

**STRATEGIC INNOVATION AND PERFORMANCE OF PUBLIC
UNIVERSITIES IN KENYA**

BY

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**A RESEARCH PPROJECT PRESENTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF
BUSINESS ADMINISTRATION, SCHOOL OF BUSINESS, UNIVERSITY OF
NAIROBI**

NOVEMEBR, 2013

DECLARATION

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

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This management research project has been presented for examination with my approval as the university supervisor.

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DEDICATION

This project is dedicated to God, my divine source of guidance and my parents and family for their prayers and support.

ACKNOWLEDGEMENT

I would like to thank the Almighty God for giving me the strength to undertake this research project proposal. I would also like to thank my supervisor, Dr. Vincent Machuki for the relentless support and guidance through this research project. My gratitude also goes to my wife, Stella Gati, lecturers, classmates and colleagues who contributed in one way or another to the study.

TABLE OF CONTENTS

DECLARATION.....	ii
DEDICATION.....	iii
ACKNOWLEDGEMENT.....	iv
LIST OF TABLES	viii
ABSTRACT.....	x
CHAPTER ONE:INTRODUCTION	1
1.1 Background of the Study.....	1
1.1.1 Strategic Innovations	3
1.1.2 Organizational Performance	4
1.1.3 Higher Education Sector in Kenya	5
1.1.4 Public Universities in Kenya	6
1.2 Research Problem.....	7
1.3 Research Objectives	9
1.4 Value of the Study.....	9
CHAPTER TWO: LITERATURE REVIEW.....	12
2.1 Introduction	12
2.2 Theoretical Underpinnings of the Study	12
2.3 Strategic Innovation	15
2.4 Types of Strategic Innovation	16

2.5 Organizational Performance.....	18
2.6 Strategic Innovations and Organizational Performance.....	20
CHAPTER THREE:RESEARCH METHODOLOGY	23
3.1 Introduction.....	23
3.2 Research Design.....	23
3.3 Population of Study.....	24
3.4 Data collection.....	24
3.5 Data Analysis	25
CHAPTER FOUR: DATA PRESENTATION, ANALYSIS AND INTERPRETATION	27
4.1 Introduction.....	27
4.2 Institutional Demographics	27
4.2.1 Period of Institution’s Existence.....	28
4.2.2 Student Population.....	28
4.2.3 Rank in Terms of Expansion	29
4.3 State of strategic Innovation in public universities in Kenya.....	29
4.4 Strategic Innovations and Performance of the Public Universities.....	34
4.4.1 Strategic Innovation and resource generation	36
4.4.2 Strategic Innovation and Research and Knowledge Creation	38
4.4.3 Strategic Innovation and competitive advantage (CA).....	41
4.4.4 Strategic Innovation and Teaching and learning activities.....	43

4.5 Discussion.....	50
CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS ..	53
5.1 Introduction	53
5.2 Summary of findings	53
5.3 Conclusion.....	55
5.4 Recommendation for Policy and Practice	56
5.5 Limitation of the Study	57
5.6 Suggestions for Further Research	58
REFERENCES.....	59
APPENDICES.....	63
APPENDIX I: List of Public Universities in Kenya.....	63
APPENDIX II: Questionnaire.....	64

LIST OF TABLES

Table 4.1: Period of institution's Existence	28
Table 4.2: Student Population.....	29
Table 4.3: Rankings in Terms of Expansion.....	29
Table 4: Mean Responses on Strategic Innovation.....	30
Table 4.5: Joint effect of strategic Innovations indicators on Resource Generation	36
Table 4.6: Independent Effect of Strategic Innovations on resource generation.....	37
Table 4.7: Joint effects of strategic Innovations indicators on research and knowledge creation.....	39
Table 4.8: Independent Effect of Strategic Innovations on research and knowledge creation.....	40
Table 4.9: Joint effect of strategic Innovations indicators on the institution's competitive advantage	41
Table 4.10: Independent effect of strategic Innovations on competitive advantage.....	42
Table 4.11: Joint effect of strategic Innovations indicators on the institution's teaching and learning activities	44
Table 4.12: Independent effect of strategic Innovations on teaching and learning	45
Table 4.13: Organizational Performance	46
Table 4.14: Regression Model Summary.....	48
Table 15: Regression Coefficients	49

ACRONYMS AND ABBREVIATIONS

CUE - Commission of University Education

GoK - Government of Kenya.

JAB - Joint Admission Board.

JKUAT - Jomo Kenyatta University of Agriculture and Technology.

NBD - New Product Development

NSE - Nairobi Securities Exchange

RBT - Resource Based Theory

TIVET - Technical, Industrial, Vocational and Entrepreneurship training

OECD - Organization of Economic Co-operation and Development.

ABSTRACT

The current business environment is dynamic, turbulent and unpredictable. The success of business in such environment is depended on its adaptability to respond to environmental change. Strategic innovation is a strategic tool that can be used to align the firm's resources and capabilities with opportunities in the external environment in order to enhance survival and long term success of the organization. This study aimed at finding the relationship between strategic innovation and performance of public universities in Kenya. The specific objectives of the study were to establish the nature of strategic innovations in the universities and determine the influence of strategic innovations on the performance. The population for the study was the public universities in Kenya from which the sample was selected. The researcher adopted descriptive survey design. Data to establish the relationship was obtained with the use of structured questionnaires. Data analysis was done using multi hierarchical regression model. Mean and standard deviation were also calculated and the results presented in form of tables. The researcher obtained a 63% response rate which was deemed valid for analysis. From the analysis it was established and concluded that indeed there existed a positive relationship between strategic innovation and performance of public universities in Kenya. The study was limited to the influence of strategic innovation on the performance of public universities in Kenya. Public universities only represent a fraction of the universities in Kenya as there are quite a number of registered and accredited private universities. The researcher suggests that future research should focus on other analysis tools and such studies have to include other institutions that are not necessarily public universities. The implication of the findings is the need for the management to align strategic innovation strategy with the wider business strategy. They have to demonstrate their capability in understanding the customer insights and offer new and significant value if their long term success and survival is to be guaranteed.

CHAPTER ONE:INTRODUCTION

1.1 Background of the Study

The development of the field of strategic management within the last two decades has been dramatic. According to Ansoff and McDonnell (1990), it is through Strategic management that a firm will be able to position and relate itself to the environment to ensure its continued success and also secure itself from surprises brought about by the changing environment. One of the ways an organization can secure itself from these surprises and equally improve on productivity is through innovations.

According to Drucker (1985), innovation is part of the strategy implementation and is a direct requisite for specific strategies. Innovation therefore serves as a medium of creating new business with exceptional control mechanisms, value addition and risk reduction. Strategic innovation is essential in improved performance amongst many firms and is reflected by increased profitability and market share growth (Palmer and Kaplan, 2007). As a result, firms that desire to remain competitive by enhancing their growth capacities and capitalizing on the available opportunities can achieve all these by embracing strategic innovation.

More recent theoretical contributions in regard to strategic innovation focus on the resource-based view of the firm, entrepreneurial theory and knowledge based theory. The resource based theory sees the firm as a bundle of resources. It is these resources and the way they are combined that make firms different from one another (Powell,

2007). Innovation efficiency and technological advance are related to the strength of the organizational knowledge base, because if the firm has a strong knowledge base this, in turn, means a better ability to focus innovation efforts efficiently (Nelson, 1982). Entrepreneurship is concerned with how the opportunity to create “value” in society is discovered and acted upon by some individuals. One useful way of thinking about entrepreneurship is that it is concerned with understanding how, in the absence of markets for future goods and services, these goods and services manage to come into existence (Wang, 1997)

The Kenyan public university education sector began in 1963 with less than a thousand students enrolled in Nairobi University College (Weidman, 1995). Since then, the system has undergone considerable expansion, and as of 2013, there were a total of seven traditional public universities and fifteen newly established university constituent colleges that were awarded charters recently to be fully fledged public universities. There are also nine public university constituent colleges and three public university campuses (CUE, 2012). Public universities play an integral role in mentoring of the human capital which is key to Kenya achieving its strategic goal of Vision 2030. They rely heavily on state funding. As a result, failure to increase funding in line with enrolments has undermined their expansion plans in terms of lecture rooms as well as human resource capacity. Moreover, the proliferation of private universities without stringent accreditation has brought about stiff competition in the sector. To therefore thrive and survive in the dynamic and highly competitive environment, while keeping up with the ever changing customer needs, public universities have to adapt through

innovative products and services. Strategic innovation is one of the strategies that public universities in Kenya have adopted in order to remain academically relevant.

1.1.1 Strategic Innovations

Strategic innovation refers to implementation of new ideas, processes, products or services. Innovation is broadly seen as an essential component of competitiveness, embedded in the organizational structures, processes, products, and services within a firm (Powell, 2007) According to Jin et al. (2004), strategic innovation is a future-focused business development framework that identifies breakthrough growth opportunities, accelerates business decisions and creates near-term, measurable impact within the context of a longer-term vision for sustainable competitive advantage. Kuratko et al. (2005) argues that combining non-traditional, creative approaches to business innovation with traditional consulting models, strategic innovation inspires cross-functional teams composed of an organization's leading change agents, guiding them to identify new revenue streams, to create breakthrough growth strategies, to define innovative new products, services and business models, to stimulate new business relationships and to rethink current business practices. Strategic innovation challenges an organization to look beyond its established business boundaries and mental models and to participate in an open minded, creative exploration of the realm of possibilities (Kaplan and Palmer, 2007). Kim and Mauborgne (2005) posit that, the significance of Strategic Innovation to an organization lies in its ability to supplant competition by generating more value in the long run. This they argued, is achieved through creation of new differentiated business

that initially by pass competition and new business marketing, offers and space that renders competition irrelevant.

1.1.2 Organizational Performance

Management experts continue to build on one another's work in order to formulate more sophisticated ideas about organizational performance (Kirby, 2005). (Machuki and Aosa, 2011), posit that organizational performance in this context refers to achievements of an enterprise with respect to some criterion. Organizational performance can be equated to value creation for stockholders (Carton, 2004).

Firm performance provides useful information for monitoring and control, improvement, maximization of effectiveness of improvement effort, reward and discipline and as a lever towards alignment of organizational goals and objectives (Drucker, 1985). Profits, growth, balance scorecards, economic value added, activity based analysis and customer satisfaction are some of the frameworks that several scholars have proposed as effective in undertaking firm performance (Hitt, 1988). Richard et al, (2009) elucidates that performance measures should not be made specific to research question but be sufficiently robust to cover the domain of organizational performance.

This study will measure knowledge production, resource generation, teaching and learning and competitive advantage as dimensions of organizational performance. This is consistent with other researchers, (Galunic & Rodan, 1998 and Kim & Mauborge, 1999) who argued that the above dimensions are holistic representation of firm's performance. OECD Oslo Manual (2005) pointed out that companies that developed innovations in a

more decisive way and rapidly, had also more qualified workers, paid higher salaries and provided more conclusive future plans for their employees. In fact, the effects of innovations on firm performance differ in a wide spectrum from sales, market share and profitability to productivity and efficiency.

1.1.3 Higher Education Sector in Kenya

Higher education in Kenya comprises the public universities, private universities, Technical, Industrial, Vocational and Entrepreneurship Training institutions and Research and Development institutions. The Universities Act 2012 sets up, The Commission of University Education, to plan for the establishment and development of higher education and training; The University Funding Board, to coordinate financing of universities; The Kenya Universities and Colleges Central Placement Service, to handle admissions to public universities and colleges; and The Technical and Vocational Education Funding Board (Education Survey, 2008).

The higher education sector in Kenya has witnessed tremendous growth recently in terms of the student enrollment, the number of institutions of higher learning, the wide variety of courses being offered by these institutions, and in terms of network expansion both locally and regionally. A liberalized regulatory framework has also brought about stiff competition within the sector. The main challenges facing these sector in Kenya include: the growth of both private and public universities, including expansion of their curricula has continued to wipe out some vocational schools, teacher training colleges and government training institutes, reducing options for secondary level graduates who may not be qualified for or financially able to attend universities (Sanyal and Martin, 1998).

With the emergence of increased competition in the sector, coupled with inadequate funding from the exchequer, has affected the performance of these institutions more so on service delivery. To therefore remain relevant, attract and nurture and adequately equip graduates with the necessary skills amid an ever changing environment in the sector, most institutions have embraced innovation strategies in order to achieve and sustain their competitive advantage.

1.1.4 Public Universities in Kenya

University education in Kenya began in 1963 with just 571 students enrolled in Nairobi University College (Weidman, 1995). Since then, the system has undergone considerable expansion, and as of 2013, there were a total of seven traditional public universities and 15 newly established university constituent colleges that were awarded charters recently to be fully fledged public universities. There are also nine public university constituent colleges and three public university campuses. It is estimated that the country has 122,874 university students of which approximately 80 percent are in public universities (Kenya National Bureau of Statistics 2009)

Kenya's public universities, like many others in the world, have suffered many years of underfunding. The causes have been many but generally have included changing donor priorities, changing government rules and regulations to cope with national economic turbulence, international economic trends, legislation and political trends in the country (Onyango, 1996). This in turn has made it difficult for the universities to meet the ever

increasing demand for higher education. As such, some parents prefer to send their children to universities outside the country. They perceive Kenyan public universities to be rigid with admission requirements compared to foreign universities and courses offered locally do not adequately meet national human resource requirements (Waithaka, 2012).

Moreover, emphasis has been placed on disciplines which entail little infrastructural investment and thus maximum returns on investment. Little if any, attention is paid to the dictates of the labour market and the national needs in the short-sighted drift to profit maximization. The drift has been in the wrong direction. For instance, some universities competed with others as centers of thought leadership while some started with the most refreshing foundation of technical excellence but have slowly drifted away from their unique niche. To overcome these challenges and win back the public confidence, public universities have embraced innovative ways in order to appeal to potential and current customers and also to improve on their performances and reputation.

1.2 Research Problem

Strategic Innovation has been empirically linked with superior performance (Damanpour and Evan, 1984). Strategic Innovation has a considerable impact on corporate performance by producing an improved market position that conveys competitive advantage and superior performance (Walker, 2004). Strategic innovation enhances global competitiveness, overall productivity and value maximization of the firm.

Innovation is challenging and faces uncertainties that are existent in both incremental innovations, such as updated versions or extensions of current products and processes, and radical innovation that base upon the development or application of new ideas and novel technologies (Dewar and Dutton, 1986). Uncertainty is inherent in the organizational development of an innovation. Both market and technological uncertainties affect the organizational orientation towards innovation and the activities while implementing innovation

Public universities in Kenya operate in a regulated environment that requires a certain degree of uniformity on their part in terms of operation and management aspects. The prolonged stiff competition, ever-changing human capital needs, changing demographics and student needs require public universities to employ necessary competencies in order to survive and improve institutional performance. In response, many public universities have realized that in order for them to attract top class students, they have to be competitively ahead and this can only be achieved through strategic innovation in regard to how institutions are run and managed. Strategic innovation is embraced for sustenance and survival purposes by all the public universities in Kenya.

A number of renowned scholars and researchers have studied the relationship between innovation and firm's performance (Damanpour and Evan, 1984; Walker, 2004; Little, 2004; Kemoli, 2010; Karanja, 2009; Gitonga, 2003; Lusweti, 2009 and Odhiambo, 2008) Many of these studies embrace more or less a positive association between innovations and firm performance, but there are also some studies indicating a negative link or no link

at all (Capon et al., 1990; Chandler and Hanks, 1994, Subramanian and Nilakanta, 1996). Though there exists a relationship between innovation and performance, all are contextually varied and none reviewed the effect of strategic innovation on performance of public universities in Kenya. Moreover while much of the previous research has centered on product innovation, this study focuses on various aspects of innovation. Thus the research question, what is the influence of strategic innovation on the performance of public universities in Kenya?

1.3 Research Objectives

The overall objective of the study was to establish the strategic innovation and performance of public universities in Kenya. The specific objectives of this study were to;

- (i) Establish the nature of strategic innovations in the public universities, in Kenya.
- (ii) Determine the influence of strategic innovations on the performance of public universities in Kenya.

1.4 Value of the Study

This research makes contribution to the enhancement of strategic innovation theory. The study's results on the influence of strategic innovation on performance of public universities in Kenya will provide strong empirical evidence on the ongoing debates on the sustainability of the firms' performance in face of stiff competition and high

regulation. By demonstrating that resource generation, teaching and learning, research & knowledge creation and competitive advantage have strong positive relationship with strategic innovation, the results provide point of reference to support the argument that strategic innovation buffers performance. By confirming existing theories and reconciling prior knowledge in the wider field of innovation, this study's results will contribute to enhancement of knowledge in the both fields of strategy and corporate innovativeness. This contribution forms the basis of the understanding the fundamentals that are inherent in the field of strategic innovation.

The study's findings are of great significance to the government, policy makers and industry players. By demonstrating that strategic innovation accounts for a high proportion of the organizational performance the results will compel the policy makers to realign their strategies. The study's establishment of the indicators of organizational performance provides the baseline for the Kenyan education curriculum formulators to establish the syllabuses which cover the essential requirements of the market in order to enable graduates secure jobs in the market immediately after completing their studies. This will create a room for the policy makers to evaluate the progress towards achieving the Kenyan vision of 2030. The study's findings will be a point of reference for the government policy makers in formulating solid, broad and balanced policies that lay foundation for strategic innovation. The policies will enhance global competitiveness of the country, resilient economy and attainment of essential national goals. To the industry players policies formulated will enhance stability, growth and performance in the higher education sector.

The research findings will be of significance to the management practice. The findings will demonstrate that strategic innovation is a major driver of organizational performance. The findings will indicate that strategic innovation enables an organization to achieve a comprehensive growth along all the organizational performance dimensions. By therefore relying on these findings, the management can craft a strategic innovation strategy and execute it as a core part of its business strategy. Clearly crafted business strategy that fosters and supports strategic innovation will thus equip their firms with the required capability for survival and growth.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter provides available literature that has been reviewed for the study. The literature will deal with the strategic innovations and performance of public universities in Kenya. Through this study, the section will endeavour to relate the study to the larger, ongoing dialogue in strategic management, filling the gaps and extending the prior studies.

2.2 Theoretical Underpinnings of the Study

This study is premised on a number of theories that have evolved overtime. Since strategic innovation is relatively new in the field of strategic management, it goes beyond the limitations of traditional approaches and tools to enable new growth and competitive advantages by creating new markets, new value and new business models (Najmei 2010). The scholars view is premised on the notion that the traditional approach of strategic management is inadequate in enabling firms to craft a sustainable competitive advantage that guarantees the indispensable success and streams of revenue for survival and sustenance.

Blue ocean theory is another important theory that derives its significance in emphasis in disregarding traditional rules and using competition as a benchmark. According to Kim and Mauborgne (1997), blue ocean theory unlike red ocean strategy creates jumpstart in

value for the buyers and for the company. Blue ocean theory equips the firm with powers of creating uncontested market space, making competition irrelevant, breaking the value-cost tradeoffs while aligning the whole system of firm activities in pursuit of differentiation and low cost. Firms inclined towards blue ocean theory reject fundamental principle of conventional strategy; the need to choose between value and cost.

The resource based theory (RBT) emerged as a complement or dual to Porter's theory of competitive advantage (Barney & Arikan, 2001). Initially, Wernerfelt (1984) developed a theory of competitive advantage based on the resources a firm develops or acquires to implement product market strategy. Wernerfelt (1984) primary contribution to the RBT literature was recognizing that firm specific resources as well as competition among firms based on their resources can be essential in order for organizations to gain advantages in implementing product market strategies (Barney & Arikan, 2001). A different perspective is presented by Rumelt (1984) who focuses on economic rents and created a theory of rent generation and appropriating characteristics of firms (Barney & Arikan, 2001).

Itami's (1987) theory of invisible assets suggests that invisible assets, e.g. information-based resources such as technology, customer trust, and brand image, control of distribution, corporate culture, and management skills are necessary for competitive success. Accordingly, invisible assets are the real source of competitive advantage because they are hard and time-consuming to accumulate. Further, they can be used in multiple ways simultaneously, and are inputs and outputs of business activity. Itami (1987) continues to argue that people are both accumulators and producers of invisible

assets. Visible assets, on the other hand, must be present for business operations to take place, but it is the invisible assets that lead to competitive advantage.

Innovations provide firms a strategic orientation to overcome the problems they encounter while striving to achieve sustainable competitive advantage (Drucker, 1985; Kuratko et al., 2005). Innovation as a term is not only related to products and processes, but is also related to marketing and organization. Schumpeter (1934) described different types of innovation: new products, new methods of production, new sources of supply, the exploitation of new markets, and new ways to organize business. Drucker (1985) defined innovation as the process of equipping in new, improved capabilities or increased utility.

Strategic innovation is considered as developments and new applications, with the purpose of launching newness into the economic area. It can be conceived as the transformation of knowledge to commercial value. Innovation has great commercial importance due to its potential for increasing the efficiency and the profitability of companies. According to Fagerberg et al. (2004), the key reason for innovativeness is the desire of firms to obtain increased business performance and increased competitive edge. Companies procure additional competitive advantage and market share according to the level of importance they give to innovations, which are vital factors for companies to build a reputation in the marketplace and therefore to increase their market share.

2.3 Strategic Innovation

Strategic innovation emanates from unexpected occurrences, incongruities, process needs, industry and market changes (Drucker, 1985). Moeller et al (2006) maintain that the strategic innovation occurs in response to demographic changes around the globe which create new combination of who, what and how of strategic innovators. Markides (1999) argues that new needs that arise due to shifts in consumer preferences, manifested by mapping the neglected segments by competitors, presents insightful source for strategic innovation.

Li and Atuahene-Gima (2001) assume that the evidence for an embedded innovation strategy is subjective. Further, the literature provides two distinct types of strategic orientation measures. One identifies whether the organization has an innovation strategy (Cooper, 1990). The other assumes that strategy exists and explores its effectiveness by further measures of strategic fit (Bessant, Kaplinsky and Lamming, 2003). It has been found that more innovative firms adopt different operational strategies to accommodate flexibility and quality capabilities and have a range of different financial means to facilitate slack resources.

According to Markides (2000), a business is an organization's biggest mental model. Any mental model can be overcome by identifying and questioning them, using outsiders, benchmarking outside the industry, experimenting new ideas, providing facts or examples that go against conventional wisdom. Strategic innovations are seen as the product of

activists, be it middle managers, representatives from different organizational functions, young people, new comers, or people at the organizational periphery (Floyd and Woolridge, 1994; Krinsky and Jenkins, 1997)

Palmer and Kaplan (2007) posit that managed innovation process combines both the traditional and nontraditional approaches to business strategy. They argued that the process is the creative core of the strategic innovation process embracing both the divergent and convergent thinking models. The process facilitates the interplay of external perspective and the internal firm's capabilities and in so doing enables the firm to look beyond the obvious.

2.4 Types of Strategic Innovation

Innovation as a term is not only related to products and processes, but is also related to marketing and organization. Schumpeter (1934) described different types of innovation: new products, new methods of production, new sources of supply, the exploitation of new markets, and new ways to organize business. In the OECD Oslo Manual (2005), four different innovation types are introduced. These are product innovation, process innovation, marketing innovation and organizational innovation.

A product innovation is the introduction of a good or service that is new or significantly improved regarding its characteristics or intended uses; including significant improvements in technical specifications, components and materials, incorporated software, user friendliness or other functional characteristics (OECD Oslo Manual,

2005). Product innovations can utilize new knowledge or technologies, or can be based on new uses or combinations of existing knowledge or technologies. The term product covers both goods and services. Product innovation is a difficult process driven by advancing technologies, changing customer needs, shortening product life cycles, and increasing global competition. For success, it must involve strong interaction within the firm and further between the firm and its customers and suppliers (Akova et al., 1998).

A marketing innovation is the implementation of a new marketing method involving significant changes in product design or packaging, product placement, product promotion or pricing (OECD Oslo Manual, 2005). Marketing innovations target at addressing customer needs better, opening up new markets, or newly positioning a firm's product on the market with the intention of increasing firm's sales. Marketing innovations are strongly related to pricing strategies, product package design properties, product placement and promotion activities along the lines of four P's of marketing (Kotler, 1991).

A process innovation is the implementation of a new or significantly improved production or delivery method. This includes significant changes in techniques, equipment and/or software. Process innovations can be intended to decrease unit costs of production or delivery, to increase quality, or to produce or deliver new or significantly improved products (OECD Oslo Manual, 2005). Fagerberg et al. (2004) stressed that while the introduction of new products is commonly assumed to have a clear, positive effect on the growth of income and employment, process innovation, due to its cost-cutting nature, can have a more hazy effect.

Organizational innovation is the implementation of a new organizational method in the firm's business practices, workplace organization or external relations. Organizational innovations have a tendency to increase firm performance by reducing administrative and transaction costs, improving workplace satisfaction, gaining access to non-tradable assets or reducing costs of supplies (OECD Oslo Manual, 2005). Examples would be the introduction of practices for codifying knowledge by establishing databases of best practices, lessons learnt and other knowledge, so that they are more easily accessible to others; the introduction of training programs for employee development and improved employee retention; or the initiation of a supplier development program. Thus, organizational innovations are strongly related with all the administrative efforts of renewing the organizational routines, procedures, mechanisms, systems etc. to promote teamwork, information sharing, coordination, collaboration, learning, and innovativeness.

2.5 Organizational Performance

The concept of organizational performance is based upon the idea that an organization is the voluntary association of productive assets, including human, physical and capital resources for the purpose of achieving a shared purpose (Barney, 2001). Machuki and Aosa (2011) observed that, organizational performance gives indication of the effectiveness of an organization. Various indicators such as effectiveness, efficiency, financial viability and relevance to stakeholders can be used to measure organizational performance. A recent study of managers found sales growth to be the most commonly

identified measure of overall organizational performance (Hubbard & Bromiley, 1995), although other studies have considered numerous variations in performance measures (Lenz, 1981; Venkatraman & Ramanujam, 1986).

Many scholars have unanimously agreed that, measuring organizational performance presents a challenge as it is a multidimensional theoretical construct hence there is no single operational measure (Richard et al, 2009). The existence of these multi dimensions or multiple constituencies means that, it is not clear that organizational purpose can be portrayed as unitary or that the multiple purposes of an organization are reliably consistent (March & Sutton, 1997). They further argued that the failure of measures of organizational performance to reflect an organization's multiple constituencies may lead the organization to treat the satisfaction of others as pathology, rather than maintaining a healthy tension between them.

The common measures used to measure organizational performance include financial measures such as return on assets, return on equity among others. In addition, organizational performance can also be measured by qualitative measures such as research and knowledge creation, resource generation, teaching and learning as well as competitiveness.

2.6 Strategic Innovations and Organizational Performance

Innovations can actually enhance the firm performance in several aspects. Particularly, four different performance dimensions are employed in the literature to represent firm performance (Yilmaz et al., 2005). These dimensions are innovative performance, production performance, market performance and financial performance. Innovation has a considerable impact on corporate performance by producing an improved market position that conveys competitive advantage and superior performance (Walker, 2004). A large number of studies focusing on the innovation-performance relationship provide a positive appraisal of higher innovativeness resulting in increased corporate performance (Damanpour and Evan, 1984; Damanpour et al., 1989; Wu et al., 2003). But these researches are generally conceptual in nature and/or focus only on a single type of innovation rather than considering all four innovation types already defined, and then explore its impact on performance.

Process and product innovations are the most common innovation types examined. The studies by Ittner and Larcker (1997), Whittington et al., (1999), and Baer and Frese (2003) focus merely on process innovations while studies of Atuahene-Gima (1996), Subramanian and Nilakanta (1996), and Li and Atuahene-Gima (2001) report on product innovations. Many of these research embrace more or less a positive association between innovations and firm performance, but there are also some studies indicating a negative link or no link at all (Capon et al., 1990; Chandler and Hanks, 1994, Subramanian and Nilakanta, 1996).

As Miller (2001) stated most firms seek technological innovation to gain competitive advantage in their market. Hence, all these efforts made require to be supported by marketing and organizational measures. Generally, researchers neglect organizational and/or marketing innovations, which are equally essential to the growth and effective operation of a firm (Damanpour and Evan, 1984, Damanpour, 1991). Relatively few studies on innovation capabilities advocate organizational and marketing innovations. They indicate that more innovative firms place more emphasis on management techniques (Baldwin and Johnson, 1996) and reach sustainable levels of higher performance (Han et al., 1998; Guan and Ma, 2003). Wolff and Pett (2004) conducted comparative research for the effects of product and process innovations on firm performance. They indicated that particular product improvements are positively associated with firm growth.

Locally, various studies on the topic of innovation have been carried out by a number of researchers. Kemoli (2010) carried out a study on strategic innovations and performance of commercial banks listed in NSE. The study concluded that listed commercial banks had deviated from the existing industry rules and engaged in creation of new and significant customer value and that strategic innovation was embedded in their corporate strategy. Karanja (2009) carried out a study on innovation strategies adopted by insurance companies in Kenya. The study concluded that companies with strong technology-enabled innovation strategies are more likely to secure competitive advantage and create superior shareholder value.

Lusweti (2009) reviewed innovation strategies adopted by radio stations in Kenya. This study concluded that innovation strategies are very essential in any business and hence they should be put in place at any cost since it helps the organization to realize their objectives. As far as analysis of strategy is concerned, the adoption of strategies (whether collaborative or competitive strategies) is thus important in managing innovation and in making the innovation happen. Odhiambo (2008) carried out a study on innovation strategies at Standard Chartered Bank and concluded that with the advent of globalization, financial institutions have been forced to improve their ways of doing business in order to attract and maintain existing customers. Such innovative strategies focus on all aspects of the business operations ranging from customer care, technological advancement to better products in the market.

CHAPTER THREE:RESEARCH METHODOLOGY

3.1 Introduction

This chapter is a description of the methodology used in the study to find answers to the research question. In this chapter, the research methodology is presented in the following order, research design, target population, sampling procedure, data collection methods, instruments of data collection and finally the data analysis. The following sections provide a detailed description of the methodology utilized in the study.

3.2 Research Design

This study adopted a descriptive survey design that aims at investigating the strategic innovations and performance of public universities in Kenya. According to Denvir and Millet (2003), research design provides the glue that holds the research project together. A structure is used to restructure the research, to show how all the major parts of the project, which include samples or groups, measures, treatments or programs, and methods of assignment that work together to try to address the central research questions. This is because the study sought to establish a relationship between variables.

A descriptive survey was undertaken. Descriptive designs result in a description of the data, either in words, pictures, charts, or tables, and indicate whether the data analysis shows statistical relationships or is merely descriptive. Sample survey based on the public universities in Kenya was used to produce results that are broad, credible and

conclusive. The research was quantitative in nature and relies on primary data obtained from Kenyan public universities.

3.3 Population of Study

Target population can be defined as a compute set of individuals, cases/objects with some common observable characteristics of a particular nature distinct from other population. According to Mugenda and Mugenda (1999), a population is a well-defined as a set of people, services, elements and events, group of things or households that are being investigated.

Census survey was used in this study. The study focused on the Kenyan public universities that have been in existence over the last five years as indicated in appendix I. This period is considered long enough to provide sufficient variables to assist in determining a trend on the relationship between strategic innovation and performance. This period is chosen in order to capture the most recent data and to give results that reflect the current trend. Census survey is favoured due to the ability to collect data that is unique and of standard measure as the information to be collected from the respondents in the study.

3.4 Data collection

The researcher used a structured questionnaire as primary data collection instrument. The questionnaire was considered appropriate because it is more convenient to administer and to collect data to enable the achievement of the objective of the study. Both primary and secondary data were used to collect data on resource generation, teaching and learning,

research and knowledge creation, competitive advantage, product innovation, marketing innovation, process innovation and organizational innovation.

The primary data were gathered through a semi-structured questionnaire. The questionnaire contained close ended questions and had various sections. The first part contained questions on the bio data of the respondent and the other sections contained questions on the specific objectives of the study. Questionnaire were administered using drop and pick method targeted to the heads of departments involved in strategic management coordination of the public universities. (See appendix II)

3.5 Data Analysis

The data collected from the primary sources were systematically organized in a manner to facilitate analysis. Data analysis involved preparation of the collected data, coding, editing and cleaning of data so as to facilitate processing. The results were presented using tables, graphs and charts for ease of understanding. This allowed for interpretation of findings generated and recommendations from the findings.

Multiple hierarchical regression model was used in this study as it allows simultaneous investigation of the effect of two or more variables Zikmund (2003). The model established the relationship between strategic innovations and performance of public universities in Kenya. In regression terminology, the variable that is predicted is called dependent variable while the variable used to predict the value of dependent variable is called independent variable. Data collected were analyzed using multiple regressions. The significance of each independent variable was tested at a confidence level of 95%. In this study, dependent variable was performance\ and independent variables were product

innovation, marketing innovation, process innovation and organizational innovation. The equation representing the algebraic expression of multiple regression model of the form below was applied;

Performance = f (Strategic Innovation)

$$Y_{1-4} = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \square$$

Where Y_{1-4} = Indicators of Organizational performance (dependent variable).

Where:

Y_1 = Resource Generation

Y_2 = Teaching and Learning

Y_3 = Research and knowledge creation

Y_4 = Competitive advantage

β_0 = Constant which defines performance without inclusion of independent variables

$\beta_{1,2,3,4}$ = Coefficient of X_1 , X_2 , X_3 and X_4

X_{1-K} = Independent variables are,

X_1 = Product Innovation

X_2 = Marketing Innovation

X_3 = Process Innovation

X_4 = Organizational innovation

\square = Error Term

β_{1-K} Regression coefficients- define the amount by which Y is changed for every unit change in independent variables

CHAPTER FOUR: DATA PRESENTATION, ANALYSIS AND INTERPRETATION

4.1 Introduction

The main objective of the study was to establish the strategic innovation and performance of public universities in Kenya. This chapter presents the analysis, findings of the data that was collected from the sample public universities and the discussion of the findings. Fourteen respondents in the sample managed to respond in time and thus generated response rate of 63% which was deemed valid for the purpose of analysis.

The chapter covers various sections that handle a distinct theme. The sections covered include institutional demographics, state of strategic innovation in universities and organizational performance.

4.2 Institutional Demographics

In attempt to have a clear and deeper understanding of the population of study, information such as duration of existence of the university, student population and number of the university's campuses were taken into consideration. This section was of significance in understanding the nature of the population of study and how the general characteristics impacted on the study variables; namely the strategic innovation and organizational performance. The presentation and discussion for this section is below.

4.2.1 Period of Institution's Existence

In order to ascertain how long the sampled institutions had been in existence in the education sector in Kenya, the respondents were asked to indicate the period within which their institution had been in operation. 57.1% (8) indicated that they had been operation for 1-5 years while 28.6% (4) said they had been there for over 21 years. 7.1% (1) had been in operation for 6-10 years same to 1 that had been existing 16-20 years as indicated in table 4.1

Table 4.1: Period of institution's Existence

	Frequency	Percent
1-5 Years	8	57.1
6-10 Years	1	7.1
11-15 Years	0	0.0
16-20 Years	1	7.1
Over 21 Years	4	28.6
Total	14	100.0

Source: Field Data (2013)

4.2.2 Student Population

The researcher sought to find out the population of students in the sampled universities. Majority of the universities 10% had a population 10000 students and less. 3% had over 25000 while 1 university had a student population of between 10001 and 25000 students. These findings are represented in table 4.2

Table 4.2: Student Population

	Frequency	Percent
over 25000	3	21.4
10001-25000	1	7.1
10000 and less	10	71.4
Total	14	100.0

Source: Field Data (2013)

4.2.3 Rank in Terms of Expansion

Study findings revealed that 57.1% of the universities had less than 4 campuses while 14.3% had 7 or more campuses, 4-6 campuses and no campus at all. Table 4.3 illustrates this.

Table 4.3: Rankings in Terms of Expansion

	Frequency	Percent
7 or more	2	14.3
4-6	2	14.3
less than 4	8	57.1
None	2	14.3
Total	14	100.0

Source: Field Data (2013)

4.3 State of strategic Innovation in public universities in Kenya

The key objective of the study was to establish the strategic innovation and performance of public universities in Kenya. Before examining the influence, the study sought first to establish the extent to which the sampled public universities embraced various

dimensions of strategic innovations. These included product innovation, organizational and process innovation.

The respondents were required to indicate the extent to which state of strategic innovations applied to their respective universities on a Likert scale of 1-5 where this was based on the scale; 0.1-1.0- Less extent, 1.1-2.0- moderate extent, 2.1-3.0- Large extent, 3.1-4.0 – very large extent and 4.1-5.0- None. Seventeen dimensions of strategic innovation were considered as represented in table 4.4.

Table 4: Mean Responses on Strategic Innovation

		Frequency	Percentage	Mean	Std. Deviation
continuously engaged in introducing new programs	less extent	1	7.1	3.14	1.027
	moderate extent	3	21.4		
	large extent	3	21.4		
	very large extent	7	50.0		
	Total	14	100.0		
continuously engaged in rolling out open learning	less extent	3	21.4	2.93	1.328
	moderate extent	2	14.3		
	large extent	3	21.4		
	very large extent	5	35.7		
	None	1	7.1		
	Total	14	100.0		
continuously aligning academic programs to vision 2030 and new constitution	moderate extent	3	21.4	3.36	.929
	large extent	4	28.6		

	very large extent	6	42.9		
	None	1	7.1		
	Total	14	100.0		
introduction of online results transmission to ensure timely receipt	less extent	4	28.6	3.00	1.359
	large extent	2	14.3		
	very large extent	8	57.1		
	Total	14	100.0		
continuously automating fee payment system	less extent	2	14.3	3.21	1.188
	moderate extent	2	14.3		
	large extent	1	7.1		
	very large extent	9	64.3		
	Total	14	100.0		
continuously automating student clearance for graduation purposes	less extent	4	28.6	2.57	1.284
	moderate extent	3	21.4		
	large extent	2	14.3		
	very large extent	5	35.7		
	Total	14	100.0		
continuous improvement of online registration	less extent	1	7.1	2.93	.997
	moderate extent	4	28.6		
	large extent	4	28.6		
	very large extent	5	35.7		
	Total	14	100.0		
continuously rolling out distance learning	less extent	1	7.1	2.86	.949
	moderate extent	4	28.6		

	large extent	5	35.7		
	very large extent	4	28.6		
	Total	14	100.0		
continuously making it easy for students to access academic programs	moderate extent	1	7.1	3.71	.825
	large extent	4	28.6		
	very large extent	7	50.0		
	None	2	14.3		
	Total	14	100.0		
website regularly updated with programs and events affecting the university	moderate extent	2	14.3	3.43	.852
	large extent	5	35.7		
	very large extent	6	42.9		
	None	1	7.1		
	Total	14	100.0		
courses and programs competitively priced	less extent	1	7.1	3.07	1.141
	moderate extent	3	21.4		
	large extent	6	42.9		
	very large extent	2	14.3		
	None	2	14.3		
	Total	14	100.0		
continuously involved in corporate social responsibility	less extent	2	14.3	3.21	1.188
	large extent	7	50.0		
	very large extent	3	21.4		
	None	2	14.3		
	Total	14	100.0		

regular review of management structure	less extent	2	14.3	2.86	1.027
	moderate extent	1	7.1		
	large extent	9	64.3		
	very large extent	1	7.1		
	None	1	7.1		
	Total	14	100.0		
continuous review of system	less extent	1	7.1	2.92	.954
	moderate extent	2	14.3		
	large extent	8	57.1		
	very large extent	1	7.1		
	None	1	7.1		
	Total	13	92.9		
continuously involved in hosting events open to the public	moderate extent	1	7.1	3.43	.852
	large extent	8	57.1		
	very large extent	3	21.4		
	None	2	14.3		
	Total	14	100.0		
continuously reviews its functions	moderate extent	1	7.1	3.29	.611
	large extent	8	57.1		
	very large extent	5	35.7		
	Total	14	100.0		
continuously involved in branding and marketing its products and services	less extent	1	7.1	3.57	1.089
	large extent	6	42.9		
	very large	4	28.6		

	extent				
	None	3	21.4		
	Total	14	100		

Source: Field Data (2013)

The study results in table 4.4 indicate the varied views of the responses given on the said strategic innovations. It shows that the responses obtained on the strategic innovation in universities greatly supported that the universities continuously engage in branding and marketing activities. This had the highest mean of 3.57 meaning that majority of the university do so to a very large extent. This had a standard deviation of 1.089 meaning that if the study was carried out on the entire population rather than on the sample, the results obtained would be slightly different. The lowest mean obtained was 2.57 which were on the innovation strategy of automating student clearance for graduation purposes. This had a standard deviation of 1.284 which also indicated that there could be a slight difference on the mean response obtained if the study was carried from entire population. Generally, the results in table 4.4 indicate that the responses obtained on all the mentioned strategies were largely accepted and supported by the means obtained as all the means lie between 2.1-4.0 which implies a large extent of agreement. The standard deviations varied for different strategies according to the respondents' view.

4.4 Strategic Innovations and Performance of the Public Universities

The objective of the study was to investigate the influence of strategic innovations on the performance of the Kenyan public universities. This section presents the findings of the

study on the influence of strategic innovation on the performance of the selected universities in the study.

Through hierarchical multiple regression at 95% confidence the nature of the strategic innovation effect (positive or negative) on each of the organizational performance indicators was determined. The outputs for the analysis were multiple R, R², F test, among other outputs for the multiple effect of the strategic innovation on each of the performance indicators. The regression outputs for the independent effect of the strategic innovation on the organizational performance indicators are the standardized coefficients, beta weights and t test among others. The t test assesses the significance of the independent variable on the dependent variable. The multiple R shows the strength of the relationship between each of the performance indicators and the strategic innovation indicator. R² is the percentage of variance in the dependent variable explained independently or jointly by the independent variables. The F test is used to evaluate the significance of the regression model as a whole.

The regression analysis results for each of the strategic innovation indicators and the organizational performance indicators are presented and discussed below. The analysis assesses the effect of the joint strategic innovation indicators as well as the independent effect of the strategic innovation indicators on resource generation, research and knowledge creation, competitive advantage and teaching & learning.

4.4.1 Strategic Innovation and resource generation

To establish the influence of the strategic innovation on the resource generation of the universities selected, a multiple regression analysis was undertaken. The indices for the market performance were calculated from the various responses from the four resource generation indicators from the Likert scale questionnaire. The indicators of resource generation were budgetary levels, costs/cost saving, ICT facilities, physical facilities and equipments, performance appraisals for the staff, employee satisfaction and customer satisfaction. The joint effect of the strategic innovation indicators on the resource generation is presented below (Table 4.5).

Table 4.5: Joint effect of strategic Innovations indicators on Resource Generation

N	R	R ²	F	Sig.
14	0.83	0.86	46.32	0.021

Source: Field Data (2013)

- a. Dependent variable: Resource generation
- b. Predictor variable: Organization Innovation, Process Innovation, Marketing Innovation, Product innovation.

The results show that there is strong positive relationship between combined strategic innovation indicators and resource generation of the public universities ($R=0.83$). The analysis reveals that 86% of the resource generation can be accounted for by the strategic innovation ($R^2 =0.86$). The results further shows that the test of confidence (p value) is less than the test level of 0.05 ($p<0.05$). This means that the study results are statistically

significant hence can be relied on to explain the resource generation of the public universities.

Independent indicators of strategic innovation were regressed to establish their effect on resource generation. The results for the hierarchical multiple regressions for the independent effect of strategic innovation on resource generation are shown below (Table 4.6)

Table 4.6: Independent Effect of Strategic Innovations on resource generation

Model	Unstandardized coefficients		standardized coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.599	.478	1.123	4.145	.054
budgetary level	-.456	.112	-1.123	-3.499	.065
costs/cost saving	-.0698	.132	-.671	-.675	.566
ICT facilities	.0897	.106	.209	.576	.255
physical facilities and equipments,	-.507	.123	-.345	-1.876	.118
performance appraisals for the staff,	.047	.113	.127	.465	.001
employee satisfaction	.180	.097	.650	1.863	.203
customer satisfaction	-.453	.113	-.176	-.567	.035

Source: Field Data (2013)

The results shows that there is positive effect between the strategic innovation indicators of ICT facilities model ($\beta = 0.209$), performance appraisals for the staff ($\beta = 0.127$) and employee satisfaction ($\beta = 0.650$) also were found to have a positive effect. Negative effect is recorded for the remaining strategic innovation indicators. Physical facilities and

equipments ($\beta = -.345$), customer satisfaction ($\beta = -0.175$), costs/cost saving ($\beta = -0.671$), and budgetary level at $\beta = -1.123$) registered negative effect. The study reports statistically not significant results for all the independent strategic innovation indicators ($p > 0.05$). The analysis further reveals that resource generation increases by 3.599 variance when strategic innovation increases by one (1) point when other variables are kept constant.

The independent effect of the strategic innovation indicators on resource generation of the public universities generates a regression model below. The variables in the model are given in chapter three under the data analysis sub section.

$$Y_1 = a_1 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \beta_7 X_7$$

$$Y_1 = 3.599 - .456 X_1 - 0.0698 X_2 + 0.0897 X_3 - 0.507 X_4 + 0.047 X_5 + 0.180 X_6 - .453 X_7$$

The regression analysis results for the strategic innovation and resource generation indicate that the multiple indicators of the strategic innovation have a significant effect on the resource generation but independently the effect is not statistically significant. This implies that strategic innovation can only be relied upon to buffer generation of resources when it is pursued as a whole as opposed to individual implementation of the single indicator.

4.4.2 Strategic Innovation and Research and Knowledge Creation

Knowledge Creation indices were computed from the various responses from the knowledge creation indicators from the Likert scale questionnaire. These indicators were

number of students enrollment, number of the annual publications produced, number of graduates, number of intellectual property rights registered, number of consultancies carried out as well as the number of papers presented in conferences. Both joint and independent effect of strategic innovation on research and knowledge creation was regressed. The joint effect of strategic innovation on production performance is presented below (Table 4.7).

Table 4.7: Joint effects of strategic Innovations indicators on research and knowledge creation

N	R	R ²	F	Sig.
14	0.79	0.63	43.72	.043

Source: Field Data (2013)

- a. Dependent variable: Research and Knowledge creation
- b. Predictor variable: Organization Innovation, Process Innovation, Marketing Innovation, Product innovation.

The results show that there is strong positive relationship between combined strategic innovation indicators and research and knowledge creation ($R=0.79$). The analysis reveals that 63% of the research and knowledge creation can be accounted for by the strategic innovation ($R^2 =0.63$). The results further shows that the test of confidence (p value) is less that the test level of 0.05 ($p<0.05$). This means that the study results are statistically significant hence can be relied on to explain the research and knowledge creation of the public universities.

Table 4.8: Independent Effect of Strategic Innovations on research and knowledge creation

Model	Unstandardized coefficients		standardized coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	6.598	1.235	1.143	3.145	.053
number of students enrollment,	-.434	.132	-1.165	-3.079	.095
number of the annual publications produced,	-.0643	.112	-.561	-.685	.166
number of graduates,	.0835	.126	.679	.765	.265
number of intellectual property	-.456	.083	-.375	-1.766	.238
number of consultancies	.065	.313	.120	.476	.045
number of papers presented in conferences	.123	.087	.567	1.675	.287

Source: Field Data (2013)

Generally the analysis for the independent effect of strategic innovation on the research and knowledge creation shows that the resource generation vary by 6.598 point at a one point increase in the strategic innovation effort when all factors are kept constant(B=6.598) even though this is not supported by statistically significant results.

The regression model for the research and knowledge creation and independent strategic innovation is expressed below. (The variables in the expression are explained in chapter 3 under data analysis)

$$Y2 = a2 + \beta8X1 + \beta9X2 + \beta10X3 + \beta11X4 + \beta12X5 + \beta13X6$$

$$Y2 = 6.598 - .434X1 - 0.0643X2 + 0.0835X3 - 0.456X4 + 0.065X5 + 0.123X6$$

4.4.3 Strategic Innovation and competitive advantage (CA)

To establish the relationship between strategic innovation and competitive advantage of the institutions, the key competitive advantage indicators namely the partnership linkages, hits on website and the university's ranked position were computed. The Multiple and individual effect of strategic innovation indicators were regressed with the CA. The results for the multiple effects of strategic innovation indicators regression is presented below (Table 4.9) Table 4.9 Joint effect of strategic Innovations indicators on the institution's competitive advantage (CA)

Table 4.9: Joint effect of strategic Innovations indicators on the institution's competitive advantage

N	R	R ²	F	Sig.
14	0.83	0.88	2.654	0.078

Source: Field Data (2013)

- a. Dependent variable: Competitive advantage
- b. Predictor variable: Organization Innovation, Process Innovation, Marketing Innovation, Product innovation.

The analysis indicates that there is strong positive relationship between combined strategic innovation indicators and competitive advantage ($R=0.83$). The analysis reveals that 88% of the competitive advantage can be accounted for by the strategic innovation ($R^2=0.88$). The results further shows that the test of confidence (p value) is less than the test level of 0.05 ($p<0.05$). This means that the study results are statistically significant

hence can be relied on to explain the research and knowledge creation of the public universities

Regression analysis was also performed to test the independent effect of strategic innovation indicators on the competitive advantage of the public universities in Kenya. The results for the analysis are indicated in Table 4.10.

Table 4.10: Independent effect of strategic Innovations on competitive advantage

Model	Unstandardized coefficients		Standardized coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	8.675	1.214	1.123	3.333	.021
partnership linkages,	-.543	.122	1.342	-3.654	.067
hits on website	-.154	.221	.654	-.543	.057
The university's ranked position	.125	.142	.342	.567	.111

Source: Field Data (2013)

Strong positive relationship was recorded for Positive relationship was reported for partnership linkages ($\beta= 1.342$). However, weak positive relationship was noted for the number of hits on the university's website ($\beta= 0.654$) and the ranking position of the university ($\beta= 0.342$) respectively.

The values for the test of confidence level for the independent strategic innovation indicators were above the acceptable significance level ($p>0.05$) hence the findings were statistically not significant. This implies that regardless of existence of positive

relationship between some strategic innovation indicators and the university's competitive advantage, the independent strategic innovation indicators do not appear to have significant effect on it when assessed individually.

The above analysis generates the model below which summarizes the effect of independent strategic innovation on the competitive advantage of the public universities in Kenya.

$$Y_3 = a_1 + \beta_{14}X_1 + \beta_{15}X_2 + \beta_{16}X_3$$

$$Y_3 = 8.67 + 1.342X_1 + 0.654X_2 + 0.342X_3$$

The model reveals that a one unit increase in any of the strategic innovation indicators will be accompanied by increase of 8.67 units in CA of the Kenyan public universities. However this will only result when all other variables are kept at constant.

4.4.4 Strategic Innovation and Teaching and learning activities

To establish the relationship between strategic innovation and the teaching and learning activities in the Kenyan public universities, the key teaching and learning indicators namely the number of new curricula developed, number of curricula reviewed, number of exams examined, number of students enrolled and the participation in sports and other professional associations were computed. The Multiple and individual effect of strategic innovation indicators were regressed with the learning activities. The results for the multiple effects of strategic innovation indicators regression is presented in Table 4.11

Table 4.11: Joint effect of strategic Innovations indicators on the institution's teaching and learning activities

N	R	R ²	F	Sig.
14	0.76	0.91	3.765	0.064

Source: Field Data (2013)

- a. Dependent variable: Teaching and Learning
- b. Predictor variable: Organization Innovation, Process Innovation, Marketing Innovation, Product innovation.

The analysis indicates that there is a strong positive relationship between combined strategic innovation indicators and the teaching & learning activities of the public universities ($R=0.76$). The analysis reveals that 91% of the learning activities can be accounted for by the strategic innovation ($R^2 =0.91$). The results further shows that the test of confidence (p value) is less that the test level of 0.05 ($p<0.05$). This means that the study results are statistically significant hence can be relied on to explain the teaching and learning of the public universities

Regression analysis was also performed to test the independent effect of strategic innovation indicators on the teaching and learning activities of the public universities in Kenya. The results for the analysis are indicated in Table 4.12.

Table 4.12: Independent effect of strategic Innovations on teaching and learning

Model	Unstandardized coefficients		standardized coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	7.945	1.354	1.182	3.760	.062
the number of new curricula developed,	-.634	.133	1.267	-3.234	.0510
number of curricula reviewed,	-.123	.128	.900	-.653	.071
number of exams examined,	.245	.137	.876	.465	.051
number of students enrolled	-.345	.231	-.012	.543	.0642
Participation in sports and other professional associations	.187	.125	.432	-.345	.1130

Source: Field Data (2013)

A weak Positive relationship was reported for the number of exams examined ($\beta = .245$) and the Participation in sports and other professional associations ($\beta = 0.187$). the other indicators recorded a negative relationship of the strategic innovations and the teaching and learning activities of the public universities.

The values for the test of confidence level for the independent strategic innovation indicators were above the acceptable significance level ($p > 0.05$) hence the findings were statistically not significant. This implies that regardless of existence of positive relationship between some strategic innovation indicators and teaching and learning activities, the independent strategic innovation indicators do not appear to have significant effect on it when assessed individually.

The above analysis generates the model below which summarizes the effect of independent strategic innovation on the teaching and learning activities of the public universities in Kenya.

$$Y_4 = a_1 + \beta_{17}X_1 + \beta_{18}X_2 + \beta_{19}X_3 + \beta_{20}X_4 + \beta_{21}X_5$$

$$Y_4 = 7.945 - .634X_1 - .123 + 0.245X_3 - .345X_4 + .187X_5$$

The model reveals that a one unit increase in any of the strategic innovation indicators will be accompanied by increase of 7.945 units in teaching and learning activities of the Kenyan public universities. However this will only result when all other variables are kept at constant.

Table 4.13: Organizational Performance

	Mean	Std. Deviation
complies with set budgetary levels on yearly basis	3.43	.756
ensures yearly reduction in costs and savings	3.14	.770
adequate utilization of allocated funds for intended purposes	3.29	.914
adequate and modern ICT facilities	3.36	.633
adequate physical facilities and equipment	3.21	.699
state of art physical facilities and equipment	3.00	1.038
staff performance appraisal taken quarterly or half yearly basis	3.57	.756
employee satisfaction appraisals conducted on a yearly basis	3.21	.893
customer satisfaction appraisals conducted quarterly	3.29	.914
institution surpasses its set target on the number of students to be enrolled every academic year	3.43	.646
institution surpasses its set target on the number of publications produced annually	2.93	.730
surpasses target on the number of PHD graduates	2.79	.975

produced annually		
meets or surpasses its set target on the numbers of master's graduated produced annually	2.86	.663
meets or surpasses its set target on the number of intellectual property rights registered	3.00	.784
meets or surpasses its sets target on the number of consultancies carried out annually	2.71	.825
meets or surpasses its set target on the number of papers presented in conferences and other academic fora	2.86	.770
meets or surpasses its set target on the number of new local, regional and international partnerships and linkages	2.79	.802
meets and passes its set target on the number of times it appears positively in media	3.00	.877
meets or surpasses its set target on the number of hits on its website per month	3.07	.829
meets or surpasses its sets target on improved ranking	2.86	.770
meets its target on the number of curricula reviewed per year	3.00	.784
meets target on the number of new curricula developed	3.14	.535
meets target on the number of examinations externally examined	3.43	.514
meets or surpasses its target on the number of students enrolled in open and distance learning programs	3.00	.679
meets target on the number of students participating in sports, games and professional associations	3.21	.893

Source: Field Data (2013)

Table 4.13 Shows the responses obtained on the organizational performance greatly favored the opinion on staff performance appraisal with the highest mean of 3.57 meaning that majority of the responses felt that the process was successful. This had a standard deviation of 0.756 meaning that if the study was done on the entire population

rather than on the sample, the results obtained would be almost the same. Responses to the opinion that the universities surpassed the target number of consultancies carried out annually were least supported as this had the lowest mean of 2.71 meaning that majority of the respondents felt that the universities were unsuccessful in that target. This had a standard deviation of 0.829 indicating that the results could not be much different if the mean was obtained from responses given from entire population. The entire table indicate that all the opinions given were supported by the responses obtained as the mean responses lies in the interval 2.1-4.0 which shows that these were successfully employed with standard deviation values all below one indicating that the responses given could be similar if the study were conducted from entire population of the study.

Table 4.14: Regression Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.849 ^a	.720	.596	.480

a. Predictors: (Constant), Product Innovation, Marketing Innovations, Process Innovation and Organization Innovation

Source: Field Data (2013)

The study results in table 4.14 indicate the extent to which the predictor variable accounts for the overall variability of the model. The R Square of 0.72 indicate that the predictor variables given in the study affects the organization performance by 72% and 28 percent is affected by other factors not mentioned in the study. The Adjusted R Square indicate

that suppose the whole population was involved in the study rather than a sample, then the response would be (1-0.596) 40.4% less variance.

Table 15: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.257	.594		2.115	.034
Product Innovation	.274	.219	.372	1.248	.013
Marketing Innovations	.246	.124	.387	1.984	.009
Process Innovation	.457	.239	-.621	-1.908	.019
Organization Innovation	.551	.151	.794	3.644	.005

Source: Field Data (2013)

a. Dependent Variable: organization performance

$$\text{Organization Performance} = 1.257 + 0.274 \text{ Product Innovation} + 0.246 \text{ Marketing Innovations} + 0.457 \text{ Process Innovation} + 0.551 \text{ Organization Innovation}$$

The study results in table 4.15 indicate that there is positive relationships between organization performance and Product Innovation, Marketing Innovations, Process Innovation and Organization Innovation meaning that in increase in either of them will increase organization performance and a decrease in either of them will also decrease organization performance. Testing at 5% significant level, the study was significant at $p < 0.05$ ($0.03 < 0.05$) using a one tail test. All the other individual variables were also significant at $p < 0.05$ using a one tail test.

4.5 Discussion

The researcher was able to capture 63% response rate as he was only able to sample 14 universities out of the total 22 universities targeted in the study. From the study, it was established that most of the public universities in Kenya have been in existence for a period of about 1 and 5 years, followed by those that had been in existence for over 21 years. It was also established that the longer the university had been in existence, the larger the number of students it had, since majority of the university had been in existence for 1-5 years, this group had a population of 10,000 and less. The group of universities that had been in existence for over 21 years had a student population of over 25000. There was also a relationship between the duration of existence and the expansion of the university. Universities with over 21 years of existence were found to have 7 and more campuses/ branches while those that had had a short period of existence had less than 7 with some even having none.

The researcher also established from the study that Kenyan public universities continuously introduced and implemented strategic innovation practices such as introducing new programmes, rolling out open learning, aligning its academic programs to vision 2030 and the new constitution. Strategic innovativeness in the area of internet use and technology was established to have been put to use by universities introducing online results transmission at the end of the semester to the students, automating school fees payment, online registration and online clearance by finishing students for graduation purposes. These results supports the argument by the study done by Kim and Mauborgne (2005) which indicate that, the significance of Strategic Innovation to an

organization lies in its ability to supplant competition by generating more value in the long run which is achieved through creation of new differentiated business that initially by pass competition and new business marketing, offers and space that renders competition irrelevant.

The study findings revealed that indeed the universities are making effort to ease students' access to academic programmes, update the universities website with the latest content, competitively pricing academic programmes and rolling out distance learning. On the management side, majority of the universities were found to be involving themselves in corporate social responsibility, regular review of the management structure, regular review of the system, and regular review of its functions. The study established that while some universities continuously host events open to the public, others have taken to invest in branding and marketing its products and services.

According to Walker (2004), innovation has a considerable impact on corporate performance by producing an improved market position that conveys competitive advantage and superior performance. This was also proved correct by the study on the issue of organizational performance where the researcher found out that to varying extents, the universities were successful in complying with the set budgetary levels and cost reduction and that the allocated funds are usually used for their intended purposes. The study also revealed that while some universities were successful in ensuring they have adequate and modern ICT, adequate physical facilities and equipment and state of the art physical facility and equipment, others didn't quite become successful. On appraisals, it was established that the universities were successful though to varying

extents in ensuring performance appraisal, customer satisfaction appraisals and employee satisfaction appraisals were regularly reviewed.

The study revealed that the universities had targets which they hoped to achieve annually. Such targets were found to have included number of students enrolled every academic year, number of publications, number of PhD and masters' graduates, number of intellectual property rights registered and number of consultancies carried out annually. Some universities had been successful in achieving the targets while others were not. Other targets that were either successful or not included number of papers presented in conferences, new linkages and partnerships, positive media image and improved ranking.

It established that the universities make effort to review a set target of curricula per year as well as to develop others, have their exams externally examined and have their website be the most visited website. While some universities were more able to reach their targets in open and distance learning others were more successful in meeting their target in the number of students participating in sports games and professional associations.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents summary of the study findings, conclusions, recommendations for the policy and practice, limitations of the study and the practice in the field of strategic innovation in the performance of public universities in Kenya. The chapter concludes by focusing on the suggestions for further studies in the same field.

5.2 Summary of findings

This study aimed at finding the relationship between strategic innovation and performance of public universities in Kenya. The specific objectives of the study were to establish the nature of strategic innovations in the universities and determine the influence of strategic innovations on the performance. The population for the study was the public universities in Kenya from which the sample was selected. The researcher adopted descriptive survey design. Data to establish the relationship was obtained with the use of structured questionnaires. Data analysis was done using multi hierarchical regression model.

The study findings indicate that strategic innovation in universities is greatly done by the universities continuously engaging in branding and marketing activities. This indicates that the universities were practicing strategic innovation and had embedded it in their corporate strategy to offer quality education to the students. The universities had deviated from the traditional ways to offering education and engaged in creation of new and

significant educative ways. The study results reveal that there is a strong positive relationship between strategic innovation indicators and the performance of the public universities. The results further demonstrate that a large proportion of the public universities performance can be accounted for by combined effect of strategic innovation.

The study results reveal that there is a strong positive relationship between strategic innovation and the resource generation of the universities. This indicates that the indicators of resource generation such as budgetary levels, costs/cost saving, ICT facilities, physical facilities and equipments, performance appraisals for the staff, employee satisfaction and customer satisfaction are determined by the strategic innovations of the public universities. It reveals that an increase in the level of technology such as ICT facilities results into adequate resource allocation since the efficiency is enhanced.

From the study findings, the study reveals that there is a strong positive relationship between combined strategic innovation indicators and competitive advantage. This indicates that the competitive advantage is gained by what best one university can achieve more than the other university. This indicates that the competition amongst the public universities and the desire to offer quality services to the people is a determinant of the innovations that are seen across the public universities. The regression analysis on strategic innovation and competitive advantage clearly indicate that strategic innovation reflects the future state of the universities, corporate renewal and has the potent of driving the performance of the universities as well as rejuvenating the entire education system through the product innovation and teaching.

5.3 Conclusion

The main aim of this study was to get an understanding on the influence of strategic innovations on the performance of public universities in Kenya. The indicators of organizational performance were identified to have been: resource generation, teaching and learning, research and knowledge creation, and competitive advantage. The innovative strategies were identified as: product innovation, marketing innovation, process innovation and organizational innovation

Based on the findings, the researcher has sufficient evidence to conclude that indeed there is a relationship between strategic innovation and performance of the universities. The researcher concludes that universities that adopt and are successful in product innovation strategies such as introducing new programmes, introducing open and distance learning, aligning their academic programmes to vision 2030 and the new constitution achieved improved performance as indicated by increasing number of students enrolled each academic year, increased number of PhD and Masters graduates, and increased enrollment in open and distance learning. The study there concludes that there is a strong positive relationship between strategic innovation indicators and the performance of the public universities.

The study has established that there is a strong positive relationship between strategic innovation and competitiveness of the public universities. The study concludes that those universities can obtain competitive advantage through human resource innovations such as regular employee satisfaction appraisal, customer satisfaction appraisal and staff

appraisal. There is also a relationship between organizational innovation such as regular review of management structure, management functions and management systems enhance the competitiveness of the public universities.

The study findings gives the evidence to the researcher to conclude that strategic innovation of the public universities ranges from the products and services offered and is determined by the technology that is revolutionizing the current global world and has improved the performance of the public universities. Therefore with innovation in university's resource management, the universities can be able to comply with the set budgetary levels, reduce costs and save more and be sure to allocate funds to intended purposes which in turn translate to improved performance.

5.4 Recommendation for Policy and Practice

The study was guided by the existing literature and empirical data. The findings has thus to a greater extend confirmed or validated the existing body of knowledge by revealing that strategic innovation has a combined influence on the organizational performance. The researcher therefore observes that strategic innovation plays a central role in enhancing the performance Kenyan public universities. The study's results have contributed to the emerging field of strategic innovation and provide the foundation for further enhancement of the theory and research in the topic. The study offers an alternative way of understanding how organizational performance can be enhanced by using other tools other than convectional management tools.

The researcher recommends that institutions of higher learning, both public and private that have not fully adopted strategic innovation as a means of improving performance should look for ways of doing so as it has been proven that there is a relationship between strategic innovation and organizational performance. At the same time, it is recommended that those that have been successful in doing so should start looking for new ways to improve their performance as the education sector is fast evolving.

The researcher also has ground to recommend for policies that will limit extreme competition in the education sector as such practice has a high ability of moderating the quality of education offered by Kenyan institutions of Higher learning. A policy to prevent universities from commercializing education should also be put in place.

5.5 Limitation of the Study

The study was limited to the influence of strategic innovation on the performance of public universities in Kenya. Public universities only represent a fraction of the universities in Kenya as there are quite a number of registered and accredited private universities. This presented a limitation to the research because the extent to which the findings can be generalized across all the universities- both public and private- in Kenya is constrained.

The research methodology used was cross sectional survey. In as much the design would have yielded uniformity in data, a deeper understanding of the individual population of study might not have adequately been covered. Furthermore semi structured questionnaire that were used did not provide an opportunity for the respondents to give

opportunity to be express adequately what they felt about the study topic. As a result, more qualitative information relating to the study might have been left out. This would have enhanced the understanding of the quantitative data that was collected.

The research was also constrained by time and resources. The researcher only had a fixed duration of time to carry the study. Due to these constraints, the researcher only had to sample public universities as opposed to studying the entire population of universities.

5.6 Suggestions for Further Research

The suggestions for further research arise from the limitations disclosed above. There is need for future research to include other universities that were not sampled in this study. Private universities should also be studied in the same study area. Another possible area of study would be on the factors that affect the performance of public universities other than strategic innovation.

The study used the cross sectional survey design. Future research can adopt different designs like longitudinal survey that would trace the influence of strategic innovation on the organizational performance over a period of time. The researcher can adopt case study in order to get deeper information on the influence of strategic innovation on organizational performance. Future studies may also adopt other analysis tools to reveal the relationship established in this study.

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APPENDICES

APPENDIX I: List of Public Universities in Kenya

1. University of Nairobi
2. Kenyatta University
3. Moi University
4. JKUAT
5. Maseno university
6. Masinde Muliro university
7. Egerton University
8. Dedan Kimathi University of Technology
9. Chuka University
10. Technical University of Kenya
11. Technical university of Mombasa
12. Pwani University
13. Kisii University
14. University of Eldoret
15. Maasai Mara university
16. Jaramogi Oginga Odinga University of Science and Technology
17. Laikipia University
18. South Eastern Kenya University
19. Meru University of Science and Technology
20. Multimedia University of Kenya
21. University of Kabianga
22. Karatina University

APPENDIX II: Questionnaire

Instructions

This questionnaire is designed to collect data that will help in better understanding the Influence of Strategic innovation on Performance of Public universities in Kenya.

The data provided by this questionnaire will be treated in strict confidence.

SECTION A: DEMOGRAPHICS

1. Name of your University (Optional)
2. How long has your University been in existence in Kenya?
 - a) 1 – 5 years ()
 - b) 6- 10 years ()
 - c) 11 – 15 years ()
 - d) 16 - 20 years ()
 - e) Over 21 years ()
3. Kindly indicate below how you would rate your university in terms of student population.
 - a) Over 25,000 ()
 - b) 10,001 - 25,000 ()
 - c) 10,000 and Less ()
4. Please indicate how you would rate your university in terms of expansion (campuses/branches)
 - a) 7 or More ()
 - b) 4 - 6 ()
 - c) Less than 4 ()

SECTION B: Strategic Innovation

To what extent do the following statements on the state of strategic innovation apply to your University on the scale of 1- 5? (1 –Less extent, 2-Moderate extent, 3- Large extent 4 – Very large extent, 5 - none)

		1	2	3	4	5
1	My institution is continuously engaged in introducing new courses/academic programmes					
2	The University is continuously engaged in rolling out of open learning					
3	My institution is continuously aligning its academic programmes to Vision 2030 and the new constitution					
4	The University has introduced online result transmission so as to ensure timely receipt of results					
5	The University is continuously automating its students fee payment system					
6	My institution is continuously automating its online student clearance system for graduation purposes					
7	Online registration is continuously being improved by the University					
8	The University is continuously engaged in rolling out of distance learning					
9	My institution is continuously making it easy for students to access academic programmes/courses					
10	My institution’s website is regularly updated with programmes and events affecting the university					
11	Courses and academic programmes are competitively priced on regular basis by my institution					
12	My institution is continuously involved in Corporate Social Responsibility					
13	The University regularly reviews its management structure					

14	The University continuously reviews its systems					
15	The University is continuously involved in hosting events open to the public					
16	The University continuously reviews its functions					
17	The University is continuously involved in branding and marketing its products and services					

SECTION C: Organizational Performance

To what extent do the following statements on the state of organizational performance apply to your University on the scale of 1- 5? (1- Very Unsuccessful 2 - unsuccessful 3 – Successful 4 – very successful, 5 - none)

		1	2	3	4	5
1	The University always complies with set budgetary levels on a yearly basis					
2	The University always ensures on a yearly basis there is reduction in its costs/cost savings					
3	The University always ensures all allocated funds are adequately utilized for their intended purposes					
4	The University ensures there are always adequate and modern ICT facilities					
5	My University always ensures there are adequate physical facilities and equipment					
6	The University ensures that its physical facilities and equipment are state of the art					
7	The University ensures performance appraisals for its staff are undertaken on a quarterly or half yearly basis					
8	The University ensures employee satisfaction appraisals are conducted on a yearly basis					
9	The University ensures customer satisfaction appraisals are					

	conducted on quarterly basis					
10	My institution ensures it meets or surpasses it's set target on the number of students to be enrolled every academic year					
11	My institution ensures it meets or surpasses it's set target on the number of publications produced annually					
12	My institution ensures it meets or surpasses it's set target on the number of PhD graduates produced annually					
13	My institution ensures it meets or surpasses it's set target on the number of masters graduates produced annually					
14	My institution ensures it meets or surpasses it's set target on the number of intellectual property rights registered					
15	My institution ensures it meets or surpasses it's set target on the number of consultancies carried out annually					
16	My institution ensures it meets or surpasses it's set target on the number of papers presented in conferences and other academic fora					
17	The University ensures it meets or surpasses it's set target on the number of new local, regional and international partnerships and linkages					
18	The University ensures it meets or surpasses it's set target on the number of times it appears positively in the media per year					
19	The University ensures it meets or surpasses it's set target on the number of hits on its website per month					
20	The University ensures it meets or surpasses it's set target on improved ranking					
21	The University ensures it meets its targets on the number of curricula reviewed per year					
22	The University ensures it meets its targets on the number of new curricula developed					
23	The University ensures it meets its targets on the number of					

	examinations externally examined					
24	The University ensures it meets or surpasses its set target on the number of students enrolled on open and distance learning programme					
25	The University ensures it meets its targets on the number of students participating in sports, games and professional associations					