THE EFFECT OF INNOVATION AND TECHNOLOGY MANAGEMENT PRACTICES ON BUSINESS SURVIVAL IN THE MOTOR VEHICLE INDUSTRY IN KENYA

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DECLARATION

This research project is my original work and has not been presented to any other University or institution of Higher Learning for a degree.

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This research project has been submitted for examination with my approval as the University Supervisor.

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DEDICATION

This research is a special dedication to the late Mr. Tarit Chemoiywo, my grandfather, who encouraged us to go to school and never lived long enough to enjoy the benefits that come with education. It is because of his hard work and pressure on us that I pursued this master program. My father, mother, sisters and brothers it is also through your support that I dedicate this project to you.

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LIST OF ABBREVIATIONS

R&D	Research and development
RBT	Resource based Theory
A&FT	Agility and Flexibility Theory

ABSTRACT

The motor vehicle industry is a dynamic industry with customer needs that vary every time. This has forced organization to continuously embrace innovation and technology to satisfy the customer needs. The purpose of the research was to establish the effect of innovation and technology management practices on business survival in the motor industry. The research was limited to motor vehicle companies in Nairobi County.

The research design adopted for the study was descriptive research and the target population was all the motor vehicle industries namely, assemblers, garages, importers and motor retailers in Nairobi County. Questionnaires were distributed to all the companies and the response rate was 73% thus adequate for the study. Data obtained was analyzed and deduction made about innovation and technology management practices in the motor industry and their effects on business survival.

The findings show that the motor vehicle industry was established and is mature. The employees were also mature basing on the periods they had worked for the organizations. The most adopted innovation and technology management was strategic positioning relative to its competitors. This was also depicted to be the most effective practice for business survival. The least adopted and effective practice was established to be the use of commercialization of technology to earn royalties. This practice is not used in the motor vehicle industry in Kenya. The research also shows the effect of other innovation and technology management practices and their impact on business survival.

From the research, it is concluded that various innovation and technology management practices adopted in the motor vehicle industry in Kenya had different effects on business survival. Those adopted to a high level had greater effects and thus promoted survival of businesses. The research further recommends adoption of more practices in the industries as well as a further research on commercialization of technology in Kenya.

CHAPTER ONE: INTRODUCTION

1.1 Back ground of the Study

Innovation and technology management practices are fundamental in fostering innovation aimed at ensuring business survival and growth through development of an innovative culture within businesses. Through innovation and technology management, a competitive advantage is provided for the business through development of new products, services and systems. Innovation plays a vital role in conversion of ideas into reality. It is the specific tool of entrepreneurs, the means by which they exploit change as an opportunity for different business or service. Technology is the integration of human knowledge, human skills and information. Through technology management knowledge is converted into products and services (Paul, 2008). According to Cooper (2005), an organization must innovate or die which means that survival and growth is fully dependent on the level of innovation. Business survivals defines how the business demonstrates that it is a workable entity and overcomes the forces that work against its existence. Survival is also a measure of how a business is able to change and adapt. Businesses should operate with the knowledge that their competitors will definitely come to their market with a product that changes the basis of competition. This is regardless of whether the firms compete for market share or the need to improve their services (Paul, 2008).

This research aims at establishing the effect of innovation and technology management practices on business survival in the motor vehicle industry in Kenya. The motor vehicle

industry in Kenya is a dynamic industry that entails motor vehicle assembly, motor vehicle retail business, motor garages and service centers and second hand motor import. The key players in the industry are, Toyota (East Africa), General Motors East Africa, Simba Colt Motors and Cooper Motors Corporation (CMC).The technology build into the vehicle is always evolving and thus the efficiency and comfort to the owner. Research and development has played a vital role in evolution of the motor vehicle features; physical, functionality (engine power) and interior design (William, 2007)

1.1.1 The Concept of Innovation Management

Innovation is the successful development, implementation and use of new or structurally improved products, processes, services, or organizational forms (Hartley, 2006). Innovation is not a single action but a total process of interrelated sub processes. It is not just the conception of a new idea, nor invention of a new device, nor the development of a new market. The process is all these things acting in an integrated fashion (Myers and Marquis, 1969). Innovation is to think out of the box differently. It is all about finding new things, ideas, concepts, developments, improvements and ways to do things and to obtain strategic advantages (Murad, 2011)

Hansen and Birkinshaw, (2007) define innovation management as the active and conscious organization, control and execution of activities that lead to innovation. Innovation management is further defined as the way a firm manages its resources overtime and develops capabilities that influence its innovation performance. This includes the economic perspective, a business management strategy perspective and organizational behaviours which looks at internal activities. It also recognizes that firms

form relationships with other firms and trade, compete and co-operate with each other. The activities of individuals within the firm is also recognized as it affects the process of innovation.

Independent of how it is defined, it is good to understand that the phenomenon of innovation is not new (Verloop, 2004).In prehistoric times, mankind was able to turn ideas into realization. Over time, countless innovations were developed such as controlling fire (Goudsblom, 1992), democracy as a form of government (Alan et al, 2003), the light bulb (Bright, 1949) and development of new medicine (Achilladelis and Antonakis, 2001).Schumpeter (1934) was among the first economists to emphasize to emphasize the importance of new products as a stimuli to economic growth. He argued that the competition posed by new products was far more important than marginal changes in prices of existing products. After the Second World War economists began to take an even greater interest in the causes of economic growth and the most important influences on innovation seemed to be industrial research and development (Harrod, 1949). Hamel (2007) in particular forcefully argued that today's age management of innovation may represent one of the most important and sustainable sources of competitive advantage.

1.1.2 Technology Management

Technology is the integration of human know-how, equipment, tools, machinery, building, process technology, technological know-how (technical skills), information and knowledge about equipment, marketing, management and organization know-how to achieve practical results. Technology can be considered as the application of knowledge

to achieve practical results (Mian, 2004). Technology management entails strategies set up to ensure consistent development of knowledge through research and development and application of the knowledge generated to address current issues in the diverse fields. Technology management is a continuous process and leads to discovering and development of new technologies, improvement of the understanding of technology in existing products and better understanding of the manufacturing processes (White and Bruton, 2007). Technology management is a key factor in accomplishing sustainable development since sustainable new technologies and innovation lie at the core of economic, social and technological process. Technology management is measured and tracked by indicators at different levels. In this way priorities are set for future actions in order to improve management areas that are not developed enough and to achieve the overall goal of efficiency and effectiveness of technology management.

The historic time for technology management is the period after the Second World War, where research and development played an important role in providing firms with competitive advantage. Technical developments in industries such as chemicals, electronics, automotive and pharmaceutical led to development of many new products which produced rapid growth (Paul , 2008).Management of technology has been necessitated by; its rapid pace of change which require multidisciplinary approach, rapid change of technological development which shortens product life cycle, the need to cut time for product development and create more flexible organization, the need to maximize competitiveness effectively by using new technology and the importance of changing management tools caused by rapid technological changes. Technology and

innovation management is placed at the centre of policies and strategy development for firms, industries, and national economies regions and sectors It has further been made an objective in large and well managed technology based firms (Maja, 2004).

1.3 Innovation and Technology Management Practices

This entails practices and actions that are envisioned to explore innovation and technology management towards organizational performance. Well-structured innovation and technology management practices lead to development of organizational culture and climate that impacts positively on attitudes towards innovation and technology adoption (Aarons, 2004). Innovation and technology management practices include development of differentiated products with compelling value proposition, building in the voice-of-the-customer input, seeking sharp early product definition, relying on an effective cross functional development team, having idea to launch system with appropriate ideation practices and having a product innovation and technology strategy to guide development efforts while fostering the right climate and culture for innovation. Good innovation and technology management practices enhance knowledge generation from the multidisciplinary team, increase customer satisfaction due to the customer input being considered into the innovation process, ensures resource allocation and utilization is appropriate and enforces continuity of the innovation and technology management process (Aykut, 2011).

1.1.4 Business Survival

Business survival is defined as the ability of the business to withstand forces that work against its existence. These forces are, economic, social, technological and legal and regulatory in nature. The business to this stage has proved that it is a workable entity and has enough customers and it satisfies them sufficiently with its products and services. The key challenge a business faces during its survival include, poor planning through the business plan development. The business plan gives reason for existence of the business and how it plans to remain in existence. Secondly, financial management is a great challenge and require expertise in handling cash flows. Customer attraction and retention is another challenge the business faces. Small businesses may find it more challenging to attract and retain customers because they generally don't have large enough marketing budgets to compete with the advertising dollars that larger companies can spend. Business needs to be strategic and creative in how you attract new customers (Robert, 2009). During this stage, the key goal of the business is to remain in existence and the following takes place; increase in sales and profits, improvement of existing products, new product development, market penetration and diversification. The business may grow in size and profitability and move to the next stage or remain earning marginal returns on investment of time and capital and eventually get out of business. Strategies for survival of the business include, selling the business, remain as is and growing the business. Growth of the business is considered as survival mechanism. Growth of a business is a complex concept and takes two broad forms namely; organic (expanding by increasing overall customer base, output per customer and new sales) and inorganic (expansion through mergers, acquisitions or takeovers). Choice of the method of growth

depends on the type of business, resources available, time, money and equity sweat the owner is ready to spend. Strategies for growth and implication management includes penetration strategies, market development strategies, product development strategies and diversification (Robert, 2009).

1.1.5 Motor Vehicle Industry in Kenya

The motor vehicle industry in Kenya stretches its dimensions from motor vehicle assembly, spare parts dealers, and imports of second hand vehicles, motor garages of varying sizes, motor vehicle accessories suppliers and motor vehicle retail services. The motor industry is dominated by; Toyota (East Africa), Cooper Motors Corporation (CMC), General Motors (GM), Simba Colt and DT Dobie. Other motor vehicle dealers namely Foton (East Africa), Hyundai, and KIA are digging in, either establishing assembly plants or expanding their sales network across the country. The motor assembly industry in particular has led to development of business partners namely body builders whose role is to build bodies for trucks and buses. Other dealers in the same product line include trailer builders, who build trailers and coupling mechanism for toeing (William, 2007)

To enjoy the benefits that come with local manufacturing, a number of the key motor dealers have opted to establish assembly plants in various regions in the country. Other subsidiary service providers like body building have also established in many regions to match up the growing demand for motor vehicles with specially built bodies and to service and maintain the same vehicles. In the sale of used motor vehicles, several car bazaars have sprouted to provide the same to the Kenyan people. These are distributed all

over the country and have played a role in provision of affordable used imported vehicles to the Kenyans (William, 2007).

1.2 Research Problem

Innovation and technology management practices are very fundamental for business survival .Through these practices, organizations are able to develop a culture for continuous innovation and new product development that enables them have a competitive advantage in the market. It is through this dynamism and rapid change of technology that several researchers both international and local have conducted studies to establish the effect of innovation and technology management practices on business survival and growth in the diverse categories of industries. Alba Sánchez et al (2011), did a study on Innovation Management Practices, Strategic Adaptation, and Business Results: Evidence from the Electronics Industry, 2011 in the Middle East. Robert and Scott (2014), similarly did a research on Best Practices in the Idea-to-Launch Process and Its Governance. In addition, Tahir, (2008); carried out a research on Innovation Management: Types, Management Practices and Innovation Performance in Services Industry of Developing Economies in Pakistan. Among the local researches include; Awuor, (2013), who did a research on Factors Affecting New Vehicle Sale in the Motor Industry in Kenya. Jason (1997), carried out a research on Issues in the Implementation of a Technological Innovation in Small Business Centers in Kenya. Paula (2011) performed a research on Technology entrepreneurship-potential for social innovation in the mobile industries in Kenya and finally Ruth and Margaret (2013), did a research on Micro, Small and Medium Enterprise Growth and Innovation, A Case Study on the Women Enterprise Fund in Kenya.

The motor vehicle industry is a competitive area in terms of new technologies. In term of customer satisfaction through improved quality product, motor vehicles industries have been forced to evolve in their technology. The key technologies and innovations include, turbo charging and supercharged air injection, Electronic Fuel injection (EFI), automatic transmission systems and rear view cameras for reversing (William, 2007).This research aims at bringing out how innovation and technology management has been beneficial to survival of the motor vehicle industry in Kenya. Basing on the above researches, there exists a knowledge gap, none of them paid particular attention to the motor vehicle industry in Kenya and thus this research will seek to answer the question; what are the effects of innovation and technology management practices on business survival in the motor vehicle industry in Kenya?

1.3 Research Objective

The objective for the study is to establish the effect of innovation and technology management practices on business survival in the motor vehicle industry in Kenya.

1.4 Value of the Study

This research attempts to fill the knowledge gap existing on effect of innovation and technology management practices on business survival in the motor vehicle industry. The research will also demonstrate the level of innovation and technology in the key motor vehicle players and how beneficial it is. This research will clearly depict how the motor vehicle industry must adapt innovation and technology management practices or be faced out by competition. This research will add content to Coopers (2005) theory of “Innovate

or die ’’ for the motor industry in Kenya. The study will quantify on a number of innovations and what benefit they had to the survival of the businesses in the motor vehicle industry in Kenya.

The research will be beneficial to the government of Kenya in policy formulation towards promotion of innovation and technology management for the other sectors for a better economy. This research can be replicated to other industries to establish how they can be improved. With little research have been carried out in the motor vehicle industry about innovation and technology management practices, in Kenya, this study will add content to the existing researches on the benefit of innovation and technology management practices. The findings of this research can be used by other researches for further studies.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The chapter contains theoretical foundation, innovation management, innovation management practices, technology management, technology management practices, the motor vehicle industry in Kenya and finally innovation and technology management practices in the motor vehicle in Kenya.

2.2 Theoretical Foundation

According to Kilbourn (2006), the theoretical perspective in research reflects the researcher theoretical orientation, which is crucial to interpreting the data in qualitative, irrespective of whether it is explicit or implicitly stated. In other words, theoretical perspective plays a role as the filter for focusing and binding the data to be collected. This study will be anchored on resource based view and agility and flexibility theory.

2.2.1 Resource Based View

This theory tries to explain the internal sources of a firm's sustained competitive advantage (Kraaijenbrink, Spender and Groen, 2010). It was the Penrose who established the foundation of the resource based view as theory (Roos & Ross, 1997).Penrose first provides a logical explanation to the growth rate of the firm by clarifying the casual relationship among firm resources, production capability and performance .Her concern is mainly on efficient and innovative use of resources. She claimed that bundles of productive resources controlled by firms could vary significantly by firm, that firm in this sense are fundamentally heterogeneous even if they are in the same industry (Barney & Clark, 2007).

According to Resource Based Theory (RBT), human capital is considered to be a source of competitive advantage for entrepreneurial "firms. Ownership of firm-specific assets enables a company to develop a competitive advantage. Sustainable competitive advantage results from resources that are inimitable, not substitutable, tacit in nature, and synergistic (Barney, 1991). Therefore, managers need to be able to identify the key resources and drivers of performance and value in their organizations. The RBT also states that a company's competitive advantage is derived from the company's ability to assemble and exploit an appropriate combination of resources. Such resources can be tangible or intangible, and represent the inputs into a firm's production process; such as capital, equipment, the skills of individual employees, patents, financing, and talented managers. As a company's effectiveness and capabilities increase, the set of available resources tends to become larger. Through continued use, these "capabilities", defined as the capacity for a set of resources to interactively perform a stretch task or an activity, become stronger and more difficult for competitors to understand and imitate. Research and Development expenditures can be used to augment future production possibilities (Rylander, 2001).

According to Grover et al. (1998), "The essence of a resource-based theory is that given resource heterogeneity and resource immobility and satisfaction of the requirement of value, rareness, imperfect imitability, and non-substitutability, firms' resources can be a source of sustained competitive advantage". Resource based theory treats enterprises as potential creators of value-added capabilities. Understanding the development of such capabilities and competences involves viewing the assets and

resources of the firm from a knowledge-based perspective (Conner and Prahalad, 1996; Prahalad and Hamel, 1990). Prahalad and Hamel (1990) concentrate their attention on the collective learning processes of the organization, on the development of skills and technology integration. Their concept of "core competences" is related to mechanisms by which firms learn and accumulate new skills in order to develop business capabilities to outperform competitors. One of the objectives of the theory is to help managers to appreciate why competences can be perceived as a firms' most valuable asset and, at the same time, to understand how those assets can be used to improve business performance. A resource-based view of the firm accepts that attributes related to past experiences, organizational culture and competences are critical for the success of the firm (Campbell and Luchs, 1997; Hamel and Prahalad, 1996). Conner (1991) suggests that an in-house team is likely to produce technical knowledge, skill, or routine that fits better with the firm's current activities.

2.2.1 Agility and Flexibility Theory

Business Agility is a management concept to cope with the competition, business practices and corporate structures of the twenty-first century. A firm agility builds upon other concepts in business which include; dynamic capabilities (Teece et at. 1997), market orientation (Kohli and Jaworski, 1990), absorptive capacity (Cohen and Levinthal, 1990) and strategic flexibility (Ansoff, 1980). The law of requisite variety (Ashby, 1956), states that "the variety within a system must be at least as great as the environmental variety against which it is attempting to regulate itself'. Gold et at, (1991) defined agility as the ability to thrive in a competitive environment of continuous and unanticipated change and to respond quickly to the rapidly changing

fragmenting global markets that are served by networked competitors with routine access to a worldwide production system are driven by demand for high -quality, high performance, low-cost customer configured product and services.

Microfinance institutions must be agile that is once they are committed to managing business on commercial basis; competition quickly becomes the hallmark of the environment in which they operate. Environmental influences that affect MFIs comes from; economic factors that influence the product and services they provide, Technological changes influence their performance, industry changes, strategic partners actions, competitors factors and geographical factors will affect the sector. To be effective and efficient, an enterprise system needs to be flexible, that is cover a certain range of functions and features and allow for variation over time (Allen and Boynton, 1991).

2.3 Innovation Management

Svara, (2008) defines the term innovation as the introduction of new or alternation of existing practices with the intention of producing positive results by referring to Damanpour and Evans (1984). The two forms of innovation are; adoption of standard or leading new approaches from outside the organization. Since the beginning of the 21st century innovation has been one of the fundamental aspects of industrial and economic development policies in Western countries. Schumpeter (1934) pointed early in the 20th century at the importance of innovation as a driver for economic growth. Later, Porter (1980) proposed that the competitiveness of nations depended on the ability of an industry to innovate and improve, and that companies achieve competitive advantage

through innovation. Thus innovation has proved to be important at the company and national level.

The theoretical link between innovation and company competitiveness from a long-term perspective can be traced back to the early definition of strategic adaptation. According to this stream of research, the process of strategy is considered a dynamic process, with adaptation being the key aspect needed to achieve competitive advantage in a long-term perspective (Miles and Snow, 1978; Floyd and Lane, 2000; Child, 1997). In the field of Innovation Management, the same concepts have been approached from a somewhat related perspective. Hult et al. (2004), for instance, defines innovation as the way to change the organization, as a response to external or internal changes or as a proactive attempt to change this environment. Hence, innovation is considered one of the key strategic processes that may help companies adapt both internally and externally. Damanpour (1991), Henard & Szymaski (2001), and Grant (2005) arrive at similar conclusions. Nevertheless, the conceptual link between innovation practices and strategic alignment is not yet well understood, as the different terminologies and models make it difficult to establish the relationship between different concepts (Adams et al, 2006). Moreover, the ability to innovate has been widely considered one key success factor of business survival and performance (Schumpeter, 1934; Burns and Stalker, 1961; Porter, 1990).

The reason for increased interest in innovation management is likely to be realization that innovation is fundamental for survival of organizations, Whether it concerns firms that

need to compete for market share or profit (Cooper 2005, Hamel and Prahald 1998, Kaplan and Norton 1992) or public organizations that need to improve their services (Hartley 2005, Mulgan and Albury 2003) does not matter. How the innovation process should be managed depends on how it is looked at. Successful innovation is the creation and implementation of new processes, products, services and methods of delivery which result in significant improvement in outcomes, efficiency, effectiveness or quality (Albury, 2005). Hansen and Birkinshaw, (2007) define innovation management as the active and conscious organization, control and execution of activities that lead to innovation. Similarly, Jacobs and Sneijders, (2008) define it as the management of the innovation process.

2.4 Innovation Management practices

Creation of a culture and a structure that promotes innovation is the key practice for organizations. Having an elastic business definition helps to ward against protectionist instincts. Senior executives should be directed to spend a significant amount of their time looking for opportunities outside the boundaries of the business they are managing. Deconstruct the dominant mental models regarding business mission, market scope, relevant products and services, target customers and question existing biases regarding the kinds of profit boosters that can be exploited, the core competencies that are most important, pricing strategies, bundling options, and partnering opportunities. Open up innovation opportunities to all staff and engage customers, suppliers, competitors, and complementary organizations to develop new approaches to generating new wealth. Cellular division to promote smaller, independent unit; de-mergers; divestitures; spin-

offs; and an EcoNet model that encourages cooperation and collaboration across organizational entities as needed can all help promote innovation (Burgelman, 1996).

Secondly, transformation of organizational strategy is all essential as a practice to innovation management. Typical strategic planning is often antithetical to promoting radically innovative business models and strategies. Innovation cannot be held to a scheduled strategic planning timeline; it should be on-going. Also, strategy should not be restricted to the same set of top level decision-makers. Innovative strategy does not necessarily come from the top but too often not a word about contributing strategically appears in the performance criteria for anyone below the level of senior executive. Finally, strategy tools can only do so much. Internal rate of return forecasts and EVA calculations may be somewhat helpful but thinking about the possibilities is the most important component. Thinking about how big the thing could become and what the obstacles might be and how these can be addressed and constructing a convincing story is the most important part of strategy (Burgelman, 1996).

Strategic adaptation is vital innovation management practice. Miles & Snow (1978) define organizational adaptation as a dynamic process of adjustment to the change and environmental uncertainty, of maintaining an effective alignment with the environment while internal interdependencies are efficiently managed. Child (1997), as cited above, models the strategic adaptation process as the sum of two dynamics: internal structuring (internal actions addressed to adapt organizational agents to new environment conditions) and external structuring (actions that modify the company's relationship with its

environment, such as launching new products or changing suppliers). As a consequence, the strategic adaptation process is performed through a set of activities including process development, product development, research, or new organization deployment (Barton, 1992; Prahalad and Hamel, 1990).

The strategic positioning, however, refers to the place in the market occupied by a company determined by the scope of its products relative to those of its competitors (Porter, 1980). Later, Eunni et al. (2003) conceptualized adaptation strategy as a company's ability on one hand to obtain the correct alignment of strategy, structure, and culture (internal alignment) in order to position it competitively in the market, and on the other hand, alignment with its environment in order to successfully face changes in its environment (external alignment). In order to measure the strategic adaptability of a company, Eunni et al. (2003) group some internal alignment measures: corporate leadership (see also Collins and Porras, 1994 and Donaldson and Lorsch, 1983), strategic planning, and approach to workers (Delery and Doty, 1996; Youndt et al., 1996, Becker and Gerhart, 1996). He also has groups for measuring external alignment: market and customer focus, technological and innovation capacity, strategic partnerships, and corporate social responsibility (D'Aveni, 1994, Hamel and Prahalad, 1994; Huergo, 2006; Schmiedeberg, 2009; Lee at al., 2010).

Innovation is often referred as the specific set of activities that offer competitive advantages to a company. As such, an increased interested has been placed on understanding which practices affect more substantially the innovation capability of the

company (Adler et alt, 1992; Verhaeghe and Kfir, 2002). Innovation can be identified directly with the concept of strategic adaptation (Eunni et al, 2005). Hence, the same literature about innovation practices gives detail about how one can fit specific innovation practices or capabilities into each dimension of strategic adaptation. The importance of having mechanisms for systematic management of innovation has been widely recognized and investigated (Burns and Stalker, 1961; Parker, 1982; Kanter, 1983; Leonard-Barton, 1992; Christensen, 1997). Adler et al. (1990) anticipate the need for four kinds of capabilities to sustain technological innovation at the company level (product development, advanced manufacturing capability, process innovation, and organizational flexibility). Christensen (1995) classifies technological innovation capabilities into scientific research assets, process innovation assets, product innovation assets, or design assets. Burgelman et al. (2004) explores in depth the technological innovation capabilities, or TICs (the set of organizational features and practices that support the company's technological innovation strategy). For Yam et al. (2004), "The technological innovation success depends not only on the technological capabilities of the firm, but also on other critical capabilities in marketing, organization, manufacturing, strategic planning and resource allocation.

Probes as to why some new products are great successes while others fail commercially have been linked to good idea to launch practices. These investigations have identified a myriad of success drivers, including developing a differentiated product with a compelling value proposition; building in the voice-of-the-customer input; undertaking the front-end homework; seeking sharp, early product definition; providing adequate

resourcing; and relying on an effective cross-functional development team (Cooper, 2011). A number of organizations have built these success drivers into their development methodologies in the form of a structured idea to- launch process or system. (Koen 2003; Grőlund, Rőnneberg, and Frishammar 2010; Adams and Hubilkar 2010; DOE 2007; Cooper 2011). Similarly, other studies have probed why some businesses are so successful at new-product development, while others are not (Edgett, and Kleinschmidt 2003, 2004, 2005; Adams 2004; Jaruzelski, Dehoff, and Bordia 2005). Many success factors have been uncovered in these benchmarking studies, including having a product innovation and technology strategy to guide development efforts, fostering the right climate and culture for innovation, implementing effective ideation practices, putting the necessary resources in place and investing in the right projects (portfolio management), and having an efficient idea-to-launch system (Jaruzelski, Dehoff, and Bordia 2005; Cooper and Mills 2005; Cooper, in press). A recurring best-practice theme is the use of some form of gating process. Superior results seem to be a function of the quality of an organization's innovation process, the bets it makes and how it pursues them—rather than the magnitude of its innovation. Commercialization of innovation and technology is another fundamental practice. Commercialization of technology involves the companies earning royalties from their existing patents. Through commercialization techno innovations are converted to techno entrepreneurship (Nicholas and Armstrong 2003).Patenting an innovation is a way of protecting the innovator. It similarly enables him earn from his piece of intelligence and be able to license other users to use the innovative idea.

2.5 Technology Management

Technology is defined as the integration of human know-how, equipment, machinery, buildings, process technology, technical skills and information and knowledge about equipment, marketing, management and organizational know how. (Mian, 2004).In today's highly globalized and technologically advanced world, the companies or countries with obsolete technology, poor management of technology, old way of thinking and obsolescent production processes cannot exist in highly globalized economy. Companies having advanced technology but lacking proficient technical skills, required knowledge and capacity, poor management of technology are worthless. It's the management of technology which makes profit not the technology itself (Mary and Ann, 2006). In the dynamic global environment, with continuous and exponential technological growth and development, management of technology and change is of high priority. Technology, innovation and change management are the crucial competitive factors today for any organization. White and Brutton, (2007) state that the necessity of technology management has been necessitated by; the rapid pace of technological changes which requires multidisciplinary approach, the rapid pace of technological development which shortened product lifecycles, the need to cut time for product development and create more flexible organizations, The need to maximize competitiveness effectively by using new technologies and the importance of changing management tools caused by rapid technological changes.

In advanced sectors, technology and ability to innovate are key aspects of the organizational knowledge of a firm that give it distinctive capabilities and competitive

advantage. However it is also necessary to combine these capabilities with ability to commercialize the technology. Such combination requires effective, intensive and responsive relationships between marketing, formal R&D and design engineering. In this respect a strong correlation has been found between corporation's competitiveness and its ability to commercialize technology which is termed as technology management. In such R&D intensive industries, companies that are first to market their product based on advanced technology demand higher margins and gain market shares. Companies that spin out variants more rapidly and leverage their core technology across more markets earn more returns. The ability to make better use of generic features of key contemporary technology is another feature of firm level competiveness (Nevens et al, 1990). Managing technology is a method of operation that leverages human resources, technology and other business assets by optimizing the relationships between the technology functions of the business enterprise. It is the process of integrating science, engineering and managing with research, development and manufacturing in order to meet the operational goals of the business unit effectively, efficiently and economically. It includes managing the totality of the technology operations from concept through commercialization (Gaynor, 1989).

2.6 Technology management Practices

Technology Management embraces several interconnected practices such as: technology policy; technological forecasting and assessment; technology strategy; technology transfer; technology-induced as well as market-oriented Research and Development (R&D); process technology and product technology and their continuing improvement; human resource management in terms of innovative capabilities, flexibility and

contribution; and technology project management , (Gaynor, 1989). The key technological practice is investment in research and development. Investment in research and development is not synonymous with innovation. Many firms introduce new products without research and development. However, it is possible to demonstrate the relationship between the amount of investment in R&D and product and process innovation for a broad cross-section of industries (Tassey 2011).

Technology forecasting, in general, applies to all purposeful and systematic attempts to anticipate and understand the potential direction, rate, characteristics, and effects of technological change, especially invention, innovation, adoption, and use. One possible analogy for technology forecasting is weather forecasting: Though imperfect, Technology forecasting enables better plans and decisions. A good forecast can help maximize gain and minimize loss from future conditions. Additionally, Technology forecasting is no more avoidable than is weather forecasting. All people implicitly forecast the weather by their choice of whether to wear a raincoat, carry an umbrella, and so on. Any individual, organization, or nation that can be affected by technological change inevitably engages in forecasting technology with every decision that allocates resources to particular purposes. The study of technology forecasting focuses on novel methods for automatically mining science and technology information sources with the aim of extracting patterns and trends. The goals include generating growth forecasts for technologies of interest, intuitive representations of interrelationships between technology areas, identification of influential researchers or research groups and the discovery of underlying factors, which may affect or stimulate technological growth (Madnick, 2008)

2.7 Business Survival

When starting a business, a lot of research and feasibility is done by the owner. Sources of information to start a business include advisors, books, magazines etc. If the business survives start up, the owner is left puzzling what next. Many options are available depending on initial motive of start-up or prevailing current situation. The broad options available include; selling the business, remain as is and growing the business. For this case, growth of the business is considered as survival mechanism. Growth of a business is a complex concept and takes two broad forms namely; organic (expanding by increasing overall customer base, output per customer and new sales) and inorganic (expansion through mergers, acquisitions or takeovers). Choice of the method of growth depends on the type of business, resources available, time, money and equity sweat the owner is ready to spend. The stages of business growth can be characterized in many different forms, the most common lifecycle stages being start-up, growth, maturity and decline (Robert, 2008).

Start - Up Stage; this is the initial stage of opportunity recognition (process of perceiving the possibility of a profitable new business or product or service).Several entrepreneurial characteristics e.g. prior experience, cognitive factors, intuition, social networks, creativity etc. At this stage the owner does everything and directly supervises subordinates who should be of at least of average competence. Systems and formal planning are minimal to nonexistent. The company strategy is to remain alive. Companies in this stage range from newly started restaurants and retail stores to high technology and

manufacturers that have yet to stabilize either their production or product quality (Robert, 2008).

Growth stage**;** at this stage the business has demonstrated that it is a workable entity. It has enough customers and satisfies them sufficiently with its products or services to keep them. The organization is still simple with few employees supervised by sales managers or general foremen. System development is minimal while formal planning is at best cash forecasting .The main goal at this stage is still forecasting .Goal is still survival and owner is still synonymous with the business. During this stage, the following takes place; increase in sales and profits, improvement of existing products, new product development, market penetration and diversification. The organization may grow in size and profitability and move to the next stage or remain earning marginal returns on investment of time and capital and eventually get out of business (Robert, 2008).

Maturity Stage; This stage is marked by; increased competition, gradual declining sales and profit, increased promotional costs, competitors cutting prices to attract business, weaker competitors falling off, more promotional and distribution efforts and operational and strategic planning being done by management. Decline; this stage is characterized by rapidly falling sales and management pruning off products to eliminate unprofitable ones. Survival of the business is dependent on many factors. According to Barringer and Dorringer, the four main forces are; economic forces, social forces, technological advances and legal and regulatory frameworks. For this study, technological considered are given greater emphasis and they include; the effect of technology on growth during

production, distribution and advertising, effect of cell phones, internet and social media and the advantages accruing due to e-commerce. The critical decision during this stage is whether to expand the business or keep the business stable and profitable (Robert, 2008).

2.8 Motor vehicle industry in Kenya

The motor vehicle industry in Kenya stretches its dimensions from motor vehicle assembly, spare parts dealers, and imports of second hand vehicles, motor garages of varying sizes, motor vehicle accessories suppliers and motor vehicle retail services. The motor industry is dominated by key players, namely Toyota (East Africa), Cooper Motors Corporation (CMC), General Motors (GM), Simba Colt and DT Dobie. Other motor vehicle dealers namely Foton (East Africa), Hyundai, and KIA are digging in, either establishing assembly plants or expanding their sales network across the country. The Kenya Motor Industry Association (KMI), is the leading federation of companies in Kenya's formal motor sector, embracing distributors of all the major vehicle marques, vehicle assemblers, component manufacturers, equipment agents, parts suppliers and many ancillary services. Its role is to mobilize and represent the sector on all commercial, industrial and related national policy issues. The KMI acts as a forum between all its members, and as a coordinated link with government, other associations, the media and the general public.

To enjoy the benefits that come with local manufacturing, a number of the key motor dealers have opted to establish assembly plants in various regions in the country. Other subsidiary service providers like body building have also established in many regions to match up the growing demand for motor vehicles with specially built bodies and to

service and maintain the same vehicles. The established dealers in the motor vehicle industry face intense competition from imported second-hand vehicles, mainly from Japan and United Arab Emirates. Another issue that arises is that there is more demand for second-hand vehicles rather than new ones due to the fact that Kenya is generally a low-income country (William 2008).

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the various steps that were used to execute the study in a bid to satisfy the study objective. It details the research design, the population of the study, the sample size, data collection and data analysis.

3.2 Research Design

Descriptive research design was used for this case. Descriptive research design is a scientific method which involves observing and describing the behavior of a subject without influencing it in any way. It is characteristic for descriptive research that it is restricted to factual registration and that there is no quest for an explanation why reality is showing itself this way. In principle, descriptive research is not aiming at forming hypotheses or development of theory. Another characteristic of descriptive research is objectivity or neutrality.

3.3 Population of the study

The population for the study included all motor vehicle assemblers, registered dealers and established motor garages in Nairobi County. Attached is a list of the motor vehicle dealers in Nairobi. Population of the study is defined as those people, events, or records that contain the desired information and can answer the measurement question (Donald, 2011).

3.4 Data Collection

The research used both primary and secondary sources of data. Primary data was obtained through self-administered questionnaires. Secondary data was obtained from company publications, journals, periodicals and internet information. Primary data is defined as data observed or collected directly from first-hand experience. Published data and the data collected in the past or other parties is called secondary data (Donald, 2011).

3.5. Data Analysis

The data obtained from the data collection instrument was checked for completeness and then coded. It was then grouped and analyzed. Descriptive statistics was used to analyze the data. Correlation analysis was also used to establish the relationship that exists between the variables of the study namely innovation and technology management practices and business survival.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents analysis and findings of the study as set out in the research methodology. The findings have been presented in two main sections; background information of the organization as well as the respondents and the effects of innovation and technology management practises on business survival.

4.2 Response Rate

Questionnaires were distributed to twenty two (22) companies that deal in motor vehicles in Nairobi County and sixteen (16) companies responded through filling the questionnaires which were returned to the researcher. This formed 73% of the population of the study. According to Donald (2011), the response rate of the sample size should be more than half the sample size. Therefore the response rate was adequate for the study.

4.3 General Information of the Organization

4.3.1 Age of the organization

The respondents were asked to indicate the number of years that the organizations have been in existence. The findings are contained in Table 4.1.

Table 4.1 Age of the organizations

Age (Years)	Frequency	Percentage (%)
0-10	1	6.25
11-20	2	12.5
21-30	8	50
31-40	4	25
41-50	1	6.25

Source: Researcher (2014).

According to the findings, 50% of the respondents said that the organizations have been existence for between 21-30 years, 12.5% for 11-20 years and 6.25% indicated that the organizations have been in existence for between 0-10 years and 41-50 years. The findings show that the motor industry is a mature industry and that the organizations have gone through the business lifecycle stages and have put up strategies to enhance their survival.

4.3.2 Nature of Business

The respondents were asked to indicate what activities the motor vehicle companies dealt in. The findings are contained in Table 4.2.

Table 4.2 Nature of Business

Industry	Frequency	Percentage (%)
Motor Assembly	2	12.5
Motor Retail	3	18.75
Motor Repair	8	50
Motor Import	3	18.75

Source: Researcher (2014).

From Table 4.2, 50% of the respondents said that the organizations dealt in motor repair, 12.5% for motor assembly, 18.75% indicated that the organizations dealt in motor retail and motor import. This findings show that in Kenya, the number of industries dealing in motor repair are more than those dealing in motor assembly, motor imports and motor retail.

4.3.3 Duration of Employment

The respondents were asked to indicate the number of years that they had spent in their representative organizations. The findings are contained in Table 4.3.

Table 4.3 Duration of Employment

Duration (Years)	Frequency	Percentage (%)
0-5	2	12.50
6-10	3	18.75
11-15	7	43.75
16 & More	4	25.00

Source: Researcher (2014).

From Table 4.3, it is clear that 12.5% had worked for 0-5 years, 18.75% for 6-10 years and 43.75% for 16 and more years. Overall, it can be argued that most of the respondents who participated in the research were well versed with information about their representative companies. The respondents understood better all the strategies that the organizations had adopted for their survival and growth. They had also been part of their representative organizations during the different stages of the business cycle.

4.4 Innovation Management Practises in Motor Vehicle Industry

The respondents were asked to indicate the innovation management practises adopted by their organizations and to what extent those practises were being utilised using a five point Likert scale where 1. Meant Not at all, 2-Little extent, 3-Moderate, 4-Great Extent and 5-To a Very great extent. The results are contained in Table 4.4.

Table 4.4 Innovation Management Practises

Innovation Management practises	Score (%)					Mean	Standard Deviation
	1	2	3	4	5		
Creation of a culture and a strategy that promotes innovation as a continuous activity in the industry.	12.5	6.25	6.25	25	50	3.81	1.36
Use of transformational organizational strategy to promote radically innovative business models and strategies	18.75	6.25	37.5	18.75	18.75	3.13	1.36
Use of strategic adaptation as a dynamic process of adjustment to change and environmental uncertainty	25	0	6.25	6.25	62.5	3.81	1.76
Strategic positioning relative to its competitors	0	0	6.25	0	93.75	4.86	0.5
Use of commercialization of technology thus company earning royalties e.g. patents	100	0	0	0	0	1	0

Source: Researcher (2014).

From Table 4.4, the respondents said that creation of a culture and strategy that promotes innovation as a continuous activity in the motor vehicle industry was to a great extent adopted (mean 3.81).The respondents said that use of transformational organizational strategy to promote radically innovative business models and strategies as an innovative practice was moderately adopted (mean 3.125). The respondents further said that use of strategic adaptation as a dynamic process of adjustment to change and environmental uncertainty as an innovative practice was to a very great extent adopted in the industry (mean 3.8125). Strategic positioning relative to its competitors was declared to be adopted to a very great extent adopted (mean 4.875). Finally, the use of commercialization of technology to earn royalties was declared by the respondents to be

the least adopted innovation management practice in the motor vehicle industry in Kenya (mean 1). This means that all the organizations in this study had at least a practice adopted for innovation management whereas others had multiple practices to stimulate innovation as part of their system.

From the definition of innovation; Successful innovation is the use of new technological knowledge, market knowledge, and business models that can deliver a new product or service, or product/service combinations, to customers who will purchase at prices that will provide profits. Innovation management is not on option but a necessity for all corporations in an economic environment that is global, intensely competitive, knowledge driven, and subject to uncertainty and rapid changes. Innovation is thus managed through a set up key practices in the organization thus changing it into a culture for the organization (Paul, 2008).

4.5 Technology Management Practises

The respondents were asked to indicate the technology management practises adopted by their organizations and show to what extent these practises were being utilized using a five point Likert scale where 1. Meant Not at all, 2-Little extent, 3-Moderate, 4-Great Extent and 5-To a Very great extent. The results are contained in Table 4.5

Table 4.5: Technology Management Practices

Technology Management Practices	Score (%)					Mean	SD
	1	2	3	4	5		
Commitment of top management towards technology through a technology policy	0	0	12.5	12.5	75	4.63	0.72
Use of technology forecasting and assessment to determine trends and the direction towards which technology is heading.	6.25	18.75	6.25	43.75	25	3.62	1.23
Use of market oriented research and development to develop new products, services and knowledge to generate competitive advantage for the business.	6.25	0	0	25	68.75	4.50	1.03
Existence of technology strategy within the organization.	0	0	12.5	0	87.5	4.75	0.68
Technology project management as a tool to develop technology relevant to the industry	0	12.5	12.5	68.75	6.25	3.69	0.79

Source: Researcher (2014).

From Table 4.5, the respondents said that commitment of top management towards technology through a technology policy in the motor vehicle industry was to a very great extent adopted (mean 4.63) .43.75% of the respondents said that use of technology forecasting and assessment to determine trends and the direction towards which technology is heading as a practice was to a great extent adopted (mean 3.62). Similarly, the respondents said that use of market oriented research and development to develop new products, services and knowledge to generate competitive advantage for the business as an innovative practice was to a very great extent adopted in the motor vehicle industry (mean 4.5). On existence of technology strategy within the organization, 87.5% of the respondents said that it was adopted to a very great extent (mean 4.75). Finally, 68.75%

of the respondents said that technology project management as a tool to develop technology relevant to the industry as a technology management practice was adopted to a great extent (mean 3.69).

The motor industry is a dynamic and trendy market where Investment in research and development is not synonymous with innovation. Many firms introduce new products without research and development. However, it is possible to demonstrate the relationship between the amount of investment in R&D and product and process innovation for a broad cross-section of industries. A positive correlation is evident, underscoring the importance of R&D intensity as a major policy variable. Over time, industries that have neglected technology management practices have increasingly become less competitive and provided fewer jobs and lower rates of pay (Tassey 2011).

4.6 Effect of Innovation Management Practises on Business Survival

The respondents were asked to indicate the extent to which innovation management practises adopted by their organizations have impacted on their survival using a five point Likert scale where 1. Meant Not at all, 2-Little extent, 3-Moderate, 4-Great Extent and 5-To a Very great extent. The results are contained in Table 4.6

Table 4.6 Effect of Innovation Management Practises on business survival

Innovation Management practises	Mean Score	Standard Deviation
Creation of a culture and a strategy that promotes innovation as a continuous activity in the industry	3.81	1.36
Use of transformational organizational strategy to promote radically innovative business models and strategies	3.13	1.36
Use of strategic adaptation as a dynamic process of adjustment to change and environmental uncertainty	3.81	1.76
Strategic positioning relative to its competitors	4.86	0.50
Use of commercialization of technology thus company earning royalties e.g. patents	1	0

From Table 4.6, it is clear that creation of a culture and strategy that promotes innovation as a continuous activity as and innovation management practice in the motor vehicle industry to a great extent promotes business survival (mean 3.81), use of transformational organizational strategy to promote radically innovative business models and strategies promotes survival to a great extent (mean 3.13), use of strategic adaptation as a dynamic process of adjustment to change and environmental uncertainty determines business survival to a great extent (mean 3.81) whereas strategic positioning of a business relative to its competitors affected business survival to a very great extent (mean 4.85).Use of commercialization was considered the practice with the least influence on business survival in the motor vehicle industry (mean 1).

Innovation practices in the motor vehicle industry have enabled key organizations to remain strategically positioned thus dominating the market with their products. Through these practice, they have been able to introduce quality products at relatively competitive

prices. Innovation management practices instill a culture if innovation into the organization to meet the ever diversifying customer needs (Paul, 2008).All the motor vehicle companies that participated in this research had a practice or multiple practices to enhance and manage innovation.

4.7 Effect of Technology Management Practises on Business Survival

The respondents were asked to indicate the technology management practises adopted by their organizations and show to what extent these practises were being utilized using a five point Likert scale where 1. Meant Not at all, 2-Little extent, 3-Moderate, 4-Great Extent and 5-To a Very great extent. The results are contained in Table 4.7

Table 4.7: Effect of Technology Management Practices on business Survival

Technology Management Practices	Mean Score	Standard Deviation
Commitment of top management towards technology through a technology policy	4.63	0.72
Use of technology forecasting and assessment to determine trends and the direction towards which technology is heading.	3.63	1.26
Use of market oriented research and development to develop new products, services and knowledge to generate competitive advantage for the business.	4.5	1.03
Existence of technology strategy within the organization.	4.75	0.68
Technology project management as a tool to develop technology relevant to the industry	3.68	0.79

From Table 4.7, it is shown that commitment of top management towards technology through a technology policy affected business survival to a very great extent (mean 4.63), Use of technology forecasting and assessment to determine trends and the direction towards which technology is heading promoted business survival to a great extent (mean ,

3.63), use of market oriented research and development to develop new products, services and knowledge to generate competitive advantage for the business contributed to a very great extent to business survival (mean 4.5), existence of technology strategy within the organization affected business survival to a very great extent (mean 4.75) and finally, technology project management as a tool to develop technology relevant to the industry affected business survival to a great extent (mean 3.8).

Firms that want to sustain their competitive position have to develop and deploy their innovation capability through technological management practices. Specifically, firms need to upgrade their innovation capability for developing and commercializing new technologies through their products and services to attain and sustain a competitive position (Wang et al., 2008). All the firms considered for the study have survived through the business life cycle stages and in one way or the other had adopted and reaped from the benefits of technology management practices.

4.8 Correlation Coefficient

Pearson and Spearman correlations are calculated for all variables used in the study starting with the Pearson's correlation results.

4.8.1 Pearson and Spearman's Correlations

Table 4.8 below shows the Pearson correlation coefficient generated from the data. Pearson's Correlation analysis is used for data to see the relationship between innovation management and business survival capacity of the firm**.** If effective innovation management will increase the business survival capacity of the firm, then a positive correlation will be expected.

Table 4.8: Correlation table between Innovation Management Practices and Business Survival

		BS	X_1	X_2	X_3	X_4	X_5
BS	Pearson Correlation	1					
	Sig. (2-tailed)						
X_1	Pearson Correlation	.264	1				
	Sig. (2-tailed)	.043					
X_2	Pearson Correlation	.198	.517	1			
	Sig. (2-tailed)	.133	.000				
X_3	Pearson Correlation	.386	.633	.431	1		
	Sig. (2-tailed)	.003	.000	.001			
X_4	Pearson Correlation	.302	.604	.832	.139	1	
	Sig. (2-tailed)	.444	.000	.000	.293		
X_5	Pearson Correlation	-.259	.042	.094	.169	.062	1
	Sig. (2-tailed)	.047	.754	.479	.200	.638	

Notes: BS – Business Survival; X_1- Culture and Strategy; X2 = Transformational organizational strategy, X3 = Strategic Adoption; X_4 = Strategic Positioning; X_5 = Commercialization of Technology;

The correlation results in Table 4.8 indicate positive correlations between business survival and all the independent variables arising from effective innovation management. This result is expected because if a firm has in place a transformational organizational strategy (r= 0.302), strategically adapts to changes in the environment (r=0.386) as well as a strong culture on innovation (r= 0.264) then it is expected that affect positively the chance of the motor vehicle firms survival. However, the findings also shows that there

exist a negative correlation between the motor vehicle firm culture on strategy and the commercial of technology (r= -0.259). This means that commercialization of the technology affects the chance of a firm survival if it is incorporated in the firm's culture and this might be because it might lead to the sale of the same technology to competitors. The correlations among the remainder of the independent variables suggest that multicollinearity should not be a problem in multiple regression analysis since the coefficient values are low. Field (2005) suggested that multicollinearity becomes a problem only when the correlation coefficient exceeds 0.80 or 0.90. In addition, a correlation was established between technology management and the firm's business survival. The results are presented in table 4.10.

Table 4.9: Correlation table between Technology Management practices and Business Survival

Correlations							
		BS	X_1	X_2	X_3	X_4	X_5
BS	Pearson Correlation	1					
	Sig. (2-tailed)	.000					
X_1	Pearson Correlation	.365	1				
	Sig. (2-tailed)	.000					
X_2	Pearson Correlation	.361	.297	1			
	Sig. (2-tailed)	.000	.002				
X_3	Pearson Correlation	.326	.283	.400	1		
	Sig. (2-tailed)	.000	.003	.000			
X_4	Pearson Correlation	.376	.212	.290	.357	1	
	Sig. (2-tailed)	.000	.030	.003	.000		.
X_5	Pearson Correlation	.481	.408	.419	.478	.679	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	

Notes: BS – Business Survival; X_1- Top management Commitment; X_2 = Technology forecasting and strategy, X_3 = Market Oriented Research and Development; X_4 = Technology Strategy; X_5 = Technology Project Management;

From the correlation table, there is a strong correlation between the firm's Business survival the technology project management (r=0.481) and the adoption of technology strategy within the firm (r=0.376) while the correlation between the adoption of information technology and employment technology in project management process. Generally, from the above results, there is positive relationship between technology adoption management and the business survival capacity.

CHAPTER FIVE: SUMMARY , CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter discusses the findings from the data that was analyzed and the conclusions reached. The findings have been summarized alongside the objective of the study. Conclusions have been drawn from the study and recommendations for action are also given.

5.2 Summary

The objective of the study was to establish the effect of innovation and technology management practices on the motor vehicle industry. From the study, it was established that most of the organizations were aged between 21-30 years. Majority of the organizations were involved in motor repair. The industry also has mature employees who had worked in their representative organization for between 21-30 years. The most adopted innovation management practice in the industry was determined to be the strategic positioning of the organizations relative to its competitors and the least adopted being the commercialization of technology to earn royalties.

The most adopted technology management practice in the motor vehicle industry in Kenya was declared by the respondents to be the existence of a technology strategy within the organization and the least adopted of the technology management practices being the use of technology forecasting and assessment to determine trends and direction towards which technology is heading. Strategic positioning relative to its competitors was depicted to be the most effective innovation and technology management practice towards business survival in the motor vehicle industry followed by existence of a

technology strategy within an organization. The least effective practice being the use of technology commercialization in Kenya to earn royalties.

From the study, it was established that most of the organizations (50%) were aged between 21-30 years, 12.5% for 11-20 years and 6.25% indicated that the organizations have been in existence for between 0-10 years and 41-50 years. This shows that the motor vehicle industry in Kenya is a mature industry. Secondly, 50% of the respondents said that the organizations dealt in motor repair, 12.5% for motor assembly, 18.75% indicated that the organizations dealt in motor retail and motor import. This findings show that in Kenya, the number of industries dealing in motor repair (motor garages) are more than those dealing in motor assembly, motor imports and motor retail. The study shows that 12.5% of the respondents had worked for between 0-5 years, 18.75% for 6-10 years and the majority (43.75%) for 16 and more years thus most of the respondents who participated in the research were well versed with information about their representative companies. The respondents understood better all the strategies that the organizations had adopted for their survival and growth.

The most adopted innovation management practice in the industry was determined to be the strategic positioning of the organizations relative to its competitors and the least adopted being the commercialization of technology to earn royalties .Other innovation management practices include; creation of a culture and strategy that promotes innovation as a continuous activity in the motor vehicle industry that was to a great extent adopted, the use of transformational organizational strategy to promote radically innovative business models and strategies as an innovative practice which was moderately adopted, the use of strategic adaptation as a dynamic process of adjustment to

change and environmental uncertainty as an innovative practice which was to a very great extent adopted in the industry and the use of commercialization of technology to earn royalties which was declared by the respondents to be the least adopted innovation management practice in the motor vehicle industry in Kenya.

The most adopted technology management practice in the motor vehicle industry in Kenya was declared by the respondents to be the existence of a technology strategy within the organization and the least adopted of the technology management practices being the use of technology forecasting and assessment to determine trends and direction towards which technology is heading. Other technology management practices considered during the study include; commitment of top management towards technology through a technology policy in the motor vehicle industry that was to a very great extent adopted, the use of market oriented research and development to develop new products, services and knowledge to generate competitive advantage for the business as an innovative practice that was established to be adopted to a very great extent adopted in the motor vehicle industry , and the use of technology project management as a tool to develop technology relevant to the industry as a technology management practice that was adopted to a great extent .

Strategic positioning relative to its competitors was depicted to be the most effective innovation and technology management practice towards business survival in the motor vehicle industry followed by existence of a technology strategy within an organization. The least effective practice being the use of technology commercialization in Kenya to earn royalties. Other innovation and technology management practices considered for the study include; creation of a culture and strategy that promotes innovation as a

continuous activity as and innovation management practice in the motor vehicle industry which was established to promote business survival a great extent , use of transformational organizational strategy to promote radically innovative business models and strategies enhances business survival to a moderate extent, use of strategic adaptation as a dynamic process of adjustment to change and environmental uncertainty determines business survival to a great extent commitment of top management towards technology through a technology policy affected business survival to a very great extent ,use of technology forecasting and assessment to determine trends and the direction towards which technology is heading promoted business survival to a great extent ,use of market oriented research and development to develop new products, services and knowledge to generate competitive advantage for the business contributed to a very great extent to business survival, existence of technology strategy within the organization affected business survival to a very great extent and technology project management as a tool to develop technology relevant to the industry affected business survival to a great extent.

5.3 Conclusion

From the study, the motor industry is a mature industry. The industry has mature employees. The major activity in the motor vehicle industry in Kenya entails motor repair and the least is motor assembly. The motor industry has adopted several innovation and technology management practices to enhance its survival. The most prominent innovation management practice is the strategic positioning relative to competitors and the least being use of commercialization to earn royalties. The most prominent technology management practice entails the existence of technology strategies within the

organizations and the least being the use of technology forecasting for product development. Strategic positioning relative to its competitors has the greatest influence on business survival whereas use of technology commercialization to earn royalties had the least influence on business survival on the motor vehicle industry in Kenya.

5.4 Recommendations from the study

Organizations that continuously innovate and are involved in R&D stand a great chance of survival (Paul 2008). Innovation and technology mangement does not apply to product quality only. Companies should embrace innovation towards product quality improvement, better service delivery, process improvement, efficient organizational mangement and finally to ensure customer satisfaction. Organizational innovation and technology management culture should be supported by the top mangement. This ensures that resource allocation for the key activities is prioritized. This ensures that the top management are involved and committed towards innovation and technology management. Organizations should have management systems and structures that enhance utilization of innovation and technology management.

5.5 Limitations of the study

The researcher faced difficulties in pursuit of information concerning innovation and technology management. The motor industry is very sensitive on information sharing. The respondents shared the information on assurance of anonymity and that the information was only intended for academic purposes. The respondents were always too busy for the researcher to engage them. They claimed that their work had hourly targets and their customer were not the kind that waited. Reliability of the accuracy of the

information in the data collection instrument also purely depended on the respondent good will. It was at the respondents' discretion either to give the right information or not. The researcher also had to make so much explanations to respondents from motor repair organizations since the level of understanding on innovation and technology management practices was limited amongst some respondents.

5.6 Recommendations for further Research

The study focused on the effects of innovation and technology management practices on business survival in the motor vehicle industry in Kenya. Through the research, commercialization of technology as a technology management practice was established to be the least utilized practice. Further research should carried out to establish how commercialization of technology in the motor vehicle industry can be used to promote business growth or survival.

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APPENDIX: I

QUESTIONNAIRE

SECTION A: BACKGROUND INFORMATION

1. Name of the organization …….....
2. Location……
3. A)Designation of the Respondent (*Tick as appropriate*)

   Owner Manager [ ] Manager [ ] Supervisor [ ] Employee [ ] Any Other [ ]

   B) Duration of Existence of the organization

   0-10 years [ ] 11-20 years [ ] 21-30 years [ ] 31-40 years [ ] 40-50 years [ ]

4. Nature of Business

Motor Assembly	Motor Retail	Motor Repair	Motor Import

SECTION B: BIODATA

5. Gender of the respondent (*Tick as appropriate*)

   Male ☐ Female ☐

6. Highest level of education

Primary	Secondary	College	University

7. Age of the respondent

18-25	26-35	36-45	46-55	56 -60

8. Duration of service

9. 0-5 Years	6-10 Years	11-15 Years	16 and More

SECTION C: INNOVATION AND TECHNOLOGY MANAGEMENT PRACTICES

Please indicate by ticking appropriately the extent to which your institution uses the following innovation and technology management practices to remain existent and competitive in the market. Use point scale where; **1-Not at all, 2-Little extent, 3-Moderate, 4-Great Extent and 5-Very great**

Innovation Management Practice	**1**	**2**	**3**	**4**	**5**
10. Creation of a culture and a strategy that promotes innovation as a continuous activity in the industry					
11. Use of transformational organizational strategy to promote radically innovative business models and strategies.					
12. Use of strategic adaptation as a dynamic process of adjustment to change and environmental uncertainty.					
13. Strategic positioning relative to its competitors					
14. Use of commercialization of technology thus company earning royalties e.g. through patents					

15. Does your organization have any other innovation management practice relevant for its survival?

Yes [ ] No [ ]

If yes, please indicate

.....

.....

.....

Technology Management Practices	**1**	**2**	**3**	**4**	**5**
16. Commitment of top management towards technology through a technology policy					
17. Use of technology forecasting and assessment to determine trends and the direction towards which technology is heading.					
18. Use of market oriented research and development to develop new products, services and knowledge to generate competitive advantage for the business.					
19. Existence of technology strategy within the organization.					
20. Technology project management as a tool to develop technology relevant to the industry					

21. Business Survival

Indicate in terms of average percentage the extent to which the following business survival measures have changed positively in your organization over the last five years. Where.

1=(0%-10%); 2= (11%-20%); 3= (21%-30%); 4= (31%-40%);5= (Over 41%)

Organizational Performance	1	2	3	4	5
Cost reduction					
Increase in market share					
Improved product functionality					
Improved product reliability					
Improved product/service quality					

22. Does your organization have any other technology management practice relevant for its survival?

Yes [ ] No [ ]

If yes, please indicate

.....
.....
.....
.....
.....

23. What are some of the new technologies the organization is embracing? (*Optional*)

.....
.....
.....

24. What are some of the latest innovations the company has developed or adopted and what were the impacts of the same innovations on its survival and growth? *(Optional)*

.....
.....
.....
.....
.....

25. Provide any other information you would consider important about innovation and technology management practices and how they impact on business survival

.....
.....
.....
.....

Thank you for your time.

	COMPANIES	ADDRESS/LOCATION
1	General Motors East Africa	Enterprise/Mombasa Rd
2	Cooper Motor Corporation (CMC)	Lusaka Road Industrial area
3	Trans Africa Motors	Kampala rd
4	Toyota Kenya Limited	Uhuru Highway/lusaka Rd
5	Simba Colt Company	Mombasa RD
6	DT Dobie Kenya	Lusaka Road Industrial area
7	Kenya Vehicle Manufacturers	Garissa Road Thika
8	Stantech Motors Ltd. in Kenya	Shimo La Tewa Rd
9	Foton	
10	CICA Motors Kenya Ltd	Haile Selasie Avenue
11	Mashariki Motors Limited	
12	Subaru Kenya	Lusaka Road South B
13	Porsche	Sameer Business Park, Msa Rd
14	RMA Motors Kenya Limited	Enterprise/Mombasa Rd
15	Assoicated Motors Limited	Gilgil Rd, industrial area
16	Central Farmers Garage	Road A Enterprise rd
17	Ryce East Africa	Kampala rd
18	Kenya Coach Industries KCI	Addis Abbaba Rd industrial Area
19	Kenya Grange Vehicle/ Industries Scania East Africa Limited	Kitui Road off Kampala Rd
20	LSHS(Labh Singh Harnam Singh Ltd)	Mombasa RD
21	Banbros	Mavoko Mombasa RD
22	Master fabricators ltd	Likoni Close, Off Likoni Rd

Source: Kenya Motor Industry Association (2014)