N

Electric cables	0.0099	96	502	1
Electric fences	0.0119	96	502	1
Electric generators	0.0637	96	502	6
Electric light and power	0.0119	96	502	1
Electric lighting systems	0.0119	96	502	1
Electric motors	0.0079	96	502	1
Electric pumps	0.0538	96	502	5
Electric tools	0.0099	96	502	1
Electrical appliances	0.0777	96	502	7
Electrical appliances-wholesalers and manufacturers	0.0059	96	502	1
Electrical appliances-repairing	0.0359	96	502	3
Electrical contractors	0.1574	96	502	15
Electrical engineers	0.0837	96	502	8
Electrical equipment	0.0817	96	502	8
Electrical fittings	0.0259	96	502	2
Electrical heating				

equipment and systems 1	0.0039	96	502
Electrical and plumbing works 1	0.0059	96	502
Electrical suppliers 8	0.0876	96	502
Electro-plating 1	0.0079	96	502
Electronic components 5	0.0478	96	502
Electronic equipment repairing 2	0.0179	96	502
Electronic equipment and suppliers 10	0.1036	96	502
Electronic products 5	0.0558	96	502
Elevators and escalators	0.0199	96	502	2

$(n_1 \ldots n_{24}) = 96$

Appendix 6: List of respondents that participated in the research study

Item	Nature of Enterprise	Number of Respondents
1.	Electric Cables	1
2.	Electric Fences	1
3.	Electric Generators	6
4.	Electric Light and Power	1
5.	Electric Lighting Systems	1
6.	Electric Motors	1
7.	Electric Pumps	5
8.	Electric Tools	1
9.	Electrical Appliances	7
10.	Electrical Appliances – Wholesalers and Manufacturers	1
11.	Electrical Appliances – Repairing	3
12.	Electrical Contractors	15
13.	Electrical Engineers	8
14.	Electrical Equipment	8
15.	Electrical Fittings	2
16.	Electrical Heating Equipment and Systems	1
17.	Electrical and Plumbing Works	1
18.	Electrical Suppliers	8
19.	Electro – Plating	1
20.	Electronic Components	5
21.	Electronic Equipment – Repairing	2
22.	Electronic Equipment and Suppliers	10
23.	Electronic Products	5
24.	Elevators and Escalators	2