

**INFLUENCE OF INTELLECTUAL CAPITAL
INITIATIVES ON VALUE CREATION IN UNIVERSITIES
IN KENYA**

RHODA VICTORIA WANAMBIRO

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**Influence of Intellectual Capital Initiatives on Value Creation in
Universities in Kenya**

Rhoda Victoria Wanambiro

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DECLARATION

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

Signature: Date:.....

Rhoda Victoria Wanambiro

This thesis has been submitted for examination with our approval as the University Supervisors.

Signature: Date:.....

Prof. Gregory Namusonge, PhD

JKUAT, Kenya

Signature: Date:.....

Dr. Alice Simiyu, PhD

JKUAT, Kenya

DEDICATION

This thesis is dedicated to first and foremost my parents: Dad, Gilbert and Mum Joyce for their unwavering support and belief in the value for education. This has become a pillar of strength to me. To my husband Osiru, thank you for believing in me as I stretched through long hours of studies, you were there to cheer me on toward the goal. To my treasured sons, Sifa Bunnie and Wema Liam, I know your intelligence is beyond your chronological years and will always be. This will be an eye opener to your potential abilities that you will realize and bring to fruitfulness. This study will be an inspiration for you in many years to come as you intentionally seek to fulfill your God given purpose. Indeed the lord God Almighty is excellent in his working in us to whom is due all glory and honor.

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ACRONYMS AND ABBREVIATIONS

IC	Intellectual Capital
HC	Human Capital
SC	Structural Capital
IPR	Intellectual Property Rights
GOK	Government of Kenya
ICT	Intellectual Capital Transfer
WICF	World Intellectual Capital Forum
RC	Relational Capital
RD	Research and Development
VC	Value Creation
SC	Structural Capital
MDG	Millennium Development Goals
UON	University Of Nairobi
MMUST	Masinde Muliro University of Science and Agriculture
JKUAT	Jomo Kenyatta University of Agriculture and Technology
ICI	Intellectual Capital Index.

DEFINITION OF TERMINOLOGIES

- Human capital:** The set of explicit and tacit knowledge of the universities' personnel acquired through formal and informal educational and actualization processes embodied in its activities. (Bisogno, 2018)
- Influence:** The capacity to have an effect on the character development, or behaviour of someone or something, or the effect itself. (Ngugi, 2013).
- Intellectual Capital initiatives:** Are opportunities to act on the value of a university with activities covering the key components that include human capital, relational capital and structural capital (Dumay, 2018)
- Intellectual capital:** A set of knowledge, information, intellectual property and expertise which can be used for the purpose of creating wealth within and beyond the borders of a university (Edvinsson, 2013)
- Public University:** An institution authorized to offer academic degrees that is publicly owned and receives significant funds through a national or subnational government. (Mbirithi,2013).
- Relational capital:** Gathers the wide set of economic, political and institutional relationships developed and maintained by universities (Dumay, 2018)

- Structural capital:** The explicit knowledge related to the internal processes of dissemination, communication, and management of scientific and technical knowledge in a university (Di-Bernardino & Corsi, 2018).
- Value creation:** Are actions that increase the worth of goods, services or Business within a university setting (Bourguignon, 2005).

ABSTRACT

Intellectual capital initiatives in Kenyan universities are opportunities to act on the value of universities with activities covering the key components of human capital, structural capital and relational capital. This study provides evidence that the combined effect of intellectual capital constructs have a positive significant effect on university value creation. The purpose of this study was to examine the influence of intellectual capital initiatives on value creation in public universities in Kenya. The study focused on; the influence of human capital initiatives on value creation in public universities in Kenya; influence of relational capital initiatives on value creation in public universities in Kenya. To determine what structural capital initiatives influence value creation in public universities in Kenya and to determine the extent to which situational environment moderated the influence of intellectual capital initiatives on value creation in public universities in Kenya. A survey design was employed. The study targeted management employees of public universities chartered before the year 2010. A sample of 144 respondents was drawn from a total of 480 management employees of public universities selected. The study employed a questionnaire to academic staff who were purposively sampled. Descriptive analysis generated frequencies, means percentages and standard deviations. The study employed factor analysis with reference to principal Component Analysis to ascertaining the suitability of data for further statistical analysis. Linear regression analysis, analysis of variance, coefficients and multiple regression were employed to examine the nature of the relationship between variables. The study established a positive significant relationship between Human Capital initiatives, Structural Capital initiatives, relational capital initiatives and Value Creation in public universities in Kenya. Situational environment yielded a weak positive insignificant relationship as a moderator on combined intellectual capital constructs. However, the moderating effect of situational environment on human capital and on structural capital saw an improvement of the scores of regression coefficients. The study concluded that intellectual capital constructs have a positive and significant influence on value creation in public Universities in Kenya. This implies that organizational effort to codify organizational knowledge and thereby further develop and make use their intellectual capital ultimately results in value creation in public universities. Therefore the study recommended that the intelligence generated through intellectual capital ought to be entrenched into practice by knowledge intensive organizations given the high returns that are associated in its application. Furthermore, there is a need for universities to take up the challenge in measuring, managing and reporting on their intangible assets which include but are not limited to processes, innovation capacity, patents, tacit knowledge of its members and their network of collaborators and contacts.

CHAPTER ONE

INTRODUCTION

1.1 Background to the study

The business environment is in a constant state of flux given the dynamic changes and fluid situational environments. This dynamic environments have seen some organizations grow diminish, while some industries have developed and retracted. The implications are that organizations must therefore match the dynamics of their environment in order to maintain or develop their position (Grant, 2015). It is then envisaged that environmental responsiveness would provide the organization with the necessary competences to permit maintenance and appropriate development of their products in the market place.

In order to address the challenges and opportunities presented by today's complex, and often unpredictable markets, an organization must be able to combine resources in novel ways (Akenga & Olang, 2017). The firm should therefore be able to dispose of, or reconfigure resources that are no longer relevant. (Bontis, Keow & Richardson, 2008). An organization's ability to manipulate resources continuously and rapidly becomes a competitive capability that is not easily imitated by competitors. (Grant, 2015). Competitive advantage is increasingly becoming critical for organizations with intellectual resources such as the employee skills base, business systems and intellectual property rights gaining significant importance (Barney & Hesterly, 2012). Intellectual capital.

It has been noted from literature reviewed that the knowledge and understanding on how to effect performance differently is held within the Intellectual Capital of an organization. It can be noted from the foregoing that organizational knowledge embodied in the intellectual capital can be turned into commercially intangible assets and is underpinned by innovation. Glynn and Kazanjian (2010) further note that it is innovation that permits the different action. This study identified the following key factors as explaining the

increased importance of intellectual capital (Chahal & Barkshi, 2014) both in private and public sector organizations as well as the overall businesses world. First, intellectual capital is an essential element in the rich complexity of organizational life and survival given its ability to account for the intangible resources of the firm that give it value and account for value deliverables. Second, the pace of global competition and technological changes have made it necessary for organization's to address the range of decisions regarding the creation, development and maintenance of their intellectual capital resources and capabilities (Chahal & Bakshi, 2014).

Third, Barney and Hesterly, (2012) note that our understanding of intellectual capital aids in the management practices of planning, organizing, directing, and controlling of organizational resources to meet expected outcomes. This may be realized by aligning the critical resources, structures and systems that support as well as organizational relationships that aid in realization of the intended end. Fourthly, the Intellectual Capital perspective recognizes the rising importance of innovation.

Innovation is seen as the principle determinant of competitiveness as presented by Petty and Guthrie as cited in Ramona (2017). Innovation is then expected to breed creativity and problem solving abilities that propel institutions to realize their goals in the midst of constrained resources. Fifth and lastly, the emerging trend within firms' supports the assertion intellectual capital is instrumental in the realization of organizational value deliverables (Wang, 2011).

While knowledge is considered as residing in individuals, a large amount of knowledge is both produced and held collectively in institutions in the sense that such knowledge is produced when people in an organization work together in groups and communities to achieve common goals (Kamath, 2015). It therefore becomes important for organizations to collaboratively solve problems as well as to converse and creatively apply and generate knowledge and its associated intelligence. Organizational knowledge can then be seen as comprising of the company's experiences and company-specific knowledge.

Organizational knowledge includes information about a company's culture, communications and decision making style. It also includes the detail of business processes (Salman, Mansor & Babatunde, 2012). This organization wide knowledge is directly and indirectly owned by the firm. The knowledge can be said to be fluid in nature such that valuation carried out using different approaches at different timing yield different results (Chahal & Bakshi, 2014; Siboni & Sangiorgi, 2017). Organizational knowledge therefore implies a systemic view that sees the organization as a complex combination of component parts where the whole is greater than the sum. Bontis & Fizenz, (2012) view intellectual capital theory as the sum rather than dividing the components in terms of conventional hierarchy and function, the view recognizes that the whole will exhibit emergent characteristics that are not present if its constituent components are regarded separately. Ramona, (2016) perceives the advantage of the whole being greater than the parts as stemming from the management's ability to bring together organization-wide resources and competencies into capabilities that empower the organization (Fischer & Sojer, 2017). This enables the firm to adapt quickly to changing environmental elements.

It follows then that utilization of such organizational knowledge reservoirs can lead to higher levels of effectiveness and attraction of unprecedented opportunities. It can then be argued that only the organization can convert the specialized knowledge of the knowledge worker into performance. (Curado, Henriques & Bontis, 2011; Cabrita & Vaz, 2007; Bowman & Ambrossini, 2007). The convergence between individual and organizational capabilities realizes tangible business results in the form of reduced inventories, faster cycle times and increased customer value.

It may then be said from the forgoing discussion that organizations create competitive advantage by assembling resources in new combinations that work together to create organizational capabilities. Resources therefore can be viewed as a source of organizational capabilities. Capabilities refer to an organizations' capacity to deploy resources, usually in combination, using organizational processes in an enabling organizational climate and structure to attain the desired effect (Chung-Jen, Huang &

Hsiao, 2010; Bejinaru, 2017; (Kianto, Andreeva & Pavlov, 2013). It is further noted that developing capabilities is not simply a matter of combining resources. This may entail complex patterns of co-ordination between structure, environment, people and other resources.

In addition, improving and perfecting such co-ordination requires learning through repetition. (Fena'ndez, 2009). A firm's strategic direction dictates the way in which the firm balances and utilizes its resources and capabilities with the requirement to create the products and services for the market in a manner superior to its competitors (Edvinsson, 2013). From the foregoing, it can be argued in this study that capabilities are rooted in the business practices, routines, systems, structures as well as the human resource on an organization.

When most of organizational resourcefulness is embedded and anchored in the strategic plan of the organization (Muraguri et al., 2016) and aligned with its intellectual capital (Karanja, 2012), then deliberate competencies of a firm are unleashed that create and nurture the quality of output (service and products) and in turn offer sustained competitive advantage (Bisogno, Dumay, Rossi and Polcini, 2018). However, given the importance of the firms' routines and processes, they may deliver unprecedented performance compounded by the unique culture and traditions.

Improved performance may place constraints upon the range and the standard of organizational resources. (Chan, 2009). It is also noteworthy that the resources of a firm cannot be evaluated in isolation, because their value is determined in the interplay with market forces. (Ghosh & Mondal, 2009)). It is further argued that these value creating potentialities and capabilities built up over time and can transform resources that have not been thought of as relevant into superior products and services.

It follows then, that an organization is positioned to succeed with appropriate resources and capabilities to serve its market. (Onyekwelu & Ubesie, 2016). In summary, the philosophy and methodology of intellectual capital has become critical for knowledge

intensive organizations whose intelligence and capabilities are built up over time in social systems, organizational structures and the overall resourcefulness of the firm. It is important therefore for organizations to codify these intelligence and to combine it in novel ways that create and sustain competitiveness by delivering the desired results.

1.1.1 Global perspectives on intellectual capital initiatives and value creation

The World Bank Report (2014) noted that the European Union Countries are the leaders by Knowledge Economy Index developed by the World Bank to assess the ability of countries to create, receive and disseminate knowledge. In the European countries, expert research has shown that companies which use intellectual capital only partially receive an average 14% contingent gain.

Those companies that use intellectual capital more actively receive 39% while those which consider intellectual capital to be the basis of their development receive 61% of contingent gain. The emergence of the knowledge based economy has caused a significant interest in intellectual capital and its impact on firm performance (Ahangar, 2011; Stevo & Bontis, 2016). On the same basis, Studies have attributed 70%-80% of investment in innovation to private business of which innovation is the key to survival and competitiveness (Andriansen, Madsen, & Jensen, 2016). In today's economy primarily driven by information and knowledge (Inkinen, 2015), firms not only produce products and services but also search ways to create value.

Firms also create wealth by exploiting their own resources and recombining their resourcefulness in order to build sustainable organizations. Physical and financial resources have been eclipsed by knowledge resources to create value for organizations and thereby creating sustainable competitive advantage (Fischer & Sojer, 2017; Tollington, 2012). World over, research in intellectual capital involves identification, understanding and measuring of the hidden factors like intellectual capital, human capital, social capital and so on.

Proponents of intellectual capital research opine that these invisible factors affect the performance of companies. (Venugopal & Subha, 2015; Bontis, 2012 ; Sharma, 2018). The development of technology and global markets force companies continuously to improve themselves. (Markins & Steele, 2005). Based on this premise of the importance attached to intellectual capital by both academic community and practitioners as the key to attain competitive advantage.

In relation to knowledge firms, institutions must re-think how to solve their problems and sustain competitiveness (Chahal & Bakshi, 2014). Intellectual assets such as patents, trade secrets, human capital, and organizational structures are widely considered important contributors to business performance and economic growth (Bontis, 2012). Intellectual capital is one of the organizational capabilities which have positive impact on Competitive advantage (Ahangar, 2011). Intellectual capital has continuously spurred development and innovation in order to create new strategic advantages to survive in this heavily competitive global environment (Grant, 2015).

In order for an organization to survive in a knowledge-based economy, continuous investments are critical Investments are made by firms in innovations, Research and development as well as knowledge (Ramona, 2016). Scholars converge on three categories of intellectual capital: Human capital, structural capital and relational capital (Edvinsson, 2013; Benedetta, John & Palmaccio, 2017). Intellectual capital is viewed as residing at individual (human capital), network (customer/relational capital) and organization level (structural capital).

The combination and recombination of intellectual capital components in novel ways is proposed to build capabilities that leverage value. This study adopts the conceptual definition as used by many of the intellectual capital scholars (Uadiale & Uwigbe, 2011; Bontis et al., 2009; Ramona, 2017; Sharma, 2018). Intellectual capital is summarized as the sum of everything and what everybody in a company knows pertaining to the human capital, structural capital and relational capital that gives it a competitive edge.

Human capital refers to the acquired skills, knowledge and abilities held by individuals and obtained through their education; training and experience. Scholars have used terms such as customer capital external capital and relation capital to refer to relational capital held by a firm (Edvinsson, 2013). Drawing from the resource based view of the firm, it is evidenced that social capital is a source of competitive advantage due to its tactfulness, path dependence and social complexity. Chen (2009). However, despite the relevance attached to human capital and social capital, it has been noted that structural capital is a critical link that allows intellectual capital to be measured at organization level (Wang, 2011).

Intellectual capital constructs may therefore be deliberately constituted to develop and add value in order to leverage performance. This notion is supported by scholars who note that interaction and interdependencies among sets of intellectual capital variables create complexity that contribute to overall strategic success (Inkinen, 2015; Cabrita & Bontis, 2010).

In summary, the intensification of theory and practical research in the field of Intellectual Capital is therefore seen as a key emergent contribution to modern economic science and management that has seen interests converge on the subject from diverse disciplines including but not limited to human resource management, finance, management science, physics, engineering and economics. This studies are complementary in nature and serve to strengthen efforts made toward establishing platforms through which firms can utilize their resources to obtain contingent gain.

1.1.2 National Perspective on intellectual capital initiatives and value creation

The subject of intellectual capital management and theory has gained much interest among academia as well as management and consultancy in Kenya. While it is recognized that there is no internationally accepted frameworks for identification, measurement and disclosure of information on the intangible determinants of value, there are only scattered efforts around the world (Austrian Research Centre, 2005;

Dumay, 2016; Edvinsson, 2013). It would be worthwhile to develop these measures and management techniques to enable Universities in Kenya to identify, measure and monitor their intangible sources of value to increase their efficacy and effectiveness in management of these intangible assets.

As the environment becomes more competitive in African countries and more so in Kenya (Mbirithi, 2013). Firms must re-think in ways that would enable them to not only gain competitive advantage but also to remain relevant and socially responsible in the actions taken towards value creating activities. Customers and stakeholders become key informants in the decisions and actions taken by the institutions (Munjuri, 2014).

The considerable reduction of funding from the Kenyan government towards institutions of learning (Boit & Kipkoech, 2012) as well as other sectors implies that for these institutions to remain relevant and meet stakeholder expectations, it would be necessary for them to institute some reforms. (Kariuki et al., 2012). From the ensuing challenges faced by institutions of higher learning, it would be important to consider decisions that enable them to meet deficits in capital and to leverage their productivity.

Invaluable to this research is how value creation would be realized and sustained on the basis of the organization's intangible assets (Ngari et al., 2015). A considerable number of researches have been done in the area of intellectual capital. Sectors mainly covered in these studies include pharmaceutical industries, where a study was done by Ngari, (2013) on intellectual capital and accounting in pharmaceutical companies. A positive significant relationship was established with performance of these firms. A study on intellectual capital and performance of small and medium enterprises was done as well (Ngugi et al., 2014). The study established the importance of intellectual capital elements particularly human and social capital in business performance.

Studies have been done in the banking sector to determine the interplay between intellectual capital elements and performance. Human capital was found to have a positive significant effect on performance (Munjuri, 2013). There are mixed reports and sometimes contradictory on the contributions of relational capital to firm performance where both positive and negative contributions were observed from literature reviewed. Most of the research approaches adopted in the Kenya on intellectual capital used financial and non-financial measures. The findings mentioned are contradicting with practice world over that put emphasis on the intangible assets that may not be measured directly (Bisogno, Dumay & Polcini, 2018).

A study done on intellectual capital and corporate culture on firm performance for institutions listed at the Nairobi Securities Exchange, a positive and significant relationship was established (Munjuri & K'obonyo, 2013). In a study done on human capital, social capital and performance of commercial banks in Kenya, a positive and significant relationship was established (Kariuki et al., 2013). There have been a combination of strategies and recombination of capabilities of the intellectual capital across sectors of the economy to deliver performance in its different forms in line with the strategic plans of firms.

The capability building among universities has been cited as relevant for institutions to remain relevant. With the advent of the regulations set by the Commission for University Education, some institutions were de-registered while others faced threats of closure owing to stringent regulatory frameworks that needed to be adhered to (GOK, 2012). There has been concerns across sectors as institutions position themselves to be relevant and to meet performance deliverables (Muraguri et al., 2014). More importantly, the concern and need for universities in Kenya to be self-sustaining and to offer programmes that are relevant to the needs of the market have been raised by different stakeholders. The Gap between the competence of the graduates who are the products of universities and the skills base possessed have been recorded to be wanting and not meeting the expected minimum standards (Mbirithi, 2013). The rapid expansion of Kenyan Universities posed a major challenge to the management of resources.

Particularly, the human capital and structural capital had to cope with increased student enrolment that more than doubled (Muruchiu, Chiangach & Koskey, 2014). An adoption of a combination of strategies by universities to add value to their strategic intent and particularly to the caliber of graduates released to the job market would be a key contribution to the social economic pillar of vision 2030, Kenya.

This study sort to establish the extent to which Intellectual Capital Initiatives had been ingrained in the capabilities of higher learning institutions and to evaluate the contributions made in value creation. In the vision 2030 strategic plan for the country, higher education is identified as a key sector to enable the country achieve its goals through training, research and development as well as innovation. According to the Government of Kenya, Vision 2030 strategic implementation plan, it was envisaged that the social and economic policy is anchored on an all-round adoption of science, technology and innovation as an implementation tool. The plan was envisaged to steer the country towards development (GOK, 2012). The study sought to determine the extent to which universities had adopted intellectual capital initiatives and whether this had significant contribution towards value creation.

Empirical evidence as at the collection of data for this study in Kenya indicated that Intellectual capital management approaches had yielded positive and significant contributions to firm performance. In the banking sector, firms had reported keen human capital management strategies as well as structures that support the strategies adopted. Kenya Commercial Bank's growth within east Africa attributes its success to models that nurture human capital that is key to strategic implementation, structures that enable and support laid out plans and processes a well as building of teams and networks, partnerships and alliances that enable the firm to leverage its performance. (Munjuri, K'Obonyo & Ogutu, 2015).

Safaricom, a multinational telecommunication firm also attributes its tremendous growth to intellectual capital constructs as reported in its annual report of 2017. The major drivers to sustained growth was attributed to its key pillars which were founded on the

philosophy of Customer first, Operational Excellence and Relevant Products and Services. The firm's growth has been attributed to the increase in customer number, agency services in their products operational efficiency enabled by a high human capital efficiency. The success factors have also been supported by a continued training, development and monitoring of it activities with partners and partner organizations.

In summary, many sectors of the Kenyan economy have experienced tremendous growth alluding their success to partial of full consideration of intellectual capital constructs. In the higher education sector, the rapid diversification of learning programmes and expansion of Universities calls for institutions to re-think through their value creating processes and activities with an aim to innovate.

The purpose for innovations is to meet and satisfy the needs of stakeholders served (Mukhwana et al., 2016). New products as well as services would have to be continuously developed to meet the expectations of an evolving and dynamic society so as to remain competitive. A dire concern for quality as raised by different stakeholders in the country has also provoked University management to continually innovate and improve their service delivery (Murichiu, Chang'ach, & Koskey, 2013).

Pressure exerted on higher institutions of learning has also been attributed to the commission for University education, a body charged with regulating university education. The intellectual capital theory provides a model through which this institutions can be examined empirically to determine the extent to which they have instituted initiatives that drive and sustain value creation to the customers and stakeholders at large. It is against this backdrop that the study sort to determine the influence of intellectual capital initiatives on value creation in public universities in Kenya.

1.2 Statement of the Problem

Universities world over remain pronounced in the intellectual nature of their inputs and outputs as reflected in their roles of research, extension and spurring social economic development with intellectual capital indicators. Studies done in the discipline of intellectual capital and based on the discussions held at the global forum for intellectual capital conference proceedings asserted the significance of the combined effect of intellectual capital constructs on competitiveness (GICCF, 2017).

The combined effect of intellectual capital constructs is based on the central theme in the theoretical model that the interaction of the intellectual capital constructs is what creates the value and delivers superior results (Dumay, 2016). This study seeks to establish approaches adopted in modeling intellectual capital management within the institution's framework, systems, processes, management practices, measurement and valuation. Intellectual capital may offer a solid and useful framework from which intellectual capital studies can begin to understand its influence on business processes and value creation.

With many stakeholders' demand for accountability on the use of scarce resources, contradicting reports become a source of conflict between the financing institutions and the beneficiaries. The World Bank being the largest financier of education in developing countries provided about \$4.5 billion to education in 2018 to programmes, technical assistance and other projects to provide education to people for success (World Bank Report, 2014). A report by the commission for university education, (2016) indicated that universities spend most of their money on staff costs which took 56% of their total expenditure (Mukhwana, 2016). On the other hand, it was noteworthy that the University sector operated on a deficit of Ksh. 8,992.24 Million with public universities holding a deficit of Ksh.1, 860.56 Million (Commission of University Education Report, 2016). It is evident then that Universities spend more resources than they received from various income streams. It is proposed in this study that the adoption of intellectual capital management practices would enhance efficiency in accountability.

The government of Kenya in the year 2018 allotted approximately 9 billion to higher learning institutions. Intellectual capital management was postulated to offer an effective system of valuing universities. It is against this backdrop that the study focused on identification and quantification of the contributions of intellectual capital initiatives on value creation. The key aim is to enable universities identify, quantify, value and report on their intangible assets. The findings serve to enlighten policy makers and those who influence decisions to be more conscious of the contributions of intellectual capital to value creation. To policy makers, this serves as a basis to justify some of the approaches adopted in enhancing the quality and sustainability of intellectual capital initiatives to meet the deliverables.

1.3 Objectives of the study

1.3.1 General objective

The general objective of the study was to examine the influence of intellectual capital initiatives on value creation in public universities in Kenya.

1.3.2 Specific objectives

1. To evaluate the influence of Human capital initiatives on value creation in public universities in Kenya.
2. To assess the influence of relational capital initiatives on value creation in public universities in Kenya.
3. To determine what structural capital initiatives influence value creation in public universities in Kenya.
4. To determine the extent to which situational environment moderates the influence of intellectual capital on value creation in public universities in Kenya.

1.4 Research Hypotheses

The study adopted a non-directional hypothesis (Sharabati & Bontis, 2010; Cheng et al., 2010). The research study was guided by the following alternative hypothesis:

H_{a1}: Human capital initiatives have a significant influence on value creation in public universities in Kenya.

H₀₁: Human capital initiatives have no significant influence on value creation in public universities in Kenya.

H_{a2}: Structural capital initiatives have a significant influence on value creation in public universities in Kenya

H₀₂: Structural capital initiatives have no significant influence on value creation in public universities in Kenya.

H₀₃: Relational capital initiatives have no significant influence on value creation in public Universities in Kenya.

H_{a3}: Relational capital initiatives have a significant influence on value creation in public universities in Kenya.

H₀₄: Situational environment has no significant moderating effect between intellectual capital initiatives and value creation in public universities in Kenya.

H_{a4}: Situational environment has a significant moderating effect between intellectual capital initiatives and value creation in public universities in Kenya.

1.5 Significance of the study

The study offers insights for practitioners, academics and policy formulators on the underlying value proposition in the application of intellectual capital management to foster accountability in the utilization of organizational resources.

1.5.1 Policy Makers

The study sought to establish the influence of intellectual capital initiatives on value creation in public universities. The need for a standardized approach to quantifying intellectual capital in institutions of higher learning is imperative to holding these institutions accountable on their value adding capabilities. It would be important to borrow on some of the practices instituted by some of the developed nations. This would go a long way to enable institutions to deliberately develop and grow their intellectual property outputs as well as nurturing and utilizing them for the social economic development of a nation.

1.5.2 Management

The study provides empirical evidence to management and staff of higher learning institutions on initiatives that can be constituted to create and deliver value. The study also links intellectual capital initiatives with value creation, a key reference for further research in the area. For management practitioners, the findings of this study provide evidence of the importance attached to human capital component as having a direct and high contribution to value creation and consequently to value creation. This may serve to justify the investments made in human capital.

The importance of relational capital and structural capital alignment to the organization's purpose have also been evidenced to have a high contribution to value creation. However, the relevance associated with situational environment on value creation as provided in literature reviewed yielded a low contribution and this implies

that institutions may have to review the importance of this construct before giving it due consideration in management decision making.

1.5.3 Researchers

The study provides basis for researchers to build on intellectual capital research given the limited research that has been done on the subject in Africa as noted from literature. While the constructs are identified in this study and their contributions to value quantified, more needs to be done. Tools are yet to be developed and applied in measurement of intellectual capital in universities. More needs to be done to quantify and leverage engagement with communities through diffusion of knowledge. More studies are therefore critical to bridge the developmental gap in universities.

1.6 Scope of the Study

The study was delimited to seven public universities in Kenya: Egerton University, Kenyatta University, Nairobi University, Jomo Kenyatta university of Agriculture and Technology, Maseno University, Moi University and Masinde Muliro University of Science and Technology. These institutions were chosen because of their long existence having been established before the year 2010.

These universities were presumed to have instituted the structures, systems, processes as well as developed the culture, linkages and relations that support the strategic intent of the university. In addition, their human capital development was hypothesized to be well developed through competences and skills within the human resource development programmes by universities. Faculties, schools and departmental heads who are the operational implementers of university academic directives were chosen to constitute the sample (Commission of university education, 2016). This was to allow for an examination of their roles in the interaction and interplay of intellectual capital constructs in value creation.

The study adopted a wide and in depth questionnaire as a tool for data collection. The study chose to focus on the seven universities chartered before the year 2010. The environment chosen consisted of the faculties, schools and departments. Universities chartered after the year 2010 were excluded from the study given the short period they had been in existence. These institutions were assumed to be undergoing considerable adjustments in relation to the constructs under study and were excluded to maintain homogeneity of the sample. Kenyatta University failed to cooperate citing procedural expectations that needed to be met outside the control of the researcher and was therefore expunged from the study.

1.7 Limitations of the study

A notable limitation in the study is that it did not include financial measures of value as presented in literature. The study delimited to customer satisfaction, loyalty as well as potential for future business with measures on perception.

This is consistent with the views of other researchers who contend that value creation initiatives in themselves are qualitative in nature. However, the outcomes of value creation can then be quantified quantitatively. While the study would have benefited from all the seven public universities chartered before the year 2010. A study of all the public universities would yield better results to determine how the constructs interplay among institutions with different situational circumstances.

The study focused on the departments, schools and faculties as the units of assessment and more value would have been generated if the senior university management had been interviewed given their wide experience and influence on shaping the course of the universities as well as influencing key institutional strategic drivers. There are also other emergent sectors within the Kenyan economy that are knowledge intensive. More research needs to be done to determine how other sectors of the economy can leverage their intellectual capital to deliver superior results. These industries include the telecommunication sector, transport and logistics, tourism, organizations among others.

Intellectual capital research needs to be extended to cover the mentioned sectors as has been done in the developed economies. In addition, the study experienced difficulties in reviewing empirical literature owing to the fact the area of focus is not adequately researched in developing countries particularly in Kenya. More so, none of the reviewed literature publications had focused on value creation as a dependent variable. However, these limitations were mitigated through the review of similar empirical work in other developing and developed nations.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The chapter presents theoretical models relevant to this study which are then related to the context of research where the findings of this study are linked to the theories. This culminates to development of conceptual framework whose elements are discussed. A critique of literature is then presented followed by research gap and summary of the chapter.

2.2 Theoretical Framework

Theoretical framework is a collection of interrelated ideas based on theories. It is a reasoned set of prepositions, which are derived from and supported by data or evidence. It attempts to clarify why things are the way they are based on theories. It is therefore a general set of assumptions about the nature of phenomena as alluded by Field, (2009).

2.2.1 Intellectual capital Theory

Cabrita and Bontis (2008) note that intellectual capital was first introduced by Kenneth Galbraith in 1969 who asserted that intellectual capital included intellectual action as “Using “ of knowledge and skills. To this end, there are many propositions on the concept of intellectual capital. Bontis, 1999 as cited in Bontis et al., (2012) note that there are challenges for academics in framing the phenomenon of intellectual capital.

Attempts have been made using extant theories in order to develop a more rigorous conceptualization of the illusive intangible. It is further observed that there has been a general tendency to focus on some sub components of intellectual capital. Delineation of the constructs of intellectual capital has been attributed to the theoretical strands embedded in human capital theory, the resource based view of the firm and the social

capital theory. Bontis as cited in (Cabrita & Bontis, 2008) note that there has been several developments in enriching our understanding of the sub-components of intellectual capital although they do not yet provide us with a clear framework of what intellectual capital is and how it contributes to firm performance.

The doctor of philosophy presented by Bontis redefined intellectual capital as the sum of everything that everybody in a company knows that gives it a competitive edge. He noted that Intellectual capital is collective collaboration, the shared learning between a company and its customers that forge a bond between them that brings the customer back (Bontis et al., 2012). The theory on intellectual capital has evolved with more interest from academia and management consulting (Chahal, 2014; Chan, 2009; Edvinsson, 2013).

Key elements in the intellectual capital theory include the common bond that holds the organization together through relational capital; (Priscila et al, 2014). Knowledge assets that create value presented as human capital (Bontis & Fizenz, 2012) and what is left in the firm when everyone goes home as structural capital. Dyakona (2015) identifies three approaches to the development and practice of intellectual capital over the years. The first approach is studied from an economic perspective as a national wealth which is a valued resource.

The economic approach is evident in studies done by Stewart, Brooking, Edvinsson, Malone, and Sullivan among others as cited in (Dyakona, 2015). The second approach is synergistic in nature and considers Intellectual capital as composed of knowledge, skills and practical experiences which are implemented through intellectual activity. It is proposed that intellectual capital activities may appear in the form of intellectual, moral and culturally oriented skills in the creation of new knowledge. The knowledge created provides rents and competitiveness that leverages the organizations' performance.

Lastly, the integral approach considers intellectual capital as the aggregate amount of knowledge of all individuals in an entity who ensure its competitiveness as alluded by Guthrie, (2012). Intellectual capital is essentially viewed as a complex integrated system that engages the intellectual, creative, innovative and other abilities of individuals who are united, through interactions to create competitiveness (Curado, 2011).

Intellectual capital is therefore considered as consisting of knowledge, experience, information and intellectual property and participates in the creation of value as noted by Stewart and as cited in (Dyakona, 2015). Intellectual capital also includes the company's organizational structure, information technologies in use and its business reputation. Brookings as referenced in Curado et al., (2011) agrees that intellectual capital includes components of which are human assets, infrastructure, intellectual property and market assets. The theory of Intellectual capital has considerably challenged and made promise of an increase in business results in the future.

The basis of intellectual capital theory lies in the fact of the tangible assets in today's organizations having less value than the intangible assets, which may not necessarily be evidenced by reference in the accounting books (Dyakona, 2015). The theory is founded on the conviction that the wealth of an enterprise is based on the human capital, structural capital and relational capital (Bontis, 2008). The theory argues that value creation happens when one kind of capital turns into another kind of capital at the interaction level.

One of the key attributes of the theory is the proposition that it is intangible in nature. Intellectual capital is an intangible property which neither has hard shape like properties nor obvious financial value as agreed by (Ahangar, 2011). Sentiments echoed by Bontis and Fizenz, (2012) note that Intellectual capital is described as a hidden asset whose economic value may not be easily identifiable and replicable by other firms. This is because the value is realized at the interaction of the human capital (people) with structural capital (what remains in the firm when people go home at the end of the day) in networks of social interactions (Relational capital).

The multi dimensionality of the concept of intellectual capital lends to the diversity of approaches adopted in theory and practice of the doctrine of intellectual capital practice (Bontis & Fizenz, 2012). Over the years, as the different historical stages of study have evolved, specific constructs have been highlighted and weighting done and this has determined the dominating approach. There is no consensus on a general measurement approach or coherent measurement theory for intellectual capital.

The involvement of researchers from different disciplines such as accounting, economics, finance, strategy, human resources has led to the multidimensionality of intellectual capital measurement using different theories to justify Intellectual Capital measurement. (Wang, 2011). Findings from previous research have shown that for organizations to effectively use their knowledge base, there must be a constant interplay between human, structural and customer capital. This means that isolated knowledge that resides in employees' minds does not affect value proposition unless it is integrated in the organizational.

In relation to this study, intellectual capital has a positive significant contribution on value creation in public universities in Kenya. The importance of the intellectual capital constructs was underscored by strong positive correlations between human capital construct, structural capital construct and value creation in public universities in Kenya as well as a moderately strong correlation between relational capital and value creation in public Universities in Kenya. It is important that institutions of higher learning in Kenya would develop adoptive approaches towards instituting intellectual capital theory and its tenets in management practice given the high leverage that this constructs provide in the value creation process.

2.2.2 Human Capital Theory

Human Capital theory was first proposed by Schultz 1961 and has since then been developed extensively. The theory has undergone remarkable developments as well as refinement. The theory of human capital is rooted from the field of macroeconomic development theory.

Becker as cited in (Bontis et al., 2008) illustrates the domain of human capital. He argues that there are different kinds of capitals that include schooling, a computer training course, expenditures on medical care among others which in the true sense add to a person's appreciation of work related activities and the benefits that accrue thereof. Inkinen (2015) review of empirical research on intellectual capital and firm performance, noted that Inputs into the human capital are therefore investment with valuable returns that are measurable.

Human capital may be viewed as the sum total of the knowledge, expertise, and skills one accumulates through education and training. Emphasizing the social and economic importance of human capital theory, Becker as cited in (Deep & Narwal, 2014) noted the most valuable of all capital is that investment in human being. Examples of firm-specific human capital include expertise obtained through education and training in management information systems, accounting procedures, or other specific expertise (Munjuri et al., 2015).

Human capital may also be viewed in light of knowledge gained through education and training in areas of value. Regardless of the application, Becker considers education and training to be the most important investment in human capital. The concept of human capital implies an investment in people through education and training. Wang, (2006) compares the acquisition of knowledge and skills to acquiring the means of production. The difference in earnings between people relates to the differences in access to education and health. He further argues that investment in education and training leads to an increase in human productivity.

Improvements in human productivity in turn lead to a positive rate of return and hence the value creation in a firm. Barney as cited in Barney and Hesterly (2012) indicate that the link between organizational human capital and performance can be understood in the context of the resource-based view of the firm. The resource based view of the firm associate's superior performance with the possession of resources that are valuable, rare, inimitable, and non-substitutable (Bejinaru, 2017). Knowledge is a resource that readily

meets these conditions, is heterogeneously distributed across firms, and is therefore critical and central to understanding the basis of differences in performance.

Human capital is a component of intellectual capital which has been referred to as a strategic asset as noted by Bontis as cited in (Bontis & Fizenz, 2012) and this is what makes an organization to perform better due to its unique characteristics that cannot be imitated. In summary, the capabilities built in the human resource within university settings should result from enlarging the skills base and increasing levels of knowledge and competence as well as economic benefits for societies.

This theory emphasizes the value added that the human capital, particularly in universities contributes. It regards human capital as assets and stresses that investments by universities in people will generate worthwhile returns (Bontis, 2008). The Theory suggests that investment in human capital results in economic benefits for individuals and society as a whole (Bontis, 2008). The investment in an individual can be made in terms of health, nutrition, education, skills, competence, experiences and any other development that results in long-term.

It is important to clarify that the investor in this particular case is the individual who decides whether to invest his or her time, money, and other resources into some activity that will benefit his or her human capital. Human capital theory thus focuses on educational level of employees as a source of labour productivity and economic growth (Armstrong, 2010). One of the most influential theoretical concepts of human capital theory is the distinction between general and specific training and knowledge by Becker as cited in (Chahal & Bakshi, 2014).

The amount of human capital in the organization is linked to how well a certain task is performed and this proposition likely changes at the firm level and in the context of firms with significant amounts of human capital. The firm-specific training guarantees the sustainability of human capital as alluded by (Ambrosini & Bowman, 2009) because employees with such knowledge and skills may be more valuable to the particular

company because of their firm-specific knowledge. The findings of this study are in tune with the propositions made in the human capital theory that employees are a source of competitiveness among firms (Bontis et al., 2008).

Human capital initiatives construct made a strong positive significant contribution to value creation in public universities in Kenya with 83.3% contribution to value creation for every unit change. This resourcefulness among people should be continuously harnessed and utilized to leverage firm performance I knowledge intensive organizations like universities in Kenya. This explains the high skills base academic qualifications among respondents and the high contributions made in increasing firm value (Commission of university education, 2016).

2.2.3 Knowledge-Based View Theory of the Firm

It is largely accepted that the knowledge-based view of the firm is a recent extension of the Resource Based View of the firm (Armstrong, 2010; Bontis, 2002). The Knowledge Based View of the firm considers knowledge as the most important strategic resource noted by Grant as cited in (Bontis, 2008) The Knowledge Based View of the firm is an extension of the Resource Based View of the firm because it considers that organizations are heterogeneous entities loaded with knowledge (Andriessen & Van DenBoom, 2009). The resource base of the organization increasingly consists of knowledge-based assets (Stewart, 2010). The theory has attracted great interest as it reflects that academia recognizes the fundamental economic changes resulting from cumulative availability of knowledge.

According to the knowledge-based view, innovative knowledge is what companies require to outperform others in an industry (Chahal & Bakshi, 2014). Knowledge based view considers a firm to be a “distributed knowledge system” composed of knowledge holding employees, and this view holds that the firm's role is to coordinate the work of those employees so that they can create knowledge and value for the firm.

Salman et al. (2012) contends that knowledge assets are as important for competitive advantage and survival, if not more important, than physical and financial assets. Knowledge and capabilities-based views in strategy have largely extended resource based reasoning by suggesting that knowledge is the primary resource underlying new value creation, heterogeneity and competitive advantage (Wang, 2011). Knowledge Based View considers knowledge as the most important source for firms' competitive advantage (Onyekwelu, 2017).

Moreover, knowledge aids firms in strategic development of products and market, and provides an alternative knowledge assistance in achieving of differentiation and competitive advantage. The Knowledge Based View has therefore facilitated a shift from a competitive advantage that is based on market position to one that focuses on firm's capabilities. Moreover, the orientation of firm's strategies has been also changed from position-based to capabilities-based.

Firms often absorb new knowledge to improve their capabilities from collaborative partners or developing effective models (Cabrita & Bontis, 2008). Knowledge Based View stresses knowledge-based competition and illustrates that firms can differentiate themselves on the basis of their Knowledge Management strategies. Each of the individual knowledge assets is complex to acquire and difficult to imitate. It has been evidenced from literature that firms that achieve competitive advantage through Knowledge Management have also learned to combine their knowledge assets to effectively create an overall Knowledge Management capability (Chung-Jen, Huang & Hsiao, 2010).

The knowledge based view of the firm theory considers knowledge assets such as conversion, transfer and application as primary resources that can be used in strategic development of Products, processes and markets within knowledge intensive organizations. In addition, value creation process requires the abilities residing within and utilized by employees and managers so as to expose an organization to technology boundaries (Cabrita & Vaz, 2007).

This theoretical proposition are in tune with the findings of this study on the positive and significant contribution of human initiatives. This may be attributed to knowledge creation based on the social interactions of human capital that generate new knowledge which may then be instituted as organizational knowledge resulting in increased value creation at the interaction term of the constructs. The strong positive correlation may also be an indication of high levels of knowledge transfer from employees' competence to capabilities of a firm. Implications are that intellectual capital constructs constantly interplay and interact to influence value creation in universities and that the nature of interaction is dependent on many factors such that if this constructs are interlinked, they can generate high returns on value creation.

2.2.4 Creating value through intellectual capital theory

The model proposes that Value may be created by employees and shareholders. Value present in an immaterial way in the firm is represented and acted upon by internal customers (employees) and that this value is directed toward the external customers. Therefore, value is said to pass from human capital through organizational capital to relational capital (Edvinsson, 2013). The direction of increasing the value of the company follows the increase of the degree of control based on human capital, structural capital followed by relational capital. The value of employees' knowledge becomes owned by the company when it changes structural capital into identifiable capital. The theory postulates that as more of intellectual capital becomes controlled as an intangible element, its value also increases. The theory holds that the organization can create value from intangible assets resident in the skills and expertise of its employees (Benedetta et al., 2017).

The value in the Human Capital may be considered to be potential until it is materialized in the production process of the product/service through the activities of the firm (Dumay, 2016). Human capital is a critical resource of the organizations' intellectual capital that creates and delivers value while the recipients of the created value are customers. The process of value creation calls for an evaluation of two aspects.

On one hand is the organization with staff and customers while on the other hand is the object which is the product. It is presumed that the client gives a judgment on the value and therefore this means the firm must learn to look outside. (Bourguignon, 2015). In the service sector, it is the rate of sale that makes human resources throughout the production process ultimately monetized and therefore quantifiable. Similar sentiments are held by intellectual capital theory in which the human capital is viewed as unique, inimitable and worthwhile in the value creation and delivery process (Kaveh and Bontis, 2018). The production would then be different (unique, inimitable) from those of competitors, and therefore this becomes the basis and ground of attraction to customers. The value in this sense is created through the income provided by the sale of the product.

Value may also be created through proper positioning, a good image, good reputation and customer loyalty (Porter, 2011). The use of knowledge in the firm relies heavily on expertise of its employees (Munjuri et al., 2015) and their continued presence in the business. Beneath the assets of that firm and archived knowledge of the business is an extremely volatile intangible asset that is the basis of the intellectual capital theory. The platform of value as agreed by Edvinsson, (2013) is located at the confluence of three resources: human capital, structural capital and relational capital. This is the ground of value that this notion holds true in the findings of studies which have opined positive significant contributions on the interaction of intellectual capital components to create value in the firm (Mutindi et al., 2013; Ramona, 2016). Therefore, we conclude by noting that value is not created by one of the components of intellectual capital but by their interaction, the basis of why firms should try to manage their interactions in order to convert intangible resourcefulness to value.

Intellectual capital provides the two types of value creation: The first type is the most direct and represents the cash flows that are quantifiable and verifiable while the second type is less direct held in the value/worth of the firm and which is intangible in nature. This study focused on the intangible and less direct valuation of intellectual capital as recommended from literature reviewed on the need for more research to focus on the intangible measures of intellectual capital. (Ramirez, Tejada & Manzaneque, 2016;

Priscila et al., 2014; Siboni & Sangiorgi, 2017). Findings from the study confirm the assertion that at the confluence of human capital, structural capital and relational capital, value is created in Universities that meets stakeholder's expectation. The value proposition was confirmed by the strong positive significant relationship between the predictor variables (human, structural and relational capital) and the independent variable, value creation. Moreover, at the interaction of human capital initiatives and structural capital initiatives with situational environment, an increase in regression coefficient indicated improved value creation.

2.3 Conceptual Framework

A conceptual framework includes descriptive categories systematically placed in a structure of explicit propositions, statements of relationships between two or more empirical properties to be accepted or rejected (Mugenda & Mugenda, 2008). The conceptual framework Figure 2.1 explores the relationship between independent variables and dependent variables. An independent variable is the presumed cause of variation in the dependent variable.

Dependent variable is the variable the researcher wishes to explain its variation in relation to independent variable. The conceptual framework of this study was based on the following independent variables: intellectual capital initiatives whose constructs included human capital initiatives, structural capital initiatives and relational capital initiatives. Human capital initiatives was classified on the basis of the following; Types of intelligence, Levels of intelligence and creativity. Structural capital initiatives was operationalized on the basis of collective organizational knowledge (Bisogno, Dumay, Rossi & Polcini, 2018).

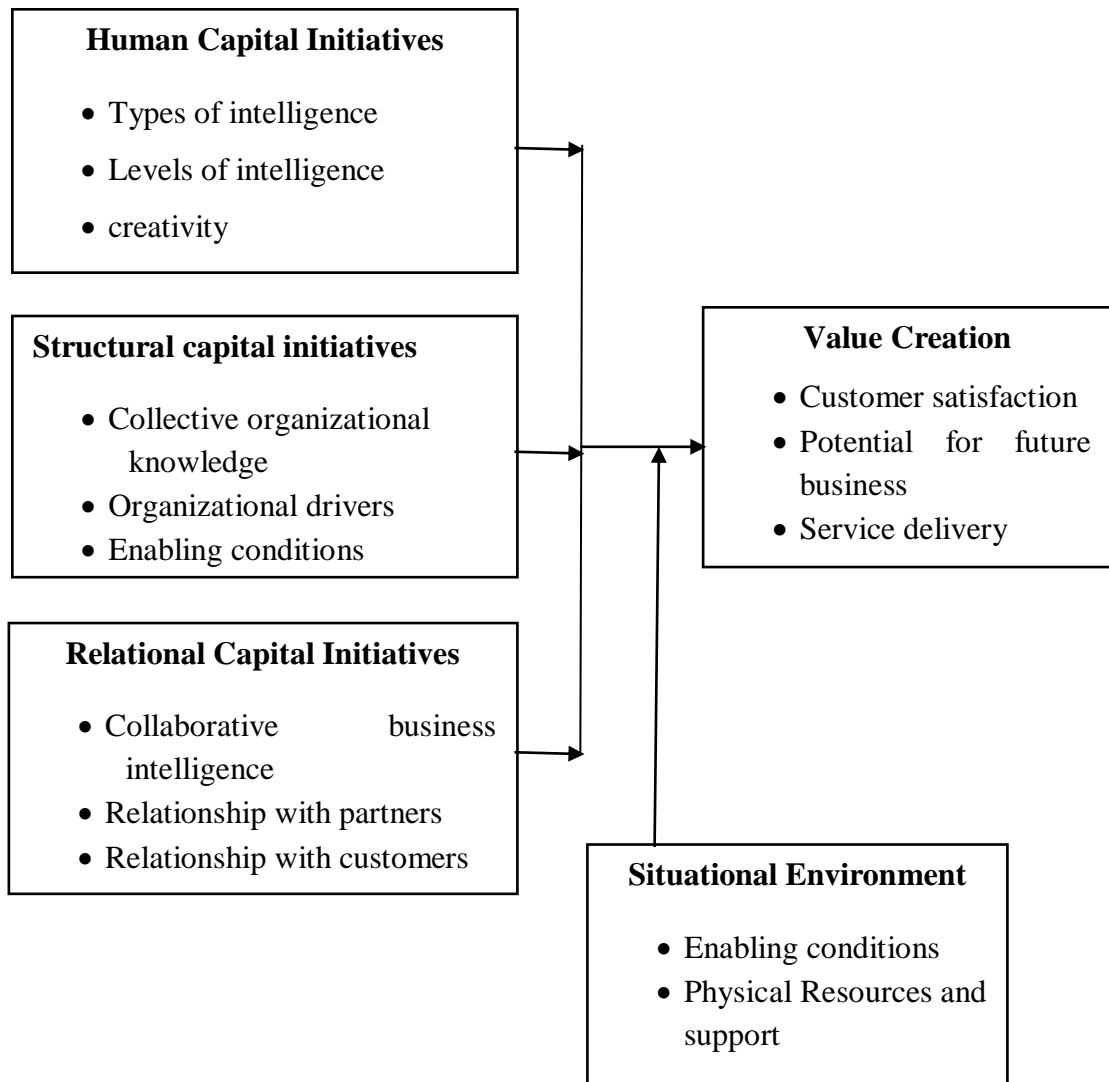
Organizational expectations and on the other hand, relational capital was operationalized as a composite of relationship with partners, suppliers and customers (Bezhani, 2010) as well as knowledge about partners, suppliers and customers (MERITUM, 2002). The conceptual framework is the researcher's own idea on how the

research problem was explored and is founded on theoretical framework. Essentially this conceptual framework posits that there is a significant influence of intellectual capital initiatives on value creation.

A positive significant relationship was identified between intellectual capital and business performance from previous studies (Deep & Narwal, 2013; Cabrita & Bontis, 2008; Ngari et al., 2014; Kharal et al., 2014; Kamukama & Tumwine, 2017). These are empirical studies conducted globally. Research findings indicated that human capital, structural capital and relational capital impact business performance. This study sought to explore the relationship between intellectual capital and value creation using qualitative measures.

This conceptual framework is developed in accordance with the literature reviewed. Cabrita and Bontis (2008) classification of intellectual capital is invaluable to the classification adopted in this research given that their studies were empirically tested. The model is extended and the sub constructs modified in line with the current research problem. The study not only includes situational environment as a moderator to examine whether there is any influence and the magnitude of its influence on value creation in public Universities but also uses qualitative measures to quantify value creation using a Likert type scale of measurement.

Based on this considerations. This study proposed the conceptual framework Figure 2.1 based on intellectual capital components as independent variables consisting of human capital initiatives, structural capital initiatives and relational capital initiatives with the dependent variable as value creation. The findings of this study are in agreement with those of Ngari et al. (2014) who found a positive correlation among intellectual capital constructs. Similar findings were noted by Ramirez,Tejada and Manzaneque (2016); Salman, Mansor and Babatunde, (2012); Ramona, (2016) who allude to positive significant contribution of intellectual capital constructs.



Independent variables

moderating variable

Dependent Variable

Figure 2.1: Conceptual Framework

2.3.1 Intellectual capital

The canonical model of evaluating intellectual capital is based on the tripartite structure (Andriansen, Madsen & Jensen, 2016; MERITUM, 2002; Ricceri, 2008; Bratianu, 2018). The model is composed of human capital, structural capital and relational capital. In an institution of higher learning such as a university, human capital refers to all the explicit and tacit knowledge skills and intelligence of professors, researchers as well as managerial staff and students (Bratianu, 2018). Structural capital refers to the knowledge embodied in the institutions' routines, systems, organizational structure, procedures as well as in the culture of the organization (Bejinaru, 2017). Relational capital refers to the knowledge interactions between the university and its environment (Ricceri, 2008).

Researchers have developed different systems of quantitatively and qualitatively developing indicators for measuring and reporting intellectual capital. Dumay (2016) shows that the use of frameworks is a valid approach to a new field of study and is also in line with an industrial approach, viewing intellectual capital as assets that should be identified, measured and controlled. Cabrita and Vidma (2012) identify some of the limitations associated with the canonical model for intellectual capital as attempting to treat intangible assets as if they were tangible by mentioning the accounting view, the cause and effect relationship as well as the relative static approach. Edvinsson (2013) puts emphasis that too much focus on metrics and measurements means that there is not enough focus on the real strategy process.

Against this backdrop, Dumay (2016) posits that we need to abandon reporting and concentrate on how organizations disclose with a keen interest on the strategy process. Bratianu (2018) notes that Universities are knowledge intensive organizations with processes that differ from those in industrial organizations. He generalizes that teaching, learning, knowledge generation through research and knowledge transfer are non linear processes that may not be adequately evaluated and reported with accuracy and precision. He suggests a need to identify new approaches of understanding and measuring knowledge processing as well as intellectual capital dynamics in universities.

Evidence from literature reviewed reveals that intellectual capital has proved to be a source of competitive advantage for organizations. This study focussed on the third world country, Kenya. The concepts of intellectual capital as at the collection of data in this study had not been deliberately instituted and practiced in the public sector which include public universities in comparison to much of the research having been done in the developed and developing countries.

Tollington (2012) observes the following with regard to the practice of intellectual capital based on his literature review for a period of six years in the industry. There was no universally accepted definition for intellectual capital and that the cause and effect relationship between intellectual capital and value creation is, at best, indirect. He further notes that the methods of measuring intellectual capital are increasing in number. However, there is no universal approach that is a widely accepted method to measure the components of intellectual capital.

In addition, there is no well-organized body of knowledge in an accepted structured that converges the acceptable practice of intellectual capital. In addition, there are divergent definitions of the concept of intellectual capital. Ulrich argues that intellectual capital may be equated to competence multiplied by commitment as cited in (Bontis & Fizenz, 2012). On the other hand, Rastogi as cited in (Edvinsson, 2013) views intellectual capital as a firm's holistic capacity to meet the challenges and exploit opportunities in its continual support of and search for value creation.

Intellectual capital may also be seen as the future earning potential derived from combination of human capital and the potential of an organization's people. Other scholars attribute intellectual capital from the resource based view of the firm. In this theory, intellectual capital is an asset that has value in the current time dimension. In this instance, knowledge and skills are regarded as valuable, rare, inimitable and non-substitutable as agreed by Siboni and Sangiorgi, (2017).

From the foregoing, Stewart as cited in (Edvinsson, 2013) notes that intellectual capital may be viewed as an input into the value creation process, a value creation process in itself or a tangible output from the firm's value creation processes. Intellectual capital may be summed up as the set of knowledge, information, intellectual property and expertise which can be used for the purposes of creating wealth. The study findings serve to provide a basis for further engagements and discussions among the policy makers and implementers on the need to infuse the practice of intellectual capital in organizations given the high influence of its interactions on value creation in universities in Kenya.

2.3.2 Human capital

The transition towards a knowledge-based society brought with it the importance of the people as the key strategic resource that would manipulate and utilize resources in novel ways that generate and add value and leverage performance. Ingrained in employees are a summation of abilities, skills and attitudes. In addition, the individual's commitment, experiences and educational qualifications sum up to deliver the gargantuan competitive advantage that delivers the strategic goals of a firm. The valued resource, human capital is anticipated to add value to the organization by acting in ways which are economically valuable (Shih, Chang & Lin, 2010; Bontis & Fizenz, 2012).

Human capital brings with it the criterion of competency and creativity possessed by employees and uniquely structured to allow for identification and exploitation of opportunities as well as to help resolve organizational problems. (Di Bernardino Corsi, 2018). Human capital also engages in the creation of organizational knowledge both individually and collectively (Nonaka & Von Krogh, 2009). An organization does not own its human capital but rather that the organization leases its human capital with its associated knowledge, skills and experiences in combination with other resources to meet its value deliverables. Factors that influence the quality of human capital include but not limited to recruitment and engagement practices (Mukhwana et al., 2016), training and development opportunities (Andriansen, Madsen & Jensen, 2016).

The work environment (Barney, 2012) as well as work life balance practices and individual and organizational characteristics (Chung-Jen, Huang & Hsiao, 2010). It may therefore be concluded that the economic value of human capital is dependent not only on how the organization utilizes human capital but also how it develops it (Nzuve, 2012). In order to survive in a highly competitive environment, organizations have sort to benchmark their focus on the key strategic resource, human capital by increasingly investing in activities and processes that bring out the best in its human capital.

Human capital development may be enhanced through education, on-the-job training, medical care, and well-being as suggested in Armstrong (2010). Human capital is considered as the key component of intellectual capital and the most important factor of sustaining competitive advantage (Nzuve et al., 2010). Human capital is recognized not only as the primary pillar of economic wealth and competitiveness but also as one of the most valued resources in competitiveness, management consultation, and financial service industries. (Cabrita & Bontis 2008; Ahmadi, 2012).

In summary, human capital can be seen as the sum of all innovativeness, knowledge and creativity of the company. The word human in the capital refers to the individuals within the company (Kamath, 2015). Human capital consists of all the individual capabilities and abilities: these may include but not limited to know-how, training, knowledge, skills and competencies as well as abilities (Armstrong, 2010). In other terms, human capital is all the individual's abilities to perform, experiences, information, skills, and knowledge that the firm's managers and employees have.

The challenge with firms is that the human capital may not be owned by the firm, it belongs to employees (Hsu & Fang, 2009). The bond between the employees and firm can be strengthened by making certain contracts. Human capital at macro level indicates the sum of all components such as skills, creative abilities, innovative thinking, intuition, imagination, knowledge and experience possessed by all the people.

It has been noted from reviewed literature that an organization with abundant physical resources may sometimes fail miserably unless it has the right people, human resource to manage its affairs. The importance of human resource cannot be underestimated (Ramona, 2016). Therefore, it becomes important to pay attention on proper development of such an important resource of an organization. An audit of human resources would include assessment of the following factors: Existing staffing resources, numbers of staff ,skills and competency inventories, location, grade, experience, qualification and remuneration.(Armstrong, 2012).

In conducting a human resource audit, it may be necessary to assess existing rate of staff loss, overall standards, of training and specific training standards in key roles, as well as assessment of key intangibles. This may consist of a review of employee Morale as well as the business culture (Bontis, 2008; Bontis & Fizenz, 2012). It can therefore be said from the foregoing discussion that the success of an organization to a large extent depends on how best the scarce resources, more so the human capital are utilized by the firm in ways that assure continued growth and sustainability to the firm.

The efficient and effective utilization of a firm's resources depends largely on the quality of individuals as well as the , abilities, skills, perception and character of the human capital held by the organization. (Bontis & Cabrita, 2008). Another important aspect to consider is in answering the question of whether employees are assets or liabilities within the accounting balance sheets. Various studies have been conducted to answer this question. It has been observed that financial and physical resources are passive factors of production while human resources are active factors because they hold the capacity to mobilize the financial resources, exploit the available physical resources to support in the realization of the firm's intents (Ahangar, 2011).

Based on the above argument, human capital is viewed as the most important of all the organization's resources (Dumay, 2016). Kaveh & Bontis, 2018) consider the human capital as the intelligent resource of any organization and its proper development leads to the success deliverables of the organization's productivity efforts (Ghosh & Mondal, 2009). It is recognized that all activities of any enterprise are initiated and determined by the persons who make up that institution.

Other resources such as Plants, offices, buildings, machineries, computers, automated equipment, among others that a firm uses are unproductive until human effort is exercised (Kaveh & Bontis, 2018). It can be argued then that human capital harness the resourcefulness required, re-design these resources and fashion them to attain the objectives intended thereof. It is argued that human capital can modernize the technology employed, secure the capital needed and decide on how those resources are to be packaged and utilized (Venugopal & Subha, 2015; Stevo & Bontis, 2012).

Every aspect of firm's activities is determined by the competence, motivation and general effectiveness of its human capital as employed in the organization (Deep & Narwal, 2014). A considerable body of literature addresses intelligence from a variety of perspectives. Educators view intelligence as the ability to learn, (Kanyari & Namusonge, 2013), biologists as the ability to adapt to the environment, psychologists as the ability to deduce relationships and computer scientists as the ability to process information (Makela, 2007).

Armstrong, (2009) defined intelligence as the capacity to judge well, to reason well and to comprehend well. Polanyi (2012) builds on this traditional definition and adds two other components: practical problem-solving ability and the ability to motivate oneself to accomplish tasks. Individual intelligence can be defined as a person's information processing capability, so as to apply knowledge to solve problems in a particular domain. The importance of experience and learning in determining intelligence has been emphasized.

It is noted that individual intelligence reflects in a person's education, training, expertise and knowledge within a particular domain. It involves task-relevant domain intelligence (declarative knowledge) as well as flexible rules (procedural knowledge) that aid the development of new knowledge through recombination of existing knowledge with new information. Literature acknowledges that intelligence is necessary but not sufficient for creative work. (Chan, 2009). In his study, he identifies the individual characteristics and orientations including personality factors and intrinsic motivational factors as well as cognitive skills. These are identified as affecting creativity and in turn affecting value creation.

Intellectual capital may therefore be seen as a typically intermediate good that needs to be combined and packaged into goods and services to yield value (Chan, 2009). Theories that were propounded earlier based on the above studies do conclude that human resources are valued assets. However, human capital as assets, need to be accounted. This is in relation to the initiatives put forward by the organization in tapping these potentialities and to evaluate the extent to which the efforts generated contribute towards organizational value creation.

Literature has asserted the importance of human capital and other intellectual capital components as contributing to organizational performance. How this is realized in every unique organization and tapped into organizational systems and processes plays an important role (Bontis et al., 2008; Wang, 2011; Inkinen, 2015). Human capital includes such attributes as education and training, experience and expertise, capacity for innovation and team working, flexibility, attitude to change (Bontis & Keow, 2008).

Human capital can also be viewed as the combined skills, knowledge and innovativeness of employees, necessary to solve customer problems (Schiuma & Lero, 2010; Salman et al, 2012). It is also noted that employees generate intellectual capital through their competence, attitude and intellectual capacity to solve organizational problems. (Kianto, Andreeva & Pavlov, 2013). Human capital is also seen as a source of innovation and

strategic renewal, (Collin & Montgomery, 2008). He argues that the essence of human capital is the intelligence of the individual. However, intelligence of the individual, by itself, is of little value to the organization, as it needs to be combined with other forms of knowledge resources to create value. Human capital is argued as the hardest of the three dimensions of intellectual capital to codify due to its tacit element, (Glynn, Kazanjian, & Drazi, 2010). From the foregoing, it can be argued that human capital is more than competence and requires motivation as well direction in order to be focused to the course. Much of literature on human capital asserts that this behavioral aspect of 'attitude' is a personality trait that can be improved by company efforts such as a positive environment and organizational learning.

Learning both at the individual and organizational levels also improves the retention of learned experiences. (Venugopal & Subha, 2015). These learned experiences when institutionalized into systems and processes then create a culture and enabling conditions that generate value and organizational knowledge reserves that may not be replicated by competitors (Collin & Montgomery, 2008).

2.3.3 Relational Capital

Literature asserts that the influence of relational capital on firm performance is positive and significant with varying levels of relationship (Kianto, Andreeva & Pavlov, 2013). In comparison to other intellectual capital constructs, relational capital has been widely debated concerning its measurement and operationalization (Wen-Chih, Ming-Hsun & Cheng, 2017). Gilbert, Von and Broome (2017) cite three theoretical models on explaining the relational capital construct; the functional perspective, the network perspective as well as the multidimensional perspective.

The network perspective of relational capital as suggested by Bourdieu cited in (Gilbert et al., 2017) considers it as a resource embedded in relational networks in which individuals as organizational members are engaged.

The functional approach by Coleman and Putman views relational capital as a functional resource that enhances collaboration among individuals in the organization. Lastly, the multidimensional approach is a confluence of the functional and network perspective. The multi-dimensional approach synthesizes relational capital as a resource that is inherent in a network as well as a resource facilitating action among network members. From the foregoing, it is implied that when organizational members' network is expanded and trust built, members both individually and collectively share intellectual resources in ways that leverage productivity with ripple effects that outspan time frame.

It may therefore imply that relational capital consists of the networks of relationships, interpersonal trust, norms and sustainable relationships among individuals that facilitate knowledge transfer and exchange. Relational capital can be viewed as the long-term and stable relations established by the firm with its external stakeholders. The most important sources of relational capital is associated with customers, suppliers, business partners, shareholders and other stakeholders (Makela, 2007).

Organizational relationships may come in the form of licensing agreements, partnership arrangements, financial contracts, agreements on different forms of engagement among other associations. None of these associations on their own are complete. However, in combined efforts, they provide an integrated framework that allows organizations to realize their goals. These combination and recombination delivers improved results in the midst of scarce resources and unfavorable environments (Bowman & Ambrosini, 2007).

Relational capital can then be summarized as the long-term and stable relationships established by the company with its external stakeholders. Collaborative Business Intelligence: Collaborative partnerships between organizations exist to link entities that contribute their competencies to a temporary collaboration. Collaborative business intelligence may consist of partnerships such as joint ventures and strategic alliances. This become important for organizations to realize unprecedented growth as the combined effort leverages on resources and capabilities (Ngugi, 2012).

These new organizational forms offer opportunities for radical innovation and commercialization, through a variety of ways. Wang (2014) points out the importance of inter-organizational relationships and linkages to the development of profitable innovations. It can be argued that alliance relationships bring more perspectives, provoke problem solving efforts and breed new ideas. These relationships in turn enable access to the requisite resources, connections, intelligence and technologies that help realize the economic synergies among partner organizations.

Relationships with external stakeholders such as customers, suppliers and business partners are built through long-term exchanges of information, goods and services (Ngari, 2013). It follows then that a firm's innovative-capabilities rest in the way it structures its relationships among individuals, within and between groups and among organizations. Similarly, the theory of innovation put forward by Pennings and Harianto cited in (Chung-Jen et al., 2010) assume that innovation emerges from a firm's accumulated stock of skills and its history of networking.

The primary economic incentive to engage in alliance partnerships is to exploit resources complementarity (Deep & Narwal, 2013). The combined economic value of resources owned by two or more firms is greater than their economic value separately. Makela (2007) argues that it is important for firms to identify motivations for engaging in alliances and other forms of partnerships. These may not be limited to sharing of risks but far and widely to include establishing market linkages as well as leveraging on resources.

Makela (2007) further argues that Customers, suppliers and alliance relations can become strategic tools in the organization to help be tap ideas and insight (Ngari, 2013). Whereas human capital is viewed as consisting of all the individual capabilities and structural capital combined into the knowledge of the organization, relational capital is all the relationships between the organization and its stakeholders. (Ramona, 2016). Stakeholders comprise external stakeholders such as suppliers, shareholders, clients, and media and other stakeholders (Makela, 2007).

It is noteworthy that firm's innovativeness arises from the relationships between groups, staffs and the organizations (Hsu & Fang 2009, Ahmadi et al., 2012). Relational capital is also viewed as customer capital since relational capital is the result of firm's customer relationships. Firms can create customer capital by using the already existing knowledge and skills of the employees to provide better services (Ngari, 2014). The following elements have been identified from literature reviewed as parts of relational capital: Brands, customers, customer loyalty, backlog orders, distribution channels, business collaborations, licensing agreements, franchising agreements.

Relational capital helps to stimulate and mobilize the sharing consciousness among the partners (Carey et al., 2011). A more intimate social interaction can increase the depth, breadth, and efficiency of mutual knowledge exchange. In business relationships, trust and commitment can provide a strong link and help Cross-border knowledge sharing (Makela, 2007). With the increase in mutual trust among the members, the increased frequency of knowledge spreading among organizations can generate effective knowledge transmission rules to promote the transmission and sharing of knowledge. This may in turn make the enterprise gain competitive advantage that can be difficult to be copied by external competitors. (Barney, 2010).

A large number of knowledge resources are tacit knowledge, which is non-verbal, vague and deeply embedded in the organization. It is only under the premise of collaborative business intelligence that close cooperation's can be shared to produce the ripple effect on enhanced productivity. This cooperation among enterprises produces results in knowledge rents that are invaluable to the external customers and partners, (Bontis & keow, 2008).

It is argued from literature that the greater the intensity of the enterprise's investment in knowledge sharing regulation among the members of the enterprise, the greater the ability to create the value that leverages the firm. Members of the organization with high levels of social capital contribute to mission dedication and organize public welfares to influence knowledge sharing, (Chahal & Bakshi, 2014).

Based on the above arguments, it can be noted that relational capital is valuable, scarce, and difficult to imitate. In addition, relational capital can be used by firms to produce sustainable competitive advantage among partner organizations. Although one of the important partners in the development plan of a firm is effective resources, there needs to be cooperation. Tuli et al. (2010) contend that relational capital can be envisaged to help suppliers obtain buyers' information. Such cooperation will be more likely to cooperate with each other and with each other's advantage of resources in order to form complementary resources that achieves the goal of intended profits (Wang, 2011).

Based on the above literature, we make the following assumptions: Relational capital has a significant influence on value creation. Collaborative business intelligence will significantly influence value creation. Relationship with partners will significantly influence value creation in institutions. The relationship between a firm and the customer is an important asset for the organization. In addition, through the cooperation with customers, firms can obtain the customer's thoughts, experiences, that help to improve the value deliverables of an enterprise (Ramona, 2016).

It is also noteworthy that Collaboration among partners is the key pillar of the establishment of bilateral relations (Tuli et al., 2013). Trust referring to mutual loyalty and reliability of each other can reduce the probability of violating the formal contract (Wang et al., 2008). In relating with partners, it becomes possible to establish a stable and reliable relationship. In order to maintain this relationship, the two parties become willing to commit to the greatest efforts. Trust and commitment of the collaborating firms are important determinants of relational capital performance. The information provided by enterprises also plays an important role in the choice of relational governance to guide the engagement.

2.3.4 Structural Capital

Structural capital construct may be viewed from the perspective of institutionalized knowledge and codified experiences that are preserved within the cultural artefacts, routines, information systems, intellectual patents and procedures (Gilbert, Von & Broome, 2017). Structural capital is therefore a strategic asset that is intangible in nature. The key role played by organizational capital is in coordination, communication as well as taking action among individuals, groups and organizations. Structural capital refers to the formal procedures and processes of the organization providing the decision rule (Ambrosini & Bowman, 2009).

In light of this study, structural capital sub constructs are discussed as guided by the model presented by Grant (cited in Keow & Richardson, 2008). The key sub constructs include collective organizational knowledge, organizational expectations and enabling conditions. Glynn cited Wang (2008) refers to organizational intelligence as a higher order form of information processing capability. Organizational intelligence is also regarded as the collective and social outcome that the internal networks of relationships create.

Another aspect of organizational intelligence is the shared representations, interpretations and systems (Khan & Raushan, 2017). When defined within the context of organizational operations, structural capital may include human resource management policies, procedures and guides, labour management practices and compliance with labour laws (Gilbert, Von & Broome, 2017). The cultural dimension may be accounted for in relation to the systems and processes that serve the long term strategy of the firm (Collin & Montgomery, 2008).

Systems and processes may include but not limited to the vision, mission, objectives and strategic plan of the organization (Uwuigbe, 2013). In addition, the organizational culture as well as corporate social responsibility create sustainable business systems that leverage performance (Munjuri, K'Obonyo & Ogotu, 2015).

The knowledge dimension may be accounted for in relation to the processes through which knowledge is created, disseminated as well as preserved. This knowledge is made use of in form of copyrights, patents as well as investing in research and development (Ellinger, Yang, & Howton, 2011; Gilbert et al., 2017). It is opined that structural capital is the least flexible of the other constructs which include human and relational capital. A sophisticated approach defining the difference between human capital and structural capital is the ownership. Human capital is possessed by the employees, making its management relatively challenging, whereas structural capital is to a large extent controlled, owned and managed by the firm (Chung-Jen, Huang & Hsiao, 2010).

Structural capital includes all the intellectual property rights, infrastructural assets, software, hardware, databases, research and development activities, corporate culture and functions and everything else that supports the above mentioned employee's productiveness (Bontis et al., 2008). All organizational inputs which includes mechanisms, structures and all the physical resources is often related to structural capital (Chan, 2009). It has been argued that a firm which has strong systems and procedures can enable its workers to achieve their goals (Chung-Jen, Huang & Hsiao, 2010) in the firm. However, if a company does not have such powerful systems, it may not achieve its main target (Bontis et al., 2008).

Armstrong (2010) further-categorizes structural capital into intellectual property rights and infrastructure asset. Intellectual property rights include but are not limited to patents, copyrights, design rights, trade secrets and licenses and trademarks. Infrastructure assets may include but not limited to management philosophy, corporate culture, values and organizational strategies, systems and processes. The system also includes management processes, information and networking systems, and financial relations.

Structural capital is seen as the skeleton and glue that provides tools (management philosophy, processes, culture) for retaining, packaging and sharing of organizational knowledge (Chahal & Bakshi, 2014). In this context, structural capital and human capital are mutually exclusive yet interdependent. Without the supporting structure,

individuals have no ability to do anything with their ideas. Consequently, structural capital should be designed to maximize the potential of human capital given the appropriate structure. Structural capital provides the environment that supports individuals to invest their human capital to create and leverage to enhance the business performance (Chung-Jen, Huang & Hsiao, 2010).

2.3.5 Situational Environment

Situational environment may viewed in the context of an environment that describes the strengths and weaknesses of an organization that should be a concern and should be analyzed to determine the extent to which companies can accommodate the opportunities and threats originating from the environment (Markins & Steele, 2005). Analysis of the internal environment of the firm according to Glynn, Kazanjian and Drazi (2010) includes the resources, capabilities and competencies.

In the resource based view approach, the resources owned by the firm are much more important than the structure of the organization to obtain and maintain a competitive advantage. Further classification of resources of the firm is subdivided into three, namely, raw materials, financial resources, and facilities. Pearce and Robinsons' (2013) list of intangible assets is invaluable to the resources that are deemed necessary in this study. This may include but are not limited to reputation, moral company personnel, technical knowledge, patents, trademarks, and accumulated experience of the company as well as the capability of the organization, such as the ability and means to recombine assets, human resources, and production processes that convert inputs into outputs. Concepts and methods of analysis of the environment in relation to the determination of the organization's value are further mapped.

The mapping on contributions of the environment is based on management Principles as shown in the seven S model developed by McKenzie (Porter & Kramer, 2011). The model has been widely adopted and recognized on ability to identify value creating deliverables and linking to organizational performance. The model is based on the

theory that, for an organization to perform well, these seven elements need to be aligned and to be mutually reinforcing (waterman et al., 2008). We conclude by noting that whatever the type of environmental pressures placed on the firm, whether it entails restructuring, new processes, organizational merger, change of leadership or situational environmental analysis, this is conducted to analyze the strengths and weaknesses of the company. Value chain is applied to understand that the activities of an organization is an ongoing process in the value creation activities paid by the buyer of something created by the firm (Nassir, 2018).

Creating value by service providers is a key concept used in analyzing the competitive position of a firm. Concepts and methods of analysis on the situational environment are adopted from the resource-based view which gives emphasis on resource aspects, capabilities, and competencies (Penrose, 2018). Situational environment is justified empirically by some studies to affect the value chain and value creation process (Munjuri et al., 2014; Muraguri et al., 2016).

Universities have undergone unprecedented changes due to the rapid expansion of public universities to meet the growing need and demand for higher education. Given this scenario, the limited resources coupled with limited funding from the government strain service delivery efforts. Against this backdrop, the study sort to find out the extent to which situational environmental changes influenced value creation in public universities. The study also sort to determine whether situational environment as a moderating variable collectively on intellectual capital as well as on the individual constructs of intellectual capital influenced value creation.

2.3.6 Value Creation

Value can be created through continuous improvements in operational efficiency and effectiveness. This improvements require developing, implementing and managing processes. Organizations invest their scarce resources only if that improves their value creation capacity (Wanza, Ntale & Korir, 2017). Uwuigbe (2013) reminds that value

creation is done by individuals and that organizations can only try to apply this harnessed knowledge in their production. Organizations must, in this case, give incentives and show direction in order to be able to use their employees' competencies and skills base in value creation.

Grant as cited in Edvinsson (2013) notes that value can be created by combining multiple individuals' specialized knowledge and putting it into use, because no one is an expert on his own as cited in (Chan, 2009). In the Intellectual Capital Management Gathering of 1999 (MERITUM, 2002), member countries gave a list of values procured through intellectual capital to their firms, The following seven items were listed as constituting value procured through intellectual capital: Improving the reputation of the company on the market , Improved income products and services, Reducing business costs.

The institution must gain means necessary to protect innovation, gain easy access to technology by the company, gain consumer loyalty to the company as well as barriers to entry for potential competitors. Based on this list of values, it is noteworthy that the value of resources can be hard to define, because of their interconnected nature. This means, that different combinations of resources, or assets, have the potential to create different levels of value, or more value. Value is created when resources and capabilities are combined better than competitors (Kamath, 2015).

New knowledge can be integrated with existing knowledge, and more valuable knowledge created that way. It is proposed that the more knowledge is used, the more valuable it becomes. It is concluded that knowledge creates cumulative and increasing returns on value (Olayinka & Uwalomwa , 2011) .The knowledge based view of the firm sees knowledge as the primary source of value creation (Chan, 2009). Value is created and increasingly also explained by intellectual capital (Inkinen, 2015). The most important knowledge then becomes a strategic asset that is invaluable to the organization.

Based on the premise that the value of knowledge is space and time specific, it follows then that value depends on assumptions, judgments and objectives of the society or the environment (Muraguri et al., 2016). The ability to use knowledge in value creation processes is due to the absorptive capacity of an organization and its members (Porter & Kramer, 2011). According to the asset approach to managing intellectual capital, assets are seen as valuable Stocks.

It is recognized that the ability and capacity to develop and use these stocks is a flow that has the potential to create competitive advantage, (Kharal et al., 2014). Knowledge management has the potential to create value through opening up opportunities and by enabling the organization compete effectively. Leitner and Warden (2004) note that creativity, imagination, energy and passion represent the new competitive, value creating factors in business. These variables have not been addressed in this study but are part of intellectual capital.

To create value and competitiveness, more and more utilizing of human capital is required, because knowledge assets present the key drivers of value creation. (Shih, Chang & Lin, 2010). When these assets are managed properly, the effects are seen in organizational behavior and strategic planning, and in value creation dynamics. (Lerro et al., 2012). Intellectual capital is typically an intermediate good and needs to be combined and packaged into goods and services to yield value. Bowman and Ambroini, (2007) note that value is 'the ability of a thing to serve a purpose or cause an effect. Value depends on the interplay between personal needs and the usefulness and cost of items to satisfy those needs (Shillito & MarIe, 2007).

On a similar note, Bowman and Ambrosini (2008) define value by distinguishing between 'use value' and 'exchange value'. Use value refers to the specific qualities of the product perceived by customers in relation to their needs. Exchange value refers to the price of the product. Organizations strive to create value along many dimensions such as economic, physical, social, cognitive and political dimensions (Lerro et al., 2012).

Value is created for the organization when it provides goods and services to satisfy the needs and wants of customers (Onyekelu & Ubesie, 2016). The value of a product increases in direct proportion to its advantages over competitive products and decreases in proportion to its disadvantages. It follows then that the value of any product is a function of its performance and price, relative to other products. While a consumer may express the value of products in terms of the benefits and costs, a seller would express the value in terms of the return (income less costs) from items sold.

The return on sales promotes economic value, which is determined by the net present value of a stream of future benefits that ownership of an item brings to its owner (Lerro et al., 2012). Thus, the essence of value is the prospect of benefits. It is noted in knowledge management literature that the Intangible assets have no physical existence but are still of value to the organization. Typically, they cannot be valued accurately (Salman et al., 2012). As a consequence, managers run the risk of under estimating the value of knowledge resources and their contribution. At the same time, the inability to define knowledge makes it a valuable resource that cannot be imitated by competitors (Onyekelu, 2017). Knowledge exists at multiple - individual, group and organizational levels.

While an individual's knowledge is mobile, moving with the person, collective knowledge becomes embedded in the firm's routines, norms and culture. These knowledge is entrenched and shared through dialogue and interaction. (Kamath, 2015). It can be noted therefore that individuals not only draw upon their own factual knowledge, but they also draw upon the collective knowledge, thereby internalizing the embedded understandings of the organization (Bontis et al., 2012). Since collective knowledge is generated internally and remains in the firm, it gives rise to economic rents associated with the competitive advantage (Lerro et al, 2012).

In another study by Tuli et al. (2013), they found that innovation, in this case, value creation is positively associated with the level of cognitive resources. This implies that high cognitive skills results in knowledge creation and transfer to team members. Knowledge sharing across the diversity of team members' resulting in creative problem solving that breeds new innovations.

This study asserts that employees exhibit creativity by developing new knowledge, advancing technologies or making process improvements. Expertise which is endowed in the intelligence of individuals is the key foundation to creative work. Ahangar, (2011). In summary, Value depends on the interplay between personal needs and the usefulness and cost of items that can satisfy those needs. Market value is denoted by the intangible assets of the company such as employee expertise, strong market position, brand name as well as research and development activity (Curado & Bontis, 2007).

2.4 Empirical Literature Review

The empirical study in this research is designed to test propositions. The relationship between the Constructs and the possible indicators of these constructs were identified via a review of literature on value creation and intellectual capital. The area of intellectual capital has gained much interest from research given the empirical evidence that justifies its ability to not only create but deliver performance. A longitudinal study was carried out to examine how aspects of intellectual capital; human capital, organizational capital and Relational capital influence various innovative capabilities. In this longitudinal study of 93 companies where various industries were surveyed for a period of ten years using Least squares method, It was established that human capital, organizational capital and Relational capital and their inter relationships selectively influence incremental and radical innovative capabilities. (Subramanian & Youndt, 2005).

In another study using a questionnaire, a survey of Malaysian small and medium enterprises was done. This was in order to determine the relationship between intellectual capital, innovation and organizational performance. In the preliminary study, they found that human capital, contributes more to innovation and organizational performance than structural and relational capital. In the aforementioned study, every element of intellectual capital coefficient of efficiency had a positive and significant effect on the rate of return of shareholder's equity. They conclude that the higher the intellectual capital the companies have, the better the financial performance they realize (Chung-Jen, Huang & Hsiao, 2010).

In further research studies on intellectual capital, a sample of Asian banks for eight countries was surveyed to determine the key competitiveness drivers. They found that physical capital and human capital are the main factors that create value for the banks (Young et al., 2009). In another study, a survey was conducted on a sample of all companies of the Hang Seng stock exchange for the period 2001 to 2005. (Chan, 2009). Chan examined the relationship between the efficiency of the Intellectual Capital in the specific components that included Human capital, Structural capital and firm performance. Firm performance was measured on the basis of market valuation, return on assets, and return on equity and productivity measurement. The results of the analysis indicated that only structural capital has a significant and positive relationship with profitability measures (Return on Assets and Return on Equity).

In an investigation of the effectiveness of the Intellectual Capital and its performance in the financial sectors of Malaysia, Muhammad and Ismail (2009) used a database of 18 companies for the year 2007. They found that the banking sector was the most relaxed on the intellectual capital. Banking institutions were followed by companies in the insurance industry and brokerage. They also found that the intellectual capital has a positive relationship with firm performance (measured by profitability, Return on Assets).

In another study, an investigation of Intellectual capital disclosures was done by South African companies. Wagiciengo and Belal (2012) examined intellectual capital disclosures. The main purpose of their study was to examine the extent and nature of intellectual capital disclosures in twenty South African companies over a 5 years period (2002–2006).

The findings indicated that intellectual capital disclosures in South Africa had increased over the 5 years study period with certain firms reporting more than others. Out of the three broad categories of intellectual capital disclosures, human capital appeared to be the most popular category. This is consistent with the findings of these study that attributed a high contribution of human capital to value creation in public universities in Kenya. The finding stand in sharp contrast to the previous studies in other countries. Different industries and sectors have also reported contradicting results on the contributions of human capital to value creation.

Wang and Chang (2005) investigated the impact of intellectual capital on business performance with the use of Partial Least Squares method in the information technology companies in Taiwan. Findings indicated that innovation capital, process Capital and customer capital had a direct impact on business performance. Yet in another study in Malaysia, Ghose and Wu (2007) used both secondary and survey data to examine the effect of intellectual capital on firm value measured by market to book ratio and Tobin's Q model. Results indicated that intellectual capital explains the financial performance of the sampled companies.

The empirical evidence from Malaysia indicated that firms with higher intellectual capital tend to achieve higher performance levels. From the foregoing, it is evident that human capital is important regardless of industry type. Human capital has a greater influence on how a business should be structured while customer capital has a significant influence as well as structural capital. This study acknowledges that variations exist in the contributions of each construct of intellectual capital initiatives to value creation and performance.

Contributions to intellectual capital value generations are generally informed by the industry, environment, size of the organization, sector of the economy and the extent to which the organization relies on knowledge to drive capabilities. (Bontis et al., 2008; Muhammad & Ismail, 2009; Kaveh, 2018). There are other factors that may not be underestimated in their ability to shift the magnitude of measured constructs irrespective of industry.

In another study by Gilbert, Von and Broome (2017) they examined the explanatory power of Value Added Intellectual Capital and the companies' market value which was denoted by share prices. The relationship used data from 52 public finance companies from Bursa Malaysia. The study findings indicated that the correlation between VAI and share price is negative. In addition, regression analysis indicated that VAIC has no explanatory power in predicting market value.

Sharabati et al. (2010) conducted a survey on the pharmaceutical industry and observed that Jordanian pharmaceutical firms were managing intellectual capital successfully and that intellectual capital was influencing business performance in a positive manner. Wang (2008) studied the relationship between intellectual capital and market value of 500 publicly traded companies. These findings therefore confirm that intellectual capital has a strong impact on competitive advantage and market capitalization of the firm. The findings of the study also support the hypothesis that greater intellectual capital leads to higher value creation and growth of the companies. Physical capital and structural capital are the most influencing components to increase the future value creation potential of the firm.

From an African and national perspective, not much has been done in the area of intellectual capital. Few scholars have attempted to examine intellectual capital constructs. However, the studies reviewed were very instrumental in laying the literature foundations to understanding intellectual capital practices in Kenya. Much of the literature was however borrowed from Asia as well as Europe, America and Australia.

The relationship between intellectual capital and its interplay with performance of the firm as measured by different models stipulated in intellectual capital literature has not been much explored in Kenya. Ngari et al. (2014) examined the relationship between intellectual capital accounting and business performance among 31 firms in Nairobi, Kenya. The study focused on pharmaceutical firms. The findings indicated that intellectual capital accounting had a positive and significant relationship with business performance. Uadiale et al. (2011) focused on developing economies and on Nigeria specifically. Using a sample of thirty-two audited financial statements of quoted companies in Nigeria, the paper examined the impact of Intellectual Capital constructs on business performance measured with Return on Equity and Return on Assets. The results indicated that intellectual capital has a positive and significant relationship with the performance of business organizations.

In a study of West Africa to assess the relationship between intellectual capital of software firms and their performance Abdulai et al. (2012) used a model that was experimentally developed. This was validated through a field survey of 83 software companies in West Africa using the Partial Least Square method. The survey results indicated a significant relationship between the elements of intellectual capital and competitive capabilities of firms and between competitive capabilities and firm performance. Mixed results were found on the moderating effects of management commitment and transformational leadership.

A study was done by Munjuri, K'obonyo and Ogutu (2013) to establish the effect of human capital, social capital, employee empowerment and quality of decisions on the performance of commercial banks and insurance firms in Kenya. In their study, census survey was carried out on all the 43 licensed commercial banks and 45 insurance firms in Kenya. Hypotheses were tested using regression analysis and Pearson's Product Moment Correlation analysis. Study findings revealed that the influence of human capital on non-financial measures of firm performance was statistically significant. There was a positive and moderate relationship between human capital and quality of decisions. The influence of quality of decisions on non-financial measures of firm

performance was statistically significant. Social capital and employee empowerment do not moderate the influence of human capital on firm performance, but they both have a mediating effect.

In another study, the focus was on intellectual capital, corporate reputation, corporate culture and performance of firms listed on Nairobi Securities exchange (Kariuki, K'obonyo & Ogutu, 2014). The study used Fifty (50) companies listed on Nairobi Securities Exchange were studied. The study used cross-sectional survey design where data was collected at one point in time across all the organizations. The survey period covered four financial years from 2009 to 2012. Optimal scaling was used to test the financial measures of performance. The study found that there was significant relationship between intellectual capital and non-financial performance.

The findings also indicated that there was no significant relationship between intellectual capital and return on equity and Dividend Yield of firms listed on Nairobi Securities Exchange. It was found that corporate reputation mediates the relationship between intellectual capital and both non-financial performance and financial performance.

In a study on public organizations on Human capital management practices adopted by National Social Security Fund, Nzuve et al. (2012) sort to determine the extent to which Kenya National Security Fund (NSSF) had adopted the human capital management practices. The study used the case study design that was based on a target population of 98 management staff in the human resource and administration department. Both qualitative and quantitative analysis were used to analyze data. The study found that the national social security fund had implemented human capital management practices but to a negligible extent. Some of Human Capital Management practices at national social security fund included: enhancing the organization's capacity through staff training and development and setting of clear performance standard.

Nzuve and Bundi (2012) conducted a study to determine the relationship between human capital management practices and performance of Commercial Banks in Kenya. The researchers used a cross sectional survey design as well as a correlation research. The study concluded that most commercial banks had adopted human capital management practices to an average degree. The study further concludes that human capital management practices generally have a positive influence on performance as measured by both turnover growth and return on assets.

Olufemi (2009) conducted a study on human capital development practices and organizational effectiveness: focus on the contemporary Nigerian Banking Industry. The main purpose of the study was to gain a better understanding of the theoretical and empirical relationship between human capital development practices and some dimension on organizational effectiveness of Nigerian Banks particularly after the banking sector reforms of June 2004. Responses from survey were analyzed using descriptive statistics and Pearson product movement correlation. The study found that involvement in Human capital development practices are found to correlate positively with organizational effectiveness.

In another study, Njuguna et al. (2014) aimed to investigate Intellectual Capital and Financial Performance of Kenyan State Corporations. The study adopted a descriptive research design in the concept of intellectual capital and financial performance of Kenyan state corporations. The target population for the study was 192 parastatals. The study applied a census method. Multiple regression analysis technique was used to determine the effect of independent variables on the dependent variable. The findings of the study indicate that the Company culture which contains valuable practices of conducting business is the major benefit resulting from organizational intellectual capital. The findings also indicated that employees being very highly skilled in their jobs as the major way of human capital to improve the firm's performance.

Based on this study's literature reviewed, it can be concluded that institutions should adopt value added reporting using both financial and non-financial measures so as to establish the impact of intellectual capital on their business. The study concludes that institutions should continue investing in their structural capital, Human Capital and relational capital to improve their performance. The study further notes that the productivity of physical and financial assets of institutions can be enhanced by investment in human capital efficiency.

2.5 Critique of the existing literature

A considerable level of research in the developed countries has been done on the area of intellectual capital theory and practice. Intellectual capital has been correlated with performance in different forms of measures such as financial and non-financial measures. Recent studies point to the rising importance of not focusing on measurement and valuation of intellectual capital due to its negative usage as a punitive factor on organizational members. Rather, the emphasis is on non-quantifiable measures that contribute most to strategy and problem solving to advance and use knowledge for the benefit of the society.

Much interest has been with institutions that are knowledge intensive in different industries as well as in small and medium sized organizations. The studied subject of intellectual capital seems to be gaining more interest in the last five years in Kenya as evidenced in the literature review although more needs to be done to bridge the gap between corporate practice and application of intellectual capital model. It appears that the developed countries and the Asian developing countries have made a large contribution towards the development of intellectual capital literature. Intellectual capital has been quantified using a wide range of financial and statistical models. Few researchers have attempted these models as presented in local literature.

Data collection in Kenya also seems to be centered on Likert type of measures except for financial institutions unlike in Malaysia and other developing and developed nations where the use of corporate data over prolonged periods of time have been applied. Organizations world over realize the significance that intellectual capital plays in the growth and development of knowledge intensive organization's such as the service industry and technological firms. While the banking sector, insurance firms, pharmaceutical companies and small and medium sized organizations have been explored in relation to the contributions of their intellectual capital in Kenya.

The methodology in intellectual capital literature needs to be extended to other sectors of the economy to establish how these components interplay to exert performance. In addition, more research in Kenya needs to focus on all intellectual capital constructs to determine their interplay and impact of firm performance, value, productivity among other dependent variable constructs. Performance measurement tools applied by organizations as reviewed in literature base their evaluation on isolated intellectual capital elements and specifically human capital.

Accounting of intellectual capital in relation to corporate efficiency has not been widely researched and documented locally. These could be attributed to the different reporting procedures adopted by organizations that sometimes fail to provide sufficient information for intellectual capital accounting. There seems also to be limited knowledge on whether the intellectual capital components have been deliberately modelled by institutions in order to deliver expected performance outcomes.

Ngugi, Gakure and Kahiri (2013) in their study on intellectual capital and the growth of small and medium enterprises revealed a positive significant relationship between the variables. This is also in agreement with the research done by Ngari et al, 2013 on intellectual capital and performance. Research done in the area of intellectual capital has been based on independent Intellectual capital elements and not on how they interplay with one another.

This study attempts to evaluate how the intellectual capital elements interplay as a result of introducing a moderator. Much research has also been done in the western developed countries not only in the development and refinement of intellectual capital theory but also in practice of the principles and tenets of intellectual capital theory. Most of the literature reviewed comes from the developed economies where companies practice intellectual capital management. The essence of the literature was to establish the practice elsewhere in order to test whether this has been applied locally and if not to see if it can be replicated in Kenyan firms particularly the knowledge intensive organizations.

2.6 Research gaps

Evidence from empirical literature reviewed reveals that intellectual capital has proved to be a source of competitive advantage for organizations. Previous research has highlighted the importance of intellectual capital in organizational performance (Ngari, 2014), intellectual capital in growth of small and medium enterprises (Karanja, 2012), intellectual capital as an antecedent to employee performance (Kemboi, Kiprono & Keter, 2014), intellectual capital and performance measurement Kaveh et al. (2017) among others. Evidence presented in literature highlights that there is still limited understanding of the underlying mechanisms that link intellectual capital factors to organizational value creation and the interplay between the isolated intellectual capital factors in developing countries.

According to Ngari (2014), developing capabilities is not simply a matter of combining resources, but involves complex patterns of co-ordination between people and other resources. Improving and perfecting such co-ordination requires learning through repetition (Kanyari & Namusonge, 2013). Currently, the extent of use of intellectual capital constructs in assessing institutional contribution to meet strategic deliverables has not been much explored.

While it may seem that much research has been done in developed nations to establish approaches adopted in modeling intellectual capital management into practice, more needs to be done in developing nations to assure building of capabilities within the institution's framework, systems, processes, management practices, measurement and valuation. The existing research is concentrated on developed countries and the policies and frameworks derived from these countries may be suitable only in developed countries.

There is limited research on intellectual capital theory practice in developing nations like Kenya and particularly on the influence of intellectual capital initiatives and value creation. Given the growing concerns in strategic management theory on the need to align the universities' resources with its strategic direction, the study offers insights on how value is created and leveraged.

The extent of use of intellectual capital constructs in assessing university value creation needed to be further explored through research. This study provides a detailed analysis of the value creating potential of university intangibles. There is a call for further research to establish approaches adopted in modeling intellectual capital management within the institution's framework, systems, processes, management practices, measurement and valuation. Intellectual capital offers a solid and useful framework from which intellectual capital studies can begin to understand its influence on other business processes and productivity (Karanja, 2012).

This research study suggests that intellectual capital initiatives, when deliberately instituted and build into the firm's core competencies are likely to leverage value creation and this may extend beyond an organization and are inextricably linked with the organizations' situational environment. The study sort to extend intellectual capital model by examining the influence of intellectual capital initiatives on value creation and the moderating effect of situational environment on value creation in public universities in Kenya.

2.7 Summary of Reviewed Literature

The chapter started with adequately addressing foundations of intellectual capital theory and its subcomponents. Theoretical framework discussed the various theories including the intellectual capital theory, human capital theory, knowledge based view theory of the firm among others and these theories were linked to the constructs under study. The study adequately addressed the review of empirical literature relevant to intellectual capital and value creation.

The relationships between independent variables and dependent variables are shown. Studies carried out on this area assert that intellectual capital is a strategic resource and therefore, it is of great importance. Based on the independent variables (intellectual capital elements) whose components include human capital, structural capital and relational capital, the research sub variables were categorized as follows: Human capital was examined on the basis of Types of intelligence, Levels of intelligence and creativity.

Structural capital was evaluated on the basis collective organizational knowledge and Organizational expectations. Lastly, relational capital was examined on the premise of relationship with partners in the context of knowledge about partners, suppliers and customers. Collective business intelligence was considered important for the study in determining the links between the individual elements of intellectual capital. Value creation was examined on the basis of customer satisfaction, potential for future business as well as revenue generation.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter sets out the research methodology adopted in the study. This ensues with the research design, target population, sampling frame, sample size and technique. Data collection instrument is then presented followed by data collection procedure, piloting and finally an introduction of the data analysis and presentation is given.

3.2 Research Design

A survey design was adopted in this study, incorporating a quantitative approach. This design enabled a deeper understanding and appreciation of phenomena under study using both quantitative data and descriptive presentation. The survey design with quantitative approach is consistent with other research approaches adopted in the area of intellectual capital (Bratianu, 2018 ; Dumay, 2016). The approach enabled the researcher to conduct a detailed analysis of the context, process and interaction of phenomena provided by the representative University management. The strength of descriptive research provided the basis for accurate description of observations (Sekeran & Bougie 2010; Wang, 2011).

Survey design ensured administration of questionnaires to a widely and sparsely distributed population of management staff across the universities. This enabled the researcher to ensure equal representation across the sampled institutions within the resource constraints of the study. The design satisfies the tenets of descriptive qualitative analysis, namely, data manipulation, transformation, understanding, describing, deducing and explaining phenomenon of interest. Studies that have been undertaken in this area of research justify the use of this research design (Ngari et al., 2014; Munjuri et al., 2014; Nteere et al., 2014).

3.3 Target Population

The target population in this study consisted of all public and private universities operating in Kenya. According to CUE (2016), there were 67 universities in Kenya as at January 2016 (Appendix 1.). Universities were chosen because they are knowledge intensive institutions (Bisogno et al., 2018) that are charged by the government to create and disseminate knowledge for the development of the country. The Table 3.1 indicates all the universities in Kenya at the time of data collection by their category. The Kenyan government spend about 20.4% of its gross domestic product on education in the financial year 2016/2017 and therefore it was clear that the education sector marked a considerable contribution to the social economic development of its citizenry (International Budget Partnerships, 2016/2017).

Table 3.1: Distribution of Universities in Kenya

Category	Status	Frequency	Percentage
Public chartered Universities	Public	22	32.8
Public Universities Constituent Colleges	Public	9	13.4
Private Chartered Universities	Private	17	25.4
Private Universities Constituent Colleges	Private	5	7.5
Institutions with Letter of Interim Authority	Others	13	19.4
Registered Universities	Others	1	1.5
TOTAL		67	100

Source: Commission of University Education (2016) Report.

3.4 Sampling Frame

Sample frame is a list that includes every member of the population from which a sample is to be taken. For the purpose of this study the sample frame was purposive in nature in order to identify the elements that would contribute most to the objectivity of the research instruments applied. Seven public universities which were established before the year 2010 were chosen from the sample. Research done in this area of intellectual capital have used relatively small sample frames such as Ngari (2012) with a sample size of 31.

In consideration of the thirty three chartered universities, the seven were chosen based on the following assumption. Given the considerable period of existence this institutions have established themselves and instituted the systems and traditions necessarily to sustain their value creating deliverables. The seven public universities included Nairobi University, Kenyatta University, Egerton University, Moi University, Maseno University, Jomo Kenyatta University of agriculture and technology and Masinde Muliro University of science and technology. Universities were chosen as a unit of analysis because they are knowledge intensive firms as indicated by Kaveh et al. (2018). Furthermore, these institutions are charged with research and development that requires knowledge resourcefulness through innovation to contribute towards the millennium development goals and Kenya Vision 2030.

3.5 Sample size and sampling technique

Sampling is done to some elements of a population so that conclusions about the entire population can be drawn. The ultimate evidence of a good sample design is how well it represents the characteristics of the population it purposes to (Kothari, 2004).

3.5.1 Sample Size

The entire target population constituted 33 public universities out of which 7 public universities were chosen purposively. The choice was based on the premise that these institutions were preferentially more established (Boit & Kipkoech, 2012). The sampled universities were presumed to have instituted the systems, processes, culture, relations and intellectual properties and rights necessarily to sustain their value creating deliverables. Furthermore, these institutions were chosen on the premise that they had existed for a longer period (established before the year 2010) and were assumed to be endowed with the necessary human capital resourcefulness. The other 28 public Universities were not sampled given the shorter period of their existence (established after the year 2010). The institutions were found to have an environment both internally and externally that was different from more established institutions in relation to infrastructure and growth demands that would have impacted on the findings relating to structural capital as well as human capital and relational capital that had not been owned by the institutions for long enough to determine their interplay and influence on value creation in those institutions.

It was also hypothesized that the social or relational capital of these institutions was not fully developed to match the institutions that had long existed. Purposive sampling technique was used to obtain information from the 7 public universities in Kenya. Purposive sampling is confined to specific types of people who can provide the desired information, either because they are the only ones who have it or conform to some criteria set by the researcher (Sekaran, 2003). The deans of schools in the public universities together with the chairpersons of departments were sampled. The chosen academic staff who also serve in the managerial team as heads of departments playing supervisory roles were chosen due to their vast knowledge, experience and hands on supervision of academic staff in their areas of jurisdiction. The chosen sample were also privileged to be in direct interaction with those charged with creating and disseminating knowledge and its associated innovations.

There were a total of 480 Deans and Chairpersons of departments at the timing of data collection across the six public universities sampled. The following data in table 3.2 was obtained from the commission of university education report, 2016.

Table 3.2: Distribution of Sample Size

Institution	Faculties/ schools	Departments	Total
Jomo Kenyatta University	19	52	71
Of Agriculture &Technology			
Kenyatta University.	19	72	91
University of Nairobi.	42	77	119
Maseno University.	14	25	39
Moi University	18	56	74
Egerton University.	16	35	51
Masinde Muliro university of science & technology	13	22	35
Total	141	339	480

Source: Commission of University Education, 2016 report.

3.5.2 Sampling Technique

Judgmental sampling which is a subset of purposive sampling was used to target deans of schools and chairpersons of departments offering academic programmes. The acting chairpersons and deans were considered where the office holders were not present to respond to the questionnaires.

The study adopted a sample size of 30% because for descriptive design, a minimum of 10% is recommended of the accessible population (Kasomo, 2006). This translated to a total of 144 respondents who were drawn randomly from the pool of 480. Random sampling was adopted due to the technical and logistical complexity of the studied

sample that may not have been confined to be accessed when needed. In addition, the internal dynamics of individual institutions played a role in the sample. Factors outside the researchers' control institutional programmes that could not be disrupted among other factors demanded of the study to work with those units that were available at the time of data collection. Table 3.3 provides the representative sample of the population in the study.

Table 3.3: Representative Sample

Institution	Total number	Total
	Of Deans/ Chairpersons	Representative sample (X/480*144)
Jomo Kenyatta University of Agriculture Technology	71	21
Kenyatta University.	91	27
University of Nairobi	119	36
Maseno University	39	12
Moi University	74	22
Egerton University	51	15
Masinde Muliro university of science &Technology	35	11
TOTAL	480	144

3.6 Data collection instruments

The study employed a detailed research questionnaire with Likert type of questions for data collection.

3.6.1 Primary Data

Primary data was collected by use of a questionnaire that captured the various variables of the study. The structured questionnaires are recommended because they help the respondents to respond more easily and help the researcher to accumulate and summarize responses more efficiently (William, 2006). The questionnaire was designed to address specific objectives, and testing of hypothesis (Mugenda & Mugenda, 2002). A questionnaire having the Likert type of questions on a scale of one to five was used.

The form of Likert scale anchored by a five point rating ranging from strongly disagrees to strongly agree were modified from (Ghasemi and Zahediasl, 2012). Many studies done in the area of intellectual capital have used Likert scale since they are perceptual measures and also the data obtained was ordinal in nature (Sharabati et al., 2010; Bontis et al., 2003; Sakari, 2011). Given that intangible assets are difficult to measure objectively it was common to find the use of perceptual measures.

3.7 Data Collection Procedure

Cooper and Schindler, (2006) recommend the use of questionnaire in descriptive studies because of the following; Self-administered surveys typically cost less than personal interviews and enable sample accessibility.

The researcher was able to contact participants who were inaccessible and careful consideration was made where the participants took long to ensure that the responses were made in time. The study used self-administered questionnaire. Intellectual capital and value creation questionnaire was structured into three elements human capital, structural capital and relational capital. The subsets of the dependent variable were also measured qualitatively.

The test items in the independent variables consisted of human capital, structural capital and relational capital. Each sub construct was operationalized with a set of items that measured employee perception of that variable. The researcher obtained an introduction

letter as well as Permission letters from the six public universities as well as from the National commission of science and technology to collect data. One of the institutions, namely Kenyatta University declined to cooperate in the data collection process citing processes that needed to be fulfilled outside the researchers' mandate. The institution was therefore excluded from the sample. The researcher then proceeded to collect data using drop and pick method. The respondents were given a maximum of a ten working days after which the questionnaires were collected.

However, the period for data collection was extended where the respondents were not available given that some Institutions were busy with activities that may not have been anticipated in the research. In addition, strikes both by students in some institutions and lecturers demanded the study to adjust the data collection schedule based on situational circumstances of each institution. The self-administered questionnaires were appropriate considering the length of the questionnaire, the availability of the respondents and the geographical dispersion of the sample selected. Collecting data through multi methods and from multiple sources lends rigor to the research (Kothari, 2004).

3.8 Pilot Test

One university whose findings were not included in the actual study was selected for piloting. This was Kabarak University which was equally well established with a wide range of programmes and had long existed before the year 2010. The institution was presumed to have similar homogeneous characteristics in their intellectual capital constructs. The institution offered a wide range of programmes and was guided by the same laws, regulations, structures, and management principles of universities.

The suitability of the questionnaire for this study was tested by administering it on the representative sample. Reliability and validity tests were done and the data was found to meet the threshold for further statistical analysis. The Cronbach's alpha results were ranging between 0.697 and 0.805 and therefore the constructs were accepted as being reliable and consistent. Cronbach's alpha is the most commonly used coefficient of

internal consistency. Piloting enabled the researcher to ascertain the validity and reliability of the instrument.

3.8.1 Reliability test

The reliability of the questionnaire assessed using Cronbach's alpha. The researcher used the software package for social sciences (SPSS version 20.0) to run the plot data and to determine the Cronbach's alpha value.

Cronbach's α is defined as

$$\alpha = \frac{N}{N - 1} \left(1 - \frac{\sum_{i=1}^N \sigma_{Y_i}^2}{\sigma_X^2} \right)$$

Where N is the number of components (items or test items), σ_X^2 is the variance of the observed total test scores, and $\sigma_{Y_i}^2$ is the variance of component i . It is tedious to calculate the correlation of each item with every other item to derive the mean inter-item correlation. This was done using the computer packages in statistics (Mugenda & Mugenda, 2008; Sekaran, 2008). The questionnaire was therefore considered reliable because the value was greater than 0.70. The questionnaire was then refined on the basis of the responses and the items which required revision were reviewed to make them more meaningful before the actual collection of data. The revised items that were used to collect data are included in the appendices.

3.8.2 Validity test

Validity is the extent to which a scale or set of measures accurately represents the concept of interest. For validity tests, factor analysis was used to reveal whether the dimensions were indeed tapped by the elements being measured. The use of principal component analysis in the diagnostic measures to determine the factor loadings that had the most contribution was valuable to avoid redundancy of data. In regard to the

questionnaire used in this study, it was constructed in close consultation with the university supervisors and other experts.

3.8.3 Diagnostic tests

Bartlett's test of Sphericity was used to determine the internal consistency of the items used in the structure questionnaire. Furthermore, the Kaiser Meyer Olkin measure was used to test for sampling adequacy. Normality test as well as linearity tests, multicollinearity and heteroscedasticity tests were performed as presented in chapter four to determine the suitability of the data for further statistical analysis.

3.9 Data Analysis and presentation

Data was analyzed using Statistical Package for Social Sciences (SPSS) version 20.0. All the questionnaires received were referenced and items in the questionnaire coded. This was done to facilitate data entry and data cleaning which entailed checking for errors in entry. Descriptive statistics and frequencies were estimated for all variables. Data analysis was guided by the research objectives stated. Data was collected using a questionnaire, and secondary data was obtained from journals and other publications. Handling of blank responses, coding, categorizing and creation of a data file was undertaken. The outcome of descriptive analysis procedure was presented in form of frequency tables, means, standard deviations and percentages. Descriptive statistics were used because they enable the study to meaningfully describe distribution of scores or measurements (Mugenda & Mugenda, 2003). Descriptive statistics provided the basic features of data collected. Descriptive statistics provided an impetus for further analysis on the data. Variable aggregation to come up with indices for different variables was undertaken to facilitate further statistical analysis. The mean, standard deviation and variance on the dependent and independent variables were used to show how clustered or dispersed the variables were from the mean. The Principal Component Analysis procedure was carried out to reduce the number of factors by extracting factors/items that significantly contributed to the variables.

First the correlation analysis matrix was obtained for all the factors and checked for chances of multi collinearity. Principle component analysis was done and those factors that had loading less than 0.5 were excluded from further analysis. A general rule of thumb for acceptable component loading is 0.40 or above (David et al., 2010). The component matrix was obtained and rotated and ranking done from the highest value to the lowest factor loading. The inter-correlation between variables was examined. The variables that had a correlation of less than 0.2 were excluded before the factor analysis was run.

The correlation between variables was checked using a correlation procedure from SPSS to create a correlation matrix of all variables. This was done to eliminate any variable that did not correlate with any other variables or correlated very highly with other variables ($R < 0.9$). This was done to detect multi collinearity (Sekaran, 2003). Regression and correlations analysis as well as analysis of variance was performed to establish the relationship between the different types of capital.

For validity tests, factor analysis was used to reveal whether the dimensions are indeed tapped by the items in the measures. The use of principal component analysis in the diagnostic measures to determine the factor loadings that had the most contribution was valuable to avoid redundancy of data. Finally the hypotheses were tested. Sekaran, (2008) and Kothari (2004) advocate for this procedure of data analysis. Pearson correlation coefficient was used to test the relationship between independent and dependent variables. The Pearson correlation coefficient is a measure of how closely related two variables are, both of which must be measured at the interval/ratio level.

This relationship is assumed to be linear, and the correlation is a measure of how tightly clustered data points are about a correlation line. Correlation ranges from -1.0 (perfect negative relationship) to 1.0 (perfect positive relationship) (Olayinka & Uwalomwa, 2011).

The correlation coefficients were calculated to determine the strength of the relationship between independent and dependent variable. Multiple regression analysis was then calculated to indicate whether the individual hypothesis were statistically supported or not (Orodho & Kombo, 2002). Analysis of variance (ANOVA) test was used to study the amount of variation within each of the sample relative to the amount of variation between samples. Analysis of variance was used because it makes use of the F-test in terms of sums of squares effects over sums of squares residual (Mugenda, 2008).

The study assumed a 95% confidence level while testing the three hypotheses and studies have shown that f- tests yield better coefficients at 95% confidence interval (Mugenda & Mugenda, 2008). Data was then presented using statistical techniques, graphical techniques and a combination of both to indicate the results of the analysis and also for better conclusions. Based on the objectives of this research study, the respective relationships among the constructs, both dependent variable and the independent variables were determined.

Multiple linear regression analysis was performed on the first general model between predictor variables and the dependent variable. Many of the studies done in the area of intellectual capital advocate for the use of multiple linear regression models (Sharabati, et al., 2010). The moderating effect of situational environment on the constructs was also determined as presented in the second model.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

Where:

Y = Organizational Value Creation

$\beta_0, \beta_1, \beta_2, \text{ \& } \beta_3$ = Regression Coefficients to be Estimated.

ε = Error Term.

Model indicating the moderating effect of situational environment

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 Z + \varepsilon$$

X_1 = Human Capital

X_2 = Structural Capital

X_3 = Relational Capital

Z = situational environment

ε = Error Term

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSIONS

4.1 Introduction

The chapter begins by presenting the findings of the study both qualitatively and quantitatively. It then discusses the findings of the study and draws deductions from every finding to other reviewed literature. The study sample comprised of 144 deans of schools and Chairpersons of department in the public universities that were chartered before the year 2010. These institutions were considered to be well established in delivering to the expectations of the charter awarded by the government. Having existed for long (before the year 2010), it was worthwhile to consider conducting a research to establish the extent to which these institutions had ingrained intellectual capital initiatives in their programmes and systems to create and add value to the society at large. These institutions were privy to value creation as influence by intellectual capital initiatives since the nature of their knowledge application was intellectual.

4.2 Response Rate

The study administered 144 questionnaires. A total of 90 questionnaires were properly filled and returned. This represented an overall response rate of 62.5%. However the remaining questionnaires were not returned or were not properly filled and were therefore excluded from data entry. This represented 37.5% of the sampled population. The response rate was considered adequate for further statistical analysis because it was over 60%.

The 60% threshold is recommended and indicated as good given the diversity and wide dispersion of the respondents that made it difficult for them to be pooled together (Ahmadi et al., 2012 ;Mugenda & Mugenda, 2008). The questionnaires were administered to the chair persons of academic departments as well as academic deans of schools by physically dropping the questionnaires to them which were picked later after

one week although the period had to be adjusted to allow for those who were not available to hand in the filled questionnaires. This was to give adequate time for respondents to answer given that the items in the research tool were lengthy. These targeted respondents were chosen because of their high level of proficiency in the subject-matter as well as their hands-on experience with the academic staff whose work is intellectual in nature.

The questionnaire was administered to University academic staff with the chair persons of departments and deans chosen purposively. This was informed by their varied knowledgeable and experience with directly getting involved in the administrative processes and procedures of universities as well as their supervisory roles over the academic staff in universities. Moreover, they are among other senior university management, the persons that appraise the extent to which strategic objectives of the institution are being realized. . An assessment of the situational environment at the departmental and faculty level enabled the study to gain insight on how intellectual capital variables interact.

4.3 Reliability Findings

Reliability of a measure is an indication of the stability and consistency with which the instrument measures the concept and helps to assess the goodness of a measure. the findings on reliability tests are provided in Table 4.1 using Cronbach's alpha test.

Table 4.1: Cronbach's alpha

Construct/ variable	No. of Items	Cronbach's Alpha of Sub-construct	Overall Cronbach's alpha of Variable
Human capital	19		.798
Types of intelligence	8	.741	
Levels of intelligence	6	.751	
Creativity	5	.877	
Structural capital	20		.904
Organizational expectations	5	.768	
Collective organizational knowledge	5	.837	
Enabling conditions	10	.758	
Relational capital	25		.853
Relationship with partners	6	.843	
Collaborative business intelligence	9	.823	
Relationship with customers	10	.841	
Situational environment	7		.776
Value creation	15		.833
Customer satisfaction & loyalty	7	.799	
Potential for future business	8	.852	

Table 4.1 presents the findings for reliability test. In this study, Cronbach's alpha which is a reliability coefficient was used to indicate how well the items in the set are correlated to each other. From the findings, the value obtained for human capital variable was .798 with its sub constructs;

Types of intelligence which had 8 test items had a Cronbach's alpha reliability coefficient value .741, levels of intelligence scored a reliability coefficient of .757 and creativity had a score of .877. The overall reliability coefficient for human capital was .798. The reliability coefficients for all variables were above .70 which is acceptable and

this gave an indication of internal consistency for the questionnaire. In relation to the second variable, structural capital, the overall Cronbach's alpha value was .904. The sub constructs; organizational expectations scored .768 collective organizational knowledge scored .837 and enabling conditions scored .758.

On the variable relational capital, the overall score was .853. The sub variables for relational capital were rated as follows; relationship with partners had a score of .843, collaborative business intelligence scored .823 while relationship with customers scored .841. The Cronbach's alpha value for situational environment was .776 while the overall alpha value for value creation was .833 with customer satisfaction scoring .829 while potential for future business scored .854. All the variables and sub constructs met the minimum requirement for reliability scores and therefore the tests were concluded to be reliable and to be internally consistent. These reliable measures therefore meant that the data was suitable for further statistical analysis. (Corder & Foreman, 2014).

4.4 Validity test analysis

Validity is the extent to which a scale or set of measures accurately represents the concept of interest. Daoud (2017) indicates that validity may be established by use of factor analysis. Factor analysis and specifically principal component analysis is used to identify constructs that had the most contribution as shown in the sections that follow.

4.4.1 Factor Analysis of Independent and Dependent Variables

After reliability analysis was done and a confirmation was made that the three independent variables, moderating variable and the dependent variable were accepted for further analysis. Factor analysis was applied. Factor analysis was done to ascertain the suitability of all the variables.

First the correlation analysis matrix was obtained for all the factors and checked for chances of multi collinearity. The factors that had correlations of less than 0.2 were excluded from obtaining the factor loadings. After the exclusion of the factors which had

correlations of less than 0.2, principal component analysis was done and those factors that had loading less than 0.5 were excluded from further analysis. The acceptable factor loading is 0.40 or above (David et al., 2010). The principal component matrix was obtained and rotated and ranking done from the highest value to the lowest factor loading value among the variables. The factor loadings are presented subsequently as per variable in the sections that follow.

4.5 Demographic characteristics of respondents

This section explores the contribution of the ranks held by organizational members, academic qualifications of the sample as well as the affiliate institutions of members represented.

4.5.1 Position held in the institution.

The first demographic data to be collected was the position held by the respondents in the institution. The results were as shown in Table 4.3

Table 4.2: Position Held in Institution

Position held	Frequency	Percentage
Dean	27	30.0
chairperson of department	63	70.0
Total	90	100.0

From Table 4.2, the total representation of academic Deans was 27 while that of chairpersons of departments was 63. This translated to 30% for deans and 70% chairpersons. The responsiveness is in line with the population distribution of the deans and chairpersons given that one academic dean supervises more than two chairpersons in the institutions surveyed.

4.5.2 Educational credentials of academic staff members

The study sort to determine the academic qualifications of academic staff holding positions of Dean and Chairpersons. Table 4.3 provides the educational credentials of faculty.

Table 4.3: Faculty Credentials

Academic credential	Frequency	Percentage
Master's Degree	6	6.7
Doctoral Degree	66	73.3
Post-Doctoral Degree	18	20.0
Total	90	100.0

In Table 4.3 on faculty credentials, 6.7% of the sampled population held a master's degree, 73.3% of the departments and faculties were headed by doctorate degree holders while 20% held post-doctoral degrees. This is evidence of the high levels of educational qualifications which are expected to be leveraged in the institutions' intellectual capital to deliver value. Andriansen, Madsen, and Jensen (2016) in their study note the critical importance of human competence as leveraging human productivity and applying intelligence in solving organizational problems. University academic staff perform work is intellectual in nature (Di Bernardino & Corsi, 2018). To this end, it implied that the high number of staff with doctorate degrees was anticipated of the sampled staff to enable them deliver effectively to their jurisdiction. Majority of the sampled staff had served for more than 10 years, with a total representation of 88.8% of deans and chairpersons. This may be attributed to the political nature of the position for most of the institutions where the position is filled by membership election of the representatives as well as the terms that may have required candidates to serve in other capacities to qualify for candidature.

4.5.3 Institution of affiliation

The study sort to examine the population distribution by institution of the sample represented given that the response rate had been recorded as 62.5% implying that 37.5% of the sample were not adequately accounted for. Table 4.4 presents data on the institutional affiliation of the sample.

Table 4.4: Institution affiliated

Institution	Frequency	Percent
University of Nairobi	29	32.2
Egerton University	17	18.9
Jomo Kenyatta University	11	12.2
Moi University	12	13.3
Maseno University	10	11.1
Masinde Muliro University	11	12.2
Total	90	100.0

Table 4.4 indicates the population distribution of the sample from the institutions affiliated. Majority of the sample, 32.2 percent are from the University of Nairobi. This is in line with the expectation of the institution being the oldest with wide variety of programmes which translates into many departments and faculties.

The study also received a high response rate from this institution, an indication of customer responsiveness that may contribute to value creation. This was followed by Egerton University with 18.9%, JKUAT at 12.2%, Moi University with 13.3 %, Maseno University at 11.1% and MMUST at 12.2%. This is a reflection of the population distribution in line with the size of the institution by number of faculties and departments. A table indicating the departments and faculties is presented in appendices.

4.6 Diagnostic Tests.

The study conducted Normality test as well as linearity tests, multicollinearity and heteroscedasticity tests to determine the suitability of the data for further statistical analysis. The findings are subsequently presented in the section that follows.

4.6.1 Bartlett's Test of Internal Consistency

The study used Bartlett's test of Sphericity to determine the internal consistency of the items used in the structured questionnaire. The test calculates the determinate of the matrix of the sums of products and cross-products from which the inter-correlation matrix is derived. The determinant of the matrix is converted to a chi-square statistic and tested for significance. The null hypothesis is that the inter-correlation matrix comes from a population where the variables are not collinear with an identity matrix. The test has a null hypothesis of no internal consistency (inter-correlated) at $p < 0.001$ as recommended by Lane-Getaz (2013). Failure to reject the null hypothesis means that the principal components that measure a particular domain have to be determined through factor analysis.

However, rejection of the null hypothesis means that all the items are internally consistent and hence their composites can be used to measure the variable in question. The test statistics findings for Bartlett's test for this study are shown in subsequent pages as per objective presented.

4.6.2 Test of Sampling Adequacy

The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy provides an index (between 0 and 1) of the proportion of variance among the variables that might have common variance. To test for sampling adequacy, the Kaiser-Meyer-Olkin (KMO) measures were used. The test provides a statistical summary of how small the partial correlations are relative to the zero order. The KMO measures vary between 0 and 1 and values closer to 1 are better with a threshold of 0.5 (Williams, 2012). The KMO test

statistics computed for this study are shown for every objective presented in chapter four.

Shapiro-Wilk test for normality was used in this study to establish if the variables under investigation were normally distributed (Oztuna, Elhan, & Tuccar, 2012). This test is important for detecting skewedness, kurtosis or both in a set of data. The values normally lie between zero and one, and if the p -value is less than 0.05 then the null hypothesis is rejected as evidence that the data being tested are not from a normally distributed population. On the other hand, if the p -value is greater than the chosen alpha level, then the null hypothesis that the data was derived from a normally distributed population cannot be rejected (Ghasemi & Zahediasl, 2012).

The results for the normality test for this study are shown in subsequent pages as presented in findings for every objective.

4.6.3 Test of Normality

The testing of normality of intellectual capital (predictor variables) and value creation (Dependent Variable) in this study was done using the Kolmogorov-Smirnov and Shapiro Wilk test (Oztuna, Elhan, & Tuccar, 2012). The test is made on the premise that given the null and alternative hypothesis, set at 0.05 confidence level, the rule is that reject the null hypothesis if P- value is less than alpha value set at $p < 0.05$) else fail to reject the null hypothesis: where the null hypothesis represents normal data and alternative hypothesis represents the data is not normal.

Further tests were performed in order to come up with a normally distributed variables given that the $P < 0.05$. This was done to eliminate any unknown inconsistencies that would occur in future analysis (Field, 2009). The two step procedure involved fractional ranking and calculating the inverse difference of normal. The mean after normalization of the variables greatly improved as well as the standard deviations. This was done using the Lillie for significance correction (Ghasemi & Zahediasl, 2012).

4.6.4 Linearity tests

The inter-correlation between variables was examined. Pearson product correlation was determined to examine the linear relationship of the model. The test was done to detect variables that had a very low correlation < 0.2 as well as those which scored values > 0.9 meaning that they correlated very highly with other variables (Oztuna, Elhan, & Tuccar, 2012). The correlation values are provided in the correlations tables under inferential analysis as presented for each objective.

4.6.5 Multicollinearity tests

In order to draw conclusions about the study population, there was need to empirically analyze the data using the regression model. This requirement, therefore, made it necessary to determine whether multicollinearity existed in the data set (Daoud, 2017). The study used the Variance Inflation Factor (VIF) to determine whether the level of multicollinearity in the various models estimated could be tolerated. (Field, 2009). The VIF values ranged between 1 and 5. The rule of thumb is that if the VIF is less than 10 then the level of multicollinearity can be tolerated. (Daoud, 2017). These findings are presented in the coefficients table for each variable with a tolerance factor and the VIF values.

4.6.6 Heteroscedasticity Tests

Heteroscedasticity is a systematic change in the spread of the residuals over the range of the measured values. Heteroscedacity may become a problem and so to satisfy the regression assumptions, the residuals should have a constant variance. This is based on the assumption that the residuals are drawn from a population with constant variance. Glejser test was used to determine whether the model was free from the problem of heteroscedasticity.

Table 4.5: Glejser test coefficients

Model	Unstandardized		Standardized	T	Sig.	
	Coefficients		Coefficients			
	B	Std. Error	Beta			
	(Constant)	1.253	.139		9.023	.124
1	Human Capital	.660	.044	.823	15.137	.834
	Structural Capital	.076	.026	.148	2.943	.405
	Relational Capital	.034	.028	.054	1.243	.217
	Situational	-.011	.018	-.025	-.597	.342
	Environment					

The findings of the heteroscedasticity test are provided in Table 4.5. This was conducted by regressing the absolute residual value of the independent variable with the regression equation $U_t = A + B X_t + v_i$. If the significance value > 0.05 , then there is no problem of heteroscedasticity. (Machado, Silva, & Santos, 2000). Based on the output coefficients, the obtained values for significance on human capital, structural capital and relational capital were all above 0.05. It was concluded that there was no heteroscedasticity.

4.7 Factor analysis

After reliability analysis was done and a confirmation that the three independent variables and the dependent variable were acceptable for further analysis, principle component analysis (PCA) was done.

The principal component analysis procedure is normally carried out to reduce the number of factors by extracting factors that significantly contribute to the variables. (Larser & Warne, 2010). Principle component analysis was done and those factors that had loading less than 0.5 were excluded from further analysis. A general rule of thumb for acceptable component loading is 0.40 or above (Courtney, 2013). The component matrix was obtained and rotated and ranking done from the highest value to the lowest factor loading. Presentation of factor loadings as per objective is provided as follows.

4.8 Principle Component Analysis for Human Capital

KMO and Bartlett's Test for human capital was carried out to determine the suitability of the sample size in order to proceed with principal component analysis.

Table 4.6: Bartlett's test Human capital

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	Bartlett's Test of Sphericity		
	Approx. Chi-Square	Df	Sig.
.696	800.954	89	.000

Table 4.6 provides the results of KMO measure and test of Sphericity of the human capital variables under study. This test is the first test carried out to determine whether the sample size is adequate enough to proceed with Principle Component Analysis (PCA) procedure and also gives an indication of the quality of variables. With a KMO value greater than or equal of 0.7, studies have shown that this would imply that the sample size is adequate enough for PCA.

Results generated in this study clearly indicate that for the variables (human capital, structural capital, social capital, situational environment and value creation), the sample size (90) is adequate enough to carry out PCA. On human capital, the value generated was 0.696 which was rounded to one decimal point as 0.7 which was adequate to proceed with PCA analysis.

Bartlett's test was used to test whether the original correlation matrix was an identity matrix. For the results to be significant the value had to be less than 0.05 (Field, 2005).. In all the three independent variables; human capital, structural capital and relational capital the Bartlett's test was highly significant and therefore principal component analysis was appropriate. ($P \leq 0.001$).

4.8.1 Eigen Values Extraction for Human Capital

The study proceeded with principal component analysis after meeting conditions for the tests of principal component analysis and attaining a significant value for Bartlett's test. The Eigen values extraction for human capital are presented in table 4.7.

Table 4.7: Eigen Values for Human Capital

Component	Initial Eigenvalues			Extraction Sums of Squared			Rotation Sums of Squared		
				Loadings			Loadings		
	Total	% of	Cumulative	Total	% of	Cumulative	Total	% of	Cumulative
	Variance	%	%	Variance	%	%	Variance	%	%
1	4.432	23.326	23.326	4.432	23.326	23.326	3.740	19.683	19.683
2	3.029	15.941	39.267	3.029	15.941	39.267	2.973	15.645	35.329
3	2.093	11.014	50.281	2.093	11.014	50.281	2.841	14.952	50.281
4	1.197	6.298	56.579						
5	1.106	5.822	62.401						
6	.953	5.018	67.419						
7	.817	4.300	71.719						
8	.780	4.107	75.826						
9	.704	3.704	79.530						
10	.645	3.395	82.925						
11	.587	3.091	86.016						
12	.537	2.826	88.842						
13	.515	2.713	91.555						
14	.466	2.455	94.010						
15	.411	2.165	96.175						
16	.364	1.914	98.090						
17	.258	1.357	99.447						
18	.082	.434	99.881						
19	.023	.119	100.000						

Extraction Method: Principal Component Analysis.

The Eigen value Table 4.6 provides proof that out of the twenty one items that were tested nineteen of them were viable for consideration for subsequent analysis. The decision was made because their Eigen values were above 1. The rule of thumb is that

Eigen values are considered for viability if the scores are one or above one. The study was guided by the Kaisers rule of Eigen values >1. (Shenoy & Madan, 1994).

4.8.2 Eigen values for the rotated component matrix for Human Capital

The Human Capital components after their extraction were rotated with Varimax and Kaiser Normalization in Table 4.8.

Table 4.8: Rotated Matrix Human Capital

Human capital factors	Component		
	1	2	3
Offensive strategy of taking the lead toward the future motivates staff to achieve better results	.941		
My institution avails Sufficient resources to aid work	.936		
My institution recognizes achievements attained by staff	.878		
The institution Prides in members abilities to achieve	.756		
My institution provides rewards that are perceived fair and equitable	.699		
professional development play critical role in my service delivery		.727	
Problem-solving plays a significant role in my service delivery to the institution		.710	
My interpersonal relationships have greatly influenced my ability to deliver service		.628	
Training and skills development plays a critical role in my proficiency and service delivery		.590	
Intuition is important if I am to be successful in service delivery as a scholar		.586	
My persuasive skills play an important role in my service delivery to the institution		.568	
Creative thinking skills are important for me to effectively deliver service to the institution		.567	
Expertise in the specific field influences my service delivery			.705
High levels of perseverance are needed in the delivery of service			.701
My Belief in values of the institution affects its level of service delivery			.698
My commitment to the institution has largely affected its value creation			.694
My Self-discipline is critical to the value delivery process for the institution			.687
My emotional stability is an asset that contributes towards effective service delivery in the institution			.583
Minimal Tolerance for ambiguity affects the level of service delivery in the institution			.569

Note: *Factor loadings <.5 are suppressed*

4.8.3 Eigen Values and Extracted Components for Human Capital variable

The three components extracted for Human Capital include Creativity, Type of

Intelligence and Type of Intelligence. According to Field (2005), if the use of Eigen value with a value above 0.5 and scree plots with a value over 1 leads to retaining the same number of factors, the researcher continues with the analysis. He further indicates that if the two criteria gives different results then communalities can be examined and the researcher can decide which of the two criteria to believe. The Table 4.8 indicates that the number of components that were considered for human capital were nineteen. Out of the components that were retained and met the threshold, four (4) of them were extracted using the scree plot and the components had a cumulative variance of 50.28%.The recommended threshold of 70% and above was not met. (David et al., 2010).

4.8.4 Normality test for Human capital variable

Normality test for human capital was performed as shown in table 4.9.

Table 4.9: Normality test Human capital

Variable	Kolmogorov-Smirnov			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	Df	Sig.
Human Capital	.090	90	.006	.965	90	.015

The normality test on Human Capital in Table 4.9 indicated that on both Kolmogorov-Smirnov and Shapiro-Wilk the significance value was less than 0.05.

It was therefore assumed that the data was not normally distributed and the conclusion was to reject that data failed to meet normality test conditions. This implied that human capital was statistically insignificant. As noted by Shenoy and Madan (1994) one way to make it very likely to have normal residuals is to have a dependent variable that is normally distributed and predictors that are all normally distributed. In case the independent variables are not normally distributed, it is recommended that normality has

to be sought before proceeding to check for relationships among variables. Test were performed in order to come up with a normally distributed human capital variable and to eliminate any unknown inconsistencies that would occur in future analysis.

The two step procedure involved fractional ranking and calculating the inverse difference of normal. The mean after the fore mentioned tests on the human capital variable was 3.99 and its standard deviation 0.29. This was done using the lilliefors significance correction. Based on the scatter plot provided in the appendices, there is observed improvement of the spread since the standard deviation human capital variable after normalization is less than that of Human Capital before conducting the lilliefors significance correction. Table 4.10 indicates findings on human capital normalization.

Table 4.10: Lilliefors’s Significance Correction Human Capital

Variable	Kolmogorov-Smirnov ^a		Shapiro-Wilk			
	Statistic	Df	Sig.	Statistic	Df	Sig.
Human Capital	.056	89	.057	.990	89	.081

a. Lilliefors Significance Correction

The Table 4.10 indicates that the significance levels for both Kolmogorov-Smirnov and Shapiro-Wilk improved significantly.

This tests enabled correction of the anomaly on human capital variable. The two tests of normality which include Kolmogorov-Smirnov and Shapiro-Wilk, indicate that human capital data is normality distributed. This is because the P-value for both tests were above 0.05. The study therefore concluded that human capital variable was normal in distribution and therefore subsequent analysis could be done.

4.8.5 Descriptive Statistics on Human Capital initiatives

Human capital was operationalized as a measure of types of intelligence, levels of Intelligence and creativity. The measurement scale consisted of 21 items and after

principal component analysis extraction, 19 items were retained. The respondents were asked to indicate the extent to which they agreed with the statements on the items regarding human capital which were measured on a five-point Likert-type scale (5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, 1 = strongly disagree). Tables 4.37, 4.38 and 4.39 Presents the results for types of intelligence, levels of Intelligence and creativity respectively.

Table 4.11: Descriptive statistics findings on Human Capital

Type of Intelligence Items	SD	D	N	A	SA	M	SD
	%	%	%	%	%		
Expertise in the specific field influences my service delivery	0	4.4	14.4	71.1	10.1	3.88	.650
Professional development plays a critical role in my service delivery	0	4.4	12.2	56.7	26.7	4.06	.755
Training and skills development plays a critical role in my proficiency and service delivery	0	5.6	22.2	60.0	12.2	3.79	.727
Intuition is important if I am to be successful in service delivery as a scholar	0	0	23.3	60.0	16.7	3.93	.632
Problem-solving plays a significant role in my service delivery to the institution	0	2.2	15.6	61.1	21.1	4.01	.679
Creative thinking skills are important for me to effectively deliver service to the institution	0	1.1	26.7	56.7	15.6	3.87	.674
My interpersonal relationships have greatly influenced my ability to deliver service	0	1.1	25.6	58.9	14.4	3.87	.657
My persuasive skills play an important role in my service delivery to the institution	0	0	20.0	54.4	25.6	3.87	.584

Table 4.11 presents the descriptive findings on the types of intelligence. There is a general consensus among respondents that types of intelligence are an important intellectual capital component. On the question of expertise in the specific field influencing service delivery 71.1% agreed, 10.1% totally agreed. A total of 81.1% agreed to expertise contributing service delivery while 4.4% disagreed and 14.4 % were neutral with a mean of 3.88 and a standard deviation of .650. On professional development playing a critical role on service delivery, 4.4% disagreed, 12.2% were neutral. On the other hand, 56.7% agreed while 26.7 % totally agreed making a total of 83.5% agreement that professional development contributes to service delivery. A mean of 4.06 and standard deviation .755 indicated that data distribution from the mean was acceptable.

On whether training and skills development plays a critical role on proficiency and service delivery, 5.6% disagreed, 22.2% were neutral while 60.0% agreed and 12.2% totally agreed with a mean of 3.79 and a standard deviation of .727. 72.2% of the respondents underscored the importance of training and skills development in proficiency and service delivery. The findings are in agreement with Chahal & Bakshi, (2014) who underscored the importance of skills and competency development in driving competitiveness among firms. There was a general agreement that intuition plays a critical role in service delivery by 82.2% of the respondents who agreed to the statement with a mean of 3.93 and standard deviation of .632. There was a general consensus among respondents with 82.2% in agreement that problem solving plays a critical role in service delivery. When respondents were asked whether creative thinking skills play a significant role on service delivery, 1.1% disagreed 26.7 were neutral, 56.7% agreed.

Most of the respondents (72.3%) alluded to a positive contribution by creative thinking on service delivery in public universities Most of the respondents, 73.3% agreed that interpersonal skills greatly influence ability to deliver service. Lastly, on persuasive skills playing an important role on service delivery, 20.0% were neutral, 54.4% agreed

and 25.6% totally agreed with a mean of 3.87 and a standard deviation of .584. Again, most of the respondents agreed that persuasive skills play an important role in service delivery. Similar sentiments were echoed in a study by Wanza et al, (2017) who alluded to interpersonal skills contributing to better service delivery.

Table 4.12: Descriptive statistics findings on Levels of Intelligence

Level of Intelligence Items	SD	D	N	A	SA	M	SD
	%	%	%	%	%		
My Self-discipline is critical to the value delivery process for the institution	0	0	20.0	54.4	25.6	4.06	.676
My Belief in values of the institution affects its level of service delivery	0	1.1	12.2	56.7	30.0	4.16	.669
Minimal Tolerance for ambiguity affects the level of service delivery in the institution	0	1.0	15.7	60.0	23.3	4.06	.660
High levels of perseverance are needed in the delivery of service		1.1	15.6	66.7	16.7	3.99	.609
My emotional stability is an asset that contributes towards effective service delivery in the institution	0	0	16.7	72.2	11.1	3.94	.527
My commitment to the institution has largely affected its value creation	0		12.2	64.4	23.3	4.11	.589

Table 4.12 presents descriptive findings on levels of intelligence. On the question of whether self-discipline is critical to value delivery process in institutions, 20.0% were neutral, 54.4% agreed and 25.6% totally agreed with a mean of 4.06 and standard deviation .676. A large number, 75.0% agreed that self-discipline played a critical role to the service delivery process.

On whether belief in values affected levels of service delivery, with a mean of 4.16 and standard deviation of .669. Majority of the members (86.7%) agreed that a belief in values affected level of service delivery. The findings are in agreement with strategic management literature. Porter (2011) underscores how the strategy of a firm and its structure need to be aligned in principle to enable building of capabilities among organizational members to align their goals and objectives with those of the firm.

This strategic alignment implies that there is a need to further inculcate values of an institution into its organizational members. On the question of minimal tolerance for ambiguity affecting the level of service delivery in the institution, 60.0% agreed while 23.3% totally agreed with a mean of 4.06 and standard deviation of .609 indicating a consensus on the importance of clarity of purpose.

The importance of clear and concise policy frameworks was therefore seen to aid in clarifying expectations and to contributing to value creation in public universities in Kenya. The findings are in tune with those of Ngari (2013) who underscored the importance of clear systems and policies to aid in organizational development.

On whether high levels of perseverance was necessary for service delivery, 66.7% agreed while 16.7% totally agreed with a mean of 3.99 and standard deviation of .609. Members generally (83.4%) agreed that perseverance was necessary to effective service delivery.

This findings are in line with studies done by Muruchiu (2014) who alluded to strained university resources forcing university lecturers in Kenya to work under unfriendly academic environments that affected their individual and institutional productivity. It is to this effect as underscored by Elena and Warden, (2011) that Universities have been pushed to find alternative ways to attract financial resources such as market and International grants. Lastly, on the question of whether emotional stability was an asset that contributed to effective service delivery, 16.7% were neutral, 72.2% agreed while 11.1% totally agreed with a mean of 3.94 and standard deviation of .527. Most of the

members, 83.3% agreed that the emotional wellbeing of a member contributed to the effectiveness of service delivery.

On whether commitment to the institution affects value creation, 64.4% agreed while 23.3% total agreed. Commitment was therefore found to be an important factor as it affected value creation, sentiments similar to those made by Muruchiu (2014) on the need to come up with innovative strategies of committing University academic staff to minimize high labour turnover.

Table 4.13: Descriptive statistics findings on creativity.

Creativity Items	SD	D	N	A	SA	M	SD
	%	%	%	%	%		
The institution Prides in members abilities to achieve	0	0	21.1	57.8	21.1	4.01	.653
Offensive strategy of taking the lead toward the future motivates staff to achieve better results	0	17.8	10.0	50.0	22.2	3.77	.995
My institution avails Sufficient resources to aid work	0	0	27.8	72.2	0	3.72	.450
My institution recognizes achievements attained by staff	0	0	0	33.3	66.7	4.67	.474
My institution provides rewards that are perceived fair and equitable	0	0	26.7	70.0	3.3	3.77	.498

The Table 4.13 presents descriptive findings on the opinions of respondents on creativity. When respondents were asked whether their institution prides in members abilities to achieve, 57.8% agreed and 21.1% totally agreed with a mean of 4.01 and standard deviation of .653. Most of the members (78.9%) agreed that their institutions take pride in their abilities to achieve. This is in line with the findings of Ng’ethe et al. (2013) on incentives provided by institutions as a retention strategy for academic staff. When asked whether the offensive strategy of taking the lead toward the future

motivates staff to achieve better results, 50.0% agreed while 22.2% totally agreed with a mean of 3.77 and a standard deviation of .995. Most of the members agreed that there was a positive contribution in the offensive strategy of taking the lead toward the future as motivator to staff to achieve better results.

The findings are in tune with those made by many management strategists on the importance of the offensive strategy of taking the lead. In Kenya, corporate organizations such as Safaricom have developed new products that have gained acceptance world over such as M-Pesa services as noted by the retired Chief Executive officer Michael Joseph who noted that the institution was not quite sure when it took the lead in the product but was satisfied that the risk was taken (Safaricom Annual Report, 2014). On whether the institution avails sufficient resources to aid work, 27.8% were neutral while 72.2% agreed. Most of the members agreed to the provision of the resources by institutions with a mean of 3.72 and standard deviation of .450.

The findings contradict those of Muruchiu (2014) who reported limited learning resources in universities in Kenya, sentiments also echoed by Mbirithi (2013) who also reported scarcity of resources as a challenge to effective management of public universities. On the question of whether institutions recognize achievements attained by staff, 33.3% agreed while 66.7% totally agreed with a mean of 3.72 and standard deviation .474. Members were in agreement that their institutions recognized their achievements as a way of nurturing their creative potential.

These findings are similar to those of Sharma, (2018) who found a positive correlation between human capital development and firm value. Lastly on whether the institution provides rewards that are perceived fair and equitable, 26.7% remained neutral, 70.0% agreed while 3.3% totally agreed with a mean of 3.77 and standard deviation .498. Members felt that rewards provided by their institutions were fair and equitable.

These findings contradict with findings made by Nge'ethe et al, (2013) who reported inadequacy of rewards as one of the key factors contributing to employee exits in search

for better remuneration in public Universities in Kenya. Most of the literature reviewed alludes to a positive contribution of human capital in terms of creativity towards firm performance and firm value. (Kamukama, 2017; Salman, 2012; Ngari et al, 2013; Sangiorgi & Siboni, 2017).

4.8.6 Inferential findings on human capital

This section presents the findings of hypothesis as guided by the objective: To examine the relationship between human capital initiatives and value creation in public Universities. The hypothesis was that human capital has a significant influence on value creation in public Universities. The relationship was hypothesized to be moderated by the situational environment variable with regards to value creation practices in public universities in Kenya. Composite indexes were computed for the study variable. Human capital was measured as a composite index of types of intelligence, levels of intelligence and creativity. Value creation in public universities was computed as a composite of customer satisfaction and potential for future business. The tests were carried out using simple regression analysis, correlation analysis, Analysis of Variance and multiple regression analysis. The tests were done at 5% significance level ($\alpha \leq 0.05$). The outline and the results from the evaluation are discussed below: the null hypothesis is as stated below;

4.8.1a H_0 1: Human Capital initiatives has no significant influence on value creation in public universities in Kenya.

This hypothesis was seeking to establish the influence of human capital initiatives on value creation in public universities. This hypothesis was tested by regressing human capital on value creation guided by the equation $Y = \beta_0 + \beta_1 X$ where X represented human capital and Y denoted value creation.

4.8.7 Human Capital and Value Creation

In order for the effect of Human Capital initiatives on Value creation to be identified, Linear regression was undertaken using the following model : $Y = \beta_1 X_1 + \epsilon$ was employed.

Table 4.14: Model Summary for Human Capital and Value Creation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.913 ^a	.833	.831	.10415

a. Predictors: (Constant), Human Capital

The findings of the analysis are presented in Table 4.14 (model summary). This findings indicated that human capital explained 83.1 % (adjusted R- square = 0.831) of the variance in value creation as explained by the model $Y = \beta_1 X_1 + \epsilon$. It can then be concluded that human capital influences value creation in public universities in Kenya. In this model the independent variable (Human Capital) attributes to 83.3% of the variation in the Value creation. This implies that Human Capital is a strong predictor of value creation and therefore human capital influences value creation in public universities in Kenya. This is in agreement with the findings of Ngari (2013) who noted a 92.5% contribution of human capital to performance of pharmaceutical companies. Table 4.15 provides the coefficients on human capital.

Table 4.15: Pearson Correlation between Human Capital and Value Creation

		Value Creation
	Pearson Correlation	.825
Human Capital	Sig. (1-tailed)	.000
	N	89

The Table 4.15 shows a strong positive linear relationship between Human Capital and Value creation. This is indicated by the Pearson's correlation coefficient ($R = 0.825$). The p-value of this Pearson's coefficient is less than 0.05 which is an indication that the observed linear relationship between human capital and value creation is statistically significant. This implied that increased human capital will lead to improved value creation in the public universities in Kenya. Conversely decreased human capital will lead to poor value creation. This conforms to the studies undertaken by Bontis (1998); Bontis and Cabrita (2008); Ngari (2013); Munjuri (2013). Table 4.16 provides the Anova coefficients on human capital.

Table 4.16: ANOVA between Human Capital and Value Creation.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	4.771	1	4.771	439.883	.000 ^b
	Residual	.955	88	.011		
	Total	5.726	89			

a. Dependent Variable: Value Creation

b. Predictors: (Constant), Human Capital

The Anova Table 4.16 indicated a significant influence of human capital on value creation ($F=439.883$, $P < 0.05$). This lead to rejection of null hypothesis that there is no significant influence between human capital initiatives and value creation in public universities. The study failed to reject the alternative hypothesis which stated that human capital initiatives has a significant influence on value creation in public universities in Kenya at 95% confidence level. The implications are that enhancing human capital initiatives in public universities in Kenya leads to an increase in value creation indicating a positive correlation.

Table 4.17: Coefficients of determination between human capital and value creation

Model	Unstandardized Coefficients		Standardized Coefficient	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			tolerance	VIF
(Constant)	1.195	.146		8.199	.000		
Human Capital	.767	.037	.813	20.973	.000	.694	1.485

Based on the coefficients output provide in Table 4.17, the collinearity statistics obtained a VIF value of 1.485 meaning that the VIF value obtained is between 1 and 10 and therefore it was concluded that there was no multicollinearity symptom. The coefficient of the independent variable (human capital) is 0.813 which implies that the dependent variable will change by 0.813 when the independent variable changes by a unit. Statistically this change is significant since the p-value of the t-test is less than α -value of 0.05. The results presented in the table 4.14 indicated that the influence of human capital on value creation was significant ($F = 439.883, p < 0.05$).

In this model the independent variable (Human Capital) attributes to 83.3% of the variation in the Value creation (R square =.833, $p < 0.05$). β was also statistically significant ($\beta = .813, t = 20.973, p < 0.05$). The overall regression results presented indicate that human capital has a strong positive influence on value creation in public universities. The hypothesis that human capital initiatives influence value creation was therefore confirmed. As human capital increases, value creation also increases.

This findings are in agreement with the findings of Ngari, (2013) whose human capital variable attributed a 92.25% variation in business performance). These results are

consistent with existing literature which points out a positive effect of human capital on firm performance. Recent research suggests that human capital attributes (including competence; training, experience and skills) to high performance leverage to the firm (Munjuri, 2013; Ngari et al., 2013). In particular the executives' human capital have a clear impact on organizational results (Munjuri et al., 2013; Nzuve et al., 2014; Kariuki et al., (2014) A firm's human capital is an important source of sustained competitive advantage (Nteere et al., 2013; Ngari et al., 2013; Bontis et al., 2008).

Therefore, it can be implied in this study that investments in the human capital of the firm may increase employee productivity and financial results (Uadiale, 2011; Ngari et al., 2013). The rise of the knowledge-based economy is attributed to the increasing importance of intellectual capital as an intangible and important resource for companies' sustainable competitive advantages (Bontis et al., 2008; Chahal, & Bakshi, 2014 and Edvinsson, 2013).The results of a study (Fena'ndez, 2009) indicate that firms with a higher level of human capital, measured by education, experience, expertise and cognitive skills, perform better. This performance is in terms of productivity output and may be posited to leverage value creation to stakeholders. These firms therefore experience a competitive advantage compared to other firms.

Thus, this study and others seem to lay emphasis on the importance of having human capital that is invaluable, rare, inimitable and non-substitutable in the words of Barney as reported in Bontis (2008).

This study is also consistent with Olefumi (2009) in identifying with Human capital practices that have been found to correlate positively with organizational effectiveness yielding higher returns in a firms output and aiding in growth of resources.

4.8.8 Influence of Human Capital on Value Creation as moderated.

The Baron and Kenny approach in testing for moderation was employed for the Purposes of this study to test for the moderation effect of situational environment and human capital on value creation in public universities as guided by the equation:

$$Y = \beta_0 + \beta_1 X + \beta_2 Z + \beta_3 XZ$$

Where X= Independent variable (human capital)

Z= Moderator (situational environment)

XZ= Product of the standardized scores for the independent variable and the moderator

Y= Return on Assets

A z –score specifies the precise location of each value within a distribution. The sign of the z-score signifies whether the score is above the mean (positive) or below the mean (negative). The numerical value of the z-score specifies the distance from the mean by counting the number of standard deviations between and μ .

The z –score is calculated as:

$$Z = \frac{X - \mu}{\sigma}$$

σ

Z = the standardized score

X = the X value

μ = the mean of the distribution

σ = the standard deviation of the distribution.

The resultant scores gave a distribution that has a mean score of zero and standard deviation of one. The regression analysis based on the standardized scores for the independent and moderating variables yielded the findings presented in table 4.18.

Table 4.18: Regression model between human capital and value creation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.929 ^a	.864	.859	.08829

a. Predictors: (Constant), int_2(product of Z-scores of Human Capital and Situational Environment), Z-score of Human Capital, Z-score of Situational Environment

The value of R and R² are 0.929 and 0.864 respectively. The R² which indicates the explanatory power of the independent variables is 0.864. This means that about eighty six percent (86.4%) of the variation in value creation is explained by the interaction of the moderator and the independent variable (human Capital). The R² value as revealed by the result is high which means that there is an overall increase in the contribution human capital to value creation when moderated by situational environment.

The implications are that institutions may have to deliberately provide conducive and enabling environments that can improve the contribution of human capital to value creation.

There is also a need to monitor the situational environment in order to influence and leverage its contribution to value creation in public Universities in Kenya. The standard error of the estimate is .08829 which explains how representative the sample is likely to be of the population. The results therefore indicate that the observed variance in value creation can be attributed by human capital when moderated by situational environment. This is an indication that this model fits well. The Anova table 4.19 indicates variations in human capital and value creation.

Table 4.19: ANOVA between Human Capital and Value Creation

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	4.158	3	1.386	177.806	.000 ^b
Residual	.655	84	.008		
Total	4.813	87			

a. Dependent Variable: Normalized Value Creation

b. Predictors: (Constant), mod2, Zscore: Human Capital, Zscore: Situational Environment.

The ANOVA Table 4.19 which is a test of the overall model indicates that the influence of human capital on value creation in public university was statistically significant ($F = 177.806$, $p < 0.05$). The findings statistically confirm that the model fit is good and that situational environment moderates human capital to influence value creation in public universities in Kenya.

The findings are in line with those of Leitner (2004) who observed that a university's most valued resources are its researchers and students with their relations and routines and that the intellectual capital of a University which includes human capital as one of its anchors represents both the input and the output of its entire production system with the environment playing a critical role (Siboni & Sangiorgi, 2017). Table 4.20 presents coefficients on moderation.

Table 4.20: Coefficients between human capital and value creation

	Unstandardized Coefficients		Standardized Coefficients		T	Sig.
	B	Std. Error	Beta			
(Constant)	4.205	.010			423.877	.000
X	.220	.010	.936		22.044	.000
W	-.010	.010	-.043		-1.011	.315
Int_2	.023	.010	.094		2.318	.023

a. Dependent Variable: Value Creation

Table 4.20 shows the results of the coefficients of regression model with value creation as the dependent variable. The t-value for the interaction between human capital and situational environment is 2.318. The value is also significant p-value < 0.05, (0.023). It can be deduced from the results that the moderation of situational environment on human capital to influence value creation is significant. This is because the coefficient for the interaction of human capital and situational environment (int_2) is significant (B=-.023, t = 2.318, P < 0.05). This implies that the influence of human capital on value creation in public university is moderated by situational environment.

Table4.21: Model Summary for influence of human capital initiatives

Model	ANOVA			Coefficients			Model Summary
	R2	F	Sig.	Beta	T	Sig.	
Constant				1.195	8.199	0.000	
Human Capital	.833	439.883	0.000	.913	20.943	0.000	Y=1.195+0.913
Capital Moderation	.864	177.806	0.000	0.023	2.318	0.023	Y=4.205+0.023
On human Capital							

The findings in Table 4.21 show that human capital explained 83.3% of the variance in value creation ($R^2=0.833$). The findings suggest a statistically significant influence of human capital on value creation with the overall model ($F=439.883$, $P<0.05$) and individual parameters ($\beta=.913$, $t=20.943$, $P<0.05$) were statistically significant. Moderated human capital variable accounted for 86.4% of variation in value creation in public universities in Kenya ($R^2=.864$). The overall model was statistically significant ($F=177.806$, $P <0.05$) and the individual components were statistically significant ($\beta=0.023$, $t= 2.318$, $P< 0.05$). Situational environment is therefore said to be a moderator of human capital and that it positively moderates human capital to influence value creation. These findings contradict those presented by Muraguri et al, (2016) who reported a negative insignificant moderating effect of the university environment on strategic intent. More studies need to be done on environmental contribution given that it is an area that has generated interest.

Guthrie and Dumay, (2015) note that because of the interest in Intellectual Capital and educational and Educational institutions and their dynamic operating environment, new opportunities for future research have emerged thus reinforcing the importance attached to situational environment and the need for further research in the area particularly in the African context given that a positive contribution has been noted from Europe and particularly focuses on education research among Universities (Bisogno et al, 2018).

4.9 Principal component analysis on structural capital initiatives

The objective in the second variable was to determine the influence of structural capital initiatives on value creation in public Universities in Kenya. The study was guided by the following hypothesis.

H02: Structural Capital Initiatives has no significant influence on value creation in public universities.

Principal components analysis was used because the primary purpose was to identify and compute composite scores for the factors describing structural capital Initiatives most and which had the greatest contribution to the structural capital initiatives component. Table 4.22 presents findings on Barlett’s test of Sphericity.

Table 4.22: Barlett's Test on Structural capital

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	Bartlett's Test of Sphericity		
	Approx. Chi- Square	Df	Sig.
.899	1300.761	90	.000

The KMO and Barlett’s test was carried to test whether the sample size is good enough for Principal Factor Analysis. Barlett’s Test of Sphericity significance value was less than the p-value of 0.05 which implied that the dataset was statistically adequate enough for further analysis under Principal component analysis. The Figure below indicates the Eigen values of structural capital. The components of structural capital extracted were fifteen (15) and were considered for further analysis. The 15 items were considered because their Eigen values were greater than 0.5.

4.9.1 Eigen Values Extraction for Structural Capital

Table 4.23 presents Eigen values extraction for structural capital using PCA.

Table 4.23: Eigen values extraction for Structural Values

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.289	46.445	46.445	9.289	46.445	46.445	9.161	45.805	45.805
2	1.896	9.478	55.923	1.896	9.478	55.923	1.919	9.593	55.398
3	1.493	7.463	63.386	1.493	7.463	63.386	1.598	7.988	63.386
4	1.261	6.305	69.692						
5	.896	4.478	74.170						
6	.834	4.169	78.339						
7	.636	3.178	81.517						
8	.600	3.001	84.519						
9	.473	2.367	86.886						
10	.436	2.182	89.067						
11	.358	1.792	90.859						
12	.311	1.553	92.413						
13	.294	1.471	93.884						
14	.270	1.350	95.234						
15	.251	1.256	96.490						
16	.232	1.159	97.649						
17	.179	.893	98.542						
18	.138	.690	99.232						
19	.111	.555	99.787						
20	.043	.213	100.000						

Extraction Method: Principal Component Analysis.

Initial eigenvalues in Table 4.23 indicated that the first three factors explained 46.45%, 9.48% and 7.46% of the variance respectively. The three factor solution, which explained 63.37% of the variance, was preferred because of its previous theoretical support and the leveling off of eigenvalues. There was little difference between the three

factors on using varimax and oblimin solutions, thus both solutions were examined in subsequent analyses before deciding to use varimax rotation.

Table 4.24 presents Eigen values for the rotated component matrix between structural capital.

4.9.2 Eigen Values for the Rotated Structural Capital

Table 4.24: Eigen values for rotated Structural component

Retained Structural Capital Items	Component		
	1	2	3
I enjoy Operational autonomy in my areas of jurisdiction	.966		
Formalization of processes (bureaucracy)influences my service delivery as a scholar	.886		
Industry recognized unique competences of the service team influence the institutions service delivery	.876		
We often hold Shared team experiences	.860		
I have Requisite power to act	.858		
Our Participation in important work related decisions influence’s the institution’s service level	.848		
Excessive workload has greatly influenced my service delivery as a scholar	.845		
I enjoy Leadership support to address problems	.839		
Lack of control to a large extent affects my services as a scholar	.826		
Our Participation in important work related decisions influence’s the institution’s service level	.813		
I receive Constructive feedback in my work	.775		
Our Participation in important work related decisions influence’s the institution’s service level	.700		
I access adequate resources – Information to act in my capacity	.536		
Adequate Facilities (, databases, electronic networking) enable effectiveness in service delivery		.888	
I have adequate resources - Funds to effectively deliver in my jurisdiction		.860	
Lack of motivation influences my service delivery			.833
Frequent diversions/interruptions affect level of service delivery			.796

Note: *Factor loadings <.5 are suppressed*

Table 4.24 shows the components extracted using principal component analysis. A total of three items were eliminated because they did not make significant contribution and failed to meet a minimum criteria of having a primary factor loading of 0.5 or above.

4.9.3 Test of Normality on Structural Capital

Normality tests were performed on structural capital beginning with Kolmogorov and Shapiro Wilk tests in table 4.25.

Table 4.25: Normality Test Structural Capital

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
Structural Capital	.232	90	.000	.851	90	.000

a. Lilliefors Significance Correction

Table 4.25 indicates the findings of normality test on structural capital. Both the Kolmogorov-Smirnov and Shapiro-Wilk test of Normality showed that the Variable structural capital is not normally distributed. The variable was normalized using a two-step procedure, which involved carrying out a fractional ranking followed by computing a normalized variable by using the inverse difference of normal structural capital (Corder and Foreman, 2014). This was done using the lilliefors significance correction. Based on the scatter plot provided in the appendices, there is observed improvement of the spread since the standard deviation for structural capital variable after normalization is less than that of structural capital before conducting the lilliefors significance correction.

4.9.4 Normality test with lilliefor's significance correction

Lilliefor's significance correction is presented in table 4.26.

Table 4.26: Structural Capital Normality Test

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Structural Capital	.056	90	.200*	.984	90	.330

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

The Table 4.26 provides findings of the lilliefors correction test. The normality test after Shapiro wilk test on Structural Capital shows that on both Kolmogorov-Smirnov and Shapiro-Wilk, the significance value is greater than 0.05. It was concluded that the normalized structural capital initiatives variable was statistically normally distributed after the two step process that involved the lilliefors' significance correction.

4.9.5 Descriptive statistics on structural capital initiatives.

The study sought to determine the influence of structural capital initiatives on value creation in public universities in Kenya. Structural capital was operationalized in terms of enabling conditions, organizational expectations and collective organizational knowledge. The respondents were asked to indicate the extent to which they agreed with the items regarding structural capital which were measured on a five-point Likert-type scale (5 = strongly agree, 4 = agree, 3 = neutral, 2 = disagree, 1 = strongly disagree). The results for structural capital is as shown in Table 4.5, 4.6 and 4.7 for enabling conditions, organizational expectations and collective organizational knowledge respectively.

Table 4.27: Descriptive statistics on enabling conditions

Enabling Conditions Items	SD%	D%	N%	A%	SA%	M	SD
I enjoy Operational autonomy in my areas of jurisdiction	0	0	44.4	55.6	0	3.56	.500
I have Requisite power to act	0	37.8	61.1	1.1	0	2.63	.507
I enjoy Leadership support to address problems	0	35.6	60.0	4.4	0	2.69	.554
We often hold Shared team experiences	0	0	47.8	52.2	0	3.52	.502
I receive Constructive feedback in my work	0	31.1	68.9	0	0	2.69	.466
My institution boosts of Stimulating co-workers	0	8.9	90.0	1.1	0	2.92	.308
I access adequate resources – Information to act in my capacity	0	21.1	56.7	22.2	0	3.01	.662
I have adequate resources -Time to efficiently deliver service	0	10.0	51.1	38.9	0	3.29	.640
I have adequate resources - Funds to effectively deliver in my jurisdiction	0	1.1	50.0	48.9	0	3.28	.475
Adequate Facilities (databases, electronic networking) enable effectiveness in service delivery	0	0	12.2	65.6	22.2	4.10	.582

The Table 4.27 shows the percentage frequencies for structural capital. On enjoying operational autonomy, 44.4% were unclear and 55.6% agreed.

A mean of 3.56 and standard deviation of .500 indicted an agreement among respondents on the existence of operational autonomy and the data was not far from the mean. On whether the respondents had requisite power to act, 37.8 disagreed, 61.1% were neutral while 1.1% agreed. This indicates discontent among respondents on them having requisite power to act. When respondents were asked whether they enjoyed leadership support to address problems, 35.6 % disagreed while 60.1% disagreed and only 4.4% agreed.

Previous studies have indicated a reduction in public University funding as being a major contributor to the diminishing productivity of Universities particularly on building dissatisfaction among academic staff, most of whom have been reported not to take on extra duties such as part time classes citing lack of support from senior management((Mbirithi, 2013). In addition, a mean of 2.63 which was below the average indicated that many of the respondents disagreed on having requisite power to act with a standard deviation of .507 not far from the mean.

On whether the respondents received constructive feedback in their work, 31.1% disagreed, 68.9% remained neutral on the matter. This was indicative of mixed results with a disagreement among respondents on receiving constructive feedback as shown by a mean of 2.49 and a standard deviation of .640. When the respondents were asked whether their institution boosts of stimulating co-workers, 8.9% disagreed, 90.0% were neutral on stimulating co-workers while only 1.1% agreed. This implies that the respondents disagreed on having stimulating coworkers with a mean of 2.42 and a standard deviation of .308.

The findings are in agreement with those of Ngari (2014) who found low significant contribution of relational capital reporting on financial performance of pharmaceutical companies in Kenya.

On whether the respondents' access adequate resources in relation to information 21.1% disagreed, 56.7 were neutral while 22.2% agreed with a mean of 3.01 and standard deviation of .662Most of the respondents disagreed or were not sure on obtaining adequate resources while the minority agreed to have the requisite resources to take action. On whether the respondents had sufficient time to efficiently deliver service, 10.0% disagreed, 51.1% were neutral while 38.9% agreed with a mean of 3.29.

A standard deviation of .640 was obtained. This also implied that most of the members are not clear on the sufficiency of time or have no time to adequately conduct their duties. When respondents were asked whether they had adequate funds to effectively

deliver in their jurisdiction, 1.1% disagreed, 50.0% were neutral on the matter while 48.9% agreed. There are mixed results with an average number not being sure and another agreeing to have adequate funds to deliver on their jurisdiction. Funding was also found to be inadequate in a research done by Muruchiu et al. (2013).

On the availability of adequate resources in relation to databases, electronic networking to enable effectiveness in service delivery, 12.2% were neutral, 65.6% agreed while 22.2% total agreed. A mean of 4.10 indicated that majority of members agreed to having adequate information technology resources with a standard deviation of .582. It is noteworthy that there are mixed results that have been generated concerning the universities providing enabling conditions in the value creation and delivery process with a general consensus that enabling conditions are provided for academic staff. Organizational support in management strategy has been proved critical to firm performance. Greenwood (2007) notes that we must actively link multi-disciplinary teaching, research, and direct social action, in concert with extra university stakeholders of many types and show and demonstrate our worth through our actions in working with them to solve their most pressing problems.

Table 4.28: Descriptive statistics on Organizational Expectations

Organization Expectations Items	SD	D	N	A	SA	M	SD
	%	%	%	%			
Lack of motivation influences my service delivery	0	0	42.7	57.8	0	3.58	.497
Frequent diversions/interruptions affect level of service delivery	0	11.1	86.7	2.2	0	2.91	.356
Lack of control to a large extent affects my services as a scholar.	0	21.1	25.6	40.0	13.3	3.46	.973
Excessive workload has greatly influenced my service delivery as a scholar	0	6.7	30.0	37.8	25.6	3.62	1.045
Formalization of processes (bureaucracy)influences my service delivery as a scholar	0	27.8	20.0	36.7	15.6	3.40	1.058

The Table 4.28 indicates the percentage opinions on organizational expectations. When respondents were asked whether lack of motivation influence service delivery 42.7% were neutral while 57.8% agreed. There was a generally average agreement to the statement that lack of motivation influences service delivery with a mean of 3.58 and standard deviation of .497. There were mixed results of disagreement and neutrality while minority agreed on frequent diversions/ interruptions affecting level of service delivery (11.1% disagreed, 86.7% neutral & 2.2% agreed).

The factor recorded a mean of 2.91 and a standard deviation of .356. On whether lack of control to a large extent affects service as a scholar, there were mixed results with 21.1% disagreeing, 25.65% remaining neutral and 40.0% agreed while 13.3% totally agreed.

An average number agreed that lack of control as a scholar affects service delivery (53.3%) with a mean of 3.46 and standard deviation of .973. This in agreement with the recommendations made towards reporting intellectual capital in education and making it mandatory for all universities in some of the European countries (Bisogno et al, 2018). When asked to respond to whether excessive workload greatly influenced service delivery as a scholar, 6.7% disagreed, 30.0% were neutral, 37.8% agreed and 25.6% totally agreed. More than average the number at 63% agreed to excess work load affecting their service delivery as scholars with a mean of 3.62 and standard deviation at 1.045.

On whether formalization of processes (bureaucracy) affects service delivery as a scholar, 27.8% disagreed, 20.0% were neutral, 36.7% agreed while 15.6% totally agreed. These were mixed results with 52.3% agreeing to the statement and the rest not sure or disagreeing. A mean of 3.40 and standard deviation 1.058 indicated a large variation in respondent's opinions. The findings are in agreement with those made by Ng'ethe et al, (2013) on work load being one of the contributors to labour turnover among university academic staff as well as bureaucracy as affecting negatively research scholars on access to requisite resources to facilitate research and development.

Table 4.29: Descriptive statistics on Organizational Knowledge

Collective Organizational Knowledge Items	SD	D	N	A	SA	M	SD
	%	%	%	%			
Industry recognized unique competences of the service team influence the institutions service delivery	15.6	25.6	15.6	40.0	3.3	2.90	1.190
The organizations' stock of skills which evolved from its past achievements greatly influence value delivery	5.6	23.3	62.2	8.9	0	2.78	.650
My institution's core competences are difficult to copy by competitors	6.7	28.9	17.8	45.6	1.1	3.06	1.032
Our Participation in important work related decisions influence's the institution's service level	5.6	23.3	62.2	8.9	0	2.74	.696
Values and norms of the service team are relevant if the institution is to achieve its objectives	0	35.6	53.3	11.1	0	2.76	.641

The findings in Table 4.29 shows that the respondents were divided on the contributions of collective organizational knowledge. on the question of whether the industry recognized unique competences of the service team influence on the institutions service delivery , 15.6% totally disagreed,25.6% disagreed making a total of 41.2%, 15.6% remained neutral of the item while 40.0% agreed and another 3.3% totally agreed with a mean score of 2.9 and standard deviation 1.190. This shows a large disparity in the distribution of respondents on the test item. Respondents were further asked on the organizations' stock of skills having evolved from its past achievements greatly influence value delivery. To this test item, more than half of the respondents (60.0%) remained neutral on the question and only 8.9% agreed. it was not clear on the organization growing and evolving its stock of knowledge with a mean of 2.78 and standard deviation .650. On the question of the institutions key competences being difficult to copy by competitors, 17.8% were neutral on the question of the firms

competencies being difficult to copy while 46.7% and 45.6% agree and totally agreed respectively.

The findings are in agreement with Ambrosini & Bowman, (2009) who underscored the importance of building dynamic capabilities using the human capital as a useful construct in strategy execution to enable differentiation and value addition to the firm. A mean 3.06 standard deviation 1.032 was observed indicating a large disparity from the mean among respondents. On the institution's participation in important work-related decisions influencing the institution's service level, 5.6% strongly agreed and 23.3% disagreed. A considerable number of 62.2% were neutral and unclear on the test item while 8.95 agreed to participation influencing the institutions service delivery. A mean of 2.74 and standard deviation 0.696 indicated an equal distribution among respondents on the test item. Lastly, on the values and norms of the service team being relevant if the institution is to achieve its objectives, 35.6% disagreed, 53.3% remained neutral to the test item while 11.1% agreed that values and norms of the service team affect realization of the goals stated in the institution. The findings contradict those made by (Bowman and Ambrossini, (2007) on the positive contribution of firm culture and values on firm performance. Similar sentiments have been echoed by Porter (2011).

4.9.6 Inferential analysis on Structural Capital and value creation

H₀2: structural Capital initiatives has no significant influence on value creation in public universities.

The second hypothesis was seeking to establish the influence of structural capital initiatives on value creation in public universities. This hypothesis was tested by regressing structural capital on value creation guided by the model equation $Y = \beta_1 X_1 + \epsilon$. Table 4.30 presents the linear regression model between structural capital and value creation.

Table 4.30: Linear Regression Model between Structural Capital and Value Creation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.653 ^a	.427	.420	.18279

a. Predictors: (Constant), Structural Capital

b. Dependent Variable: Value Creation

The findings of the analysis are presented in Table 4.30 (model summary). This findings indicated that structural capital explained 42.0 % (adjusted R- square = 0.420) of the variance in value creation as explained by the model $Y = \beta_1 X_1 + \epsilon$. It can then be concluded that structural capital influences value creation in public universities in Kenya. In this model the independent variable (structural Capital) attributes to 42.0% of the variation in the Value creation. This implies that structural Capital is a moderate predictor of value creation and therefore structural capital influences value creation in public universities in Kenya. This is in agreement with the findings of Ngari (2013) who noted a 90.9% contribution of structural capital to performance of pharmaceutical companies. Table 4.31 presents correlations on structural capital.

Table 4.31: Correlation between structural capital and value creation

		Value Creation
	Pearson Correlation	.653
Structural Capital	Sig. (1-tailed)	.000
	N	90

Table 4.31 presents correlation on structural capital. The Pearson's correlation coefficient ($R = 0.653$) confirmed a strong association between structural capital and value creation. The p-value of this Pearson's coefficient is less than 0.05 which is an indication that the observed linear relationship between human capital and value creation after the lilliefors significance correction is statistically significant.

Table 4.32: ANOVA between structural capital and value creation

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	2.188	1	2.188	65.492	.000 ^b
	Residual	2.940	88	.033		
	Total	5.128	89			

a. Dependent Variable: Value Creation

b. Predictors: (Constant), Structural Capital

The ANOVA Table 4.32 shows the results on how good the model fits.

The F-test results is significant since its p-value < 0.05 , ($F(1, 88) = 65.492$). This suggests that the overall model is a good predictor of the outcome. This lead to rejection of null hypothesis. It was established that there is no significant relationship between structural capital initiatives and value creation. The study failed to reject the alternative hypothesis which stated that structural capital initiatives has a significant influence on value creation. table 4.33 presents coefficients on structural capital.

Table 4.33: Coefficients between Structural Capital and Value Creation

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	3.126	.136		22.923	.000		
1 Structural Capital	.348	.043	.653	8.093	.578	1.325	

a. Dependent Variable: Value Creation

Table 4.33 shows an adjusted coefficient of determination of 0.653. The outcomes also show that the regression model is statistically significant ($F = 64.492$, $P < 0.05$). Therefore, the proposed regression model fitted the sample data well. The results of analysis further confirms that structural capital explains 65.3% of variation in dimensions of value creation at 95 % level of confidence.

Value creation = 3.126 + 0.653structural capital.

The estimated regression model revealed that dimensions of value creation are statistically significant at $\beta=3.126$; $t = 22.923$; $p = 0.000$.

It can be observed that at 95%level of confidence, structural capital has a moderate positive effect on value creation dimension. Moreover, holding structural capital at a constant zero, dimensions of Value creation would be at 0.653. It can also be confirmed that an increase of one unit in structural capital accounts for an increase of 3.126 in dimensions of value creation.

This findings are in agreement with previous studies done on intellectual capital in the area of intellectual capital. Based on the above findings, there is sufficient information to support the statistical significance of the relationship between structural capital initiatives and value creation in public universities in Kenya. The positive correlation of

structural capital and value creation is consistent to a greater extent with previous findings of .The researchers established that organizations with high structural capital scored higher than those with low profile of structural capital. Similarly, a study by Cabrita and Bontis (2008) on the banking sector in Portugal established a positive significant relationship between structural capital perceptual measures and performance of a firm. They tested for interrelation and interaction of human capital, structural capital and customer capital.

In another study by Bourguignon, (2015), findings indicated a significant positive relationship between structural capital and firm performance. The study was conducted in the Indian Information Technology sector. Contradictory evidence presented by Fire and William (2003) on the relationship between structural capital and performance gave a negative insignificant relationship. The study involved 75 publicly listed companies in South Africa. However, this study focused on financial measures while other studies focused on non-financial measures of value. Cohen and Kaimenaki (2007) in their study on Greek knowledge intensive firms evidenced that hard intellectual capital as well as structural capital was positively significantly related to sales per employee. These findings are echoed in this study with a high contribution of structural capital initiatives to value creation as measured by increased enrolment that results in higher sales. The results of the study are in line with the findings of Bontis (1998), Cabrita and Bontis (2008). These scholars demonstrated that an organization has to integrate human capital with complementary resources to develop organization competencies.

4.9.8 Influence of Structural Capital as moderated

The influence of structural capital as moderated by situational environment on value creation was sort using regression equation in table 4.34.

Table 4.34: Regression Model Summary with Moderator

R	R Square	Adjusted R Square	Std. Error of the Estimate
.687 ^a	.473	.454	.17768

a. Predictors: (Constant), Predictors: (Constant), XZ(product of Situational Environment and Structural Capital), Score of Situational Environment), Z(Score of Structural Capital)

Table 4.34 presents a summary of regression model results. The value of R and R² are 0.687 and 0.454 respectively. The R value of 0.687 represents the correlation between value creation and the interaction of situational environment and structural capital. The adjusted R² which indicates the explanatory power of the independent variables is 0.454. This means that about forty-five point four (45.4%) of the variation in value creation is explained by the independent variable.

The observed variance in value creation therefore due to interaction of structural capital and situational environment. The standard error of estimate is .17768 which explains how representative the sample is likely to be of the population estimate that value creation can be attributed to structural capital when moderated by situational environment. Variance as moderated by situational environment was determined by performing Anova in Table 4.35.

Table 4.35: ANOVA between Structural Capital and Moderator

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	2.404	3	.801	25.381	.000 ^b
Residual	2.683	85	.032		
Total	5.087	88			

a. Dependent Variable: (Y)Value Creation

b. Predictors: (Constant), Predictors: (Constant), XZ (product of Situational Environment and Structural Capital), X (Score of Situational Environment), Z (Z score of Structural Capital).

The table 4.35 presents Anova coefficients between structural capital and value creation. The ANOVA coefficient which is a test of the overall model indicates that the influence of structural capital on value creation in public university is significant (F=25.381, p<0.05). This finding statistically confirmed that the model fit was good. coefficients between structural capital and value creation as moderated are shown in table 4.36.

Table 4.36: Coefficients between Structural and Value Creation as Moderated

Model	Unstandardized Coefficients		Standardized Beta	T	Sig.
	B	Std. Error			
(Constant)	4.218	.019		222.253	.000
X	.154	.019	.644	7.919	.000
Z	.048	.019	.199	2.501	.014
Int_1	-.014	.020	-.059	-.735	.465

a. Dependent Variable: Value Creation

Table 4.36 shows the results of the coefficients of regression model between structural capital and value creation as a dependent variable and the interaction of structural capital (independent variable) and situational environment (moderating variable).

$$\text{Value creation} = 4.218 + 0.154\text{situational environment} + 0.048\text{structural capital}$$

The t-value for the interaction is -7.35. Negative t-value shows a reversal in the directionality of the effect being studied. The value is insignificant at p-value >0.05. (.465). It can be deduced from the results that there is no significant moderation of structural capital by situational environment to influence value creation in public Universities in Kenya. The coefficient for the interaction of structural capital and situational environment (int_2) is insignificant (B=-.059, t = -.735, p>0.05). This implies that the influence of structural capital on value creation in public university is not moderated by situational environment. Similar findings have been done in the corporate sector and public sector. Much of the findings found a positive significant relationship between work environment and firm performance. A study by Gitonga and Gachunga, (2015) found a positive and significant influence of work environment on organizational performance. Similar positive significant values were reported on study done to determine the influence of work environment on performance of Kenya Police service (Kimani et al., 2014).

4.10 Principal Component Analysis on Relational Capital initiatives

The KMO and Barlett's Test was carried on in table 4.37 to test whether the sample size is good enough for Principal component Analysis.

Table 4.37: Barlett's test on Relational Capital

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	Bartlett's Test of Sphericity		
	Approx. Chi-Square	Df	Sig.
.750	915.759	90	.000

From the Table 4.37, the Barletts's Test of Sphericity significance value is less than the p-value of 0.05 which implied that the dataset was statistically adequate enough for further analysis under Principal component analysis.

4.10.1 Eigen Value Extraction for Relational Capital

Eigen values for the extraction of components using principal component analysis on the component relational capital are shown in table 4.38.

Table 4.38: Eigen values Relational Capital

Component	Initial Eigenvalues			Extraction Sums of Squared			Rotation Sums of Squared		
				Loadings			Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.846	23.386	23.386	5.846	23.386	23.386	4.298	17.192	17.192
2	3.626	14.504	37.890	3.626	14.504	37.890	4.070	16.279	33.471
3	2.395	9.582	47.472	2.395	9.582	47.472	3.500	14.000	47.472
4	1.333	5.333	52.804						
5	1.241	4.966	57.770						
6	1.139	4.557	62.327						
7	1.009	4.036	66.364						
8	.936	3.742	70.106						
9	.788	3.152	73.258						
10	.743	2.973	76.232						
11	.707	2.827	79.059						
12	.661	2.642	81.702						
13	.583	2.331	84.032						
14	.562	2.248	86.280						
15	.500	2.002	88.282						
16	.478	1.911	90.193						
17	.431	1.723	91.916						
18	.356	1.422	93.338						
19	.317	1.269	94.607						
20	.286	1.145	95.751						
21	.263	1.051	96.802						
22	.258	1.032	97.834						
23	.215	.859	98.693						
24	.171	.685	99.378						
25	.156	.622	100.000						

4.10.2 Eigen Values of the Rotated Relation Capital

The Eigen value for the rotated component matrix on relational capital is indicated in Table 4.39.

Table 4.39: Rotated Relational Capital Matrix

	Component		
	1	2	3
1. Through institutional partnerships firms can access critical and complementary resources	.727		
2. Institution's relationship with partners enables recognition of unique needs and preferences	.719		
3. There is potential for repeat business with the same customer or similar customers	.693		
4. There is reduced effect of competitors' efforts on the institution	.685		
5. Institution's data base enables identification of events that generates repeat/future business	.660		
6. Institution has minimized disputes with its partners	.619		
7. Customer loyalty has been attained through customer service delivery	.613		
8. Enhanced reputation accrues to the institutions that have partners	.555		
9. Institution's established relationship leads to increased customer satisfaction	.537		
10 Through institution's partners, intelligence on the clients' unmet needs is provided	.520		
9. Generation and protection of intellectual property improves level of service delivery		.757	
10. Improving efficiency in service delivery yields better results for institution		.753	
11. Institution's resources pooling affects level of service delivery		.739	
12. Institution's access to technology advancement influences level of service delivery		.689	
13. Institution's variety of perspectives and ideas for innovation influences level of service delivery		.681	
14. Shared risks minimizes organization's cos of operation		.645	
15. Broadening the product/service offered influences level of service delivery		.613	
16.Exchange of know-how skills and expertise influences benefits accrued to the institution		.565	
16. Institution's relationship with partners brings more perspectives and ideas			.811
17.Institution's relationship with others enable realization of economic synergy among partner organization			.765
17. Institution's Alliance partnership enables access to requisite resources			.756
18. Institution's Alliance partnership exploit resources			.713
19. Institution's shared risks with other institutions accelerates technical progress			.700
20. Institution's combined economic value of resources with others is greater than its economic value separately			.693
21. Institution's ability to cut down costs affects level of profit margin			

Note: *Factor loadings <.5 are suppressed*

4.10.3 Normality test on Relational Capital initiatives

Normality tests on relational capital were performed beginning with the Kolmogorov and Shapiro Wilk tests in Table 4.40.

Table 4.40: Normality test on Relational Capital initiatives

	Kolmogorov-Smirnov ^a	Shapiro-Wilk
Statistic	.151	.946
Df	90	90
Sig.	.000	.001

a. Lilliefors Significance Correction

Table 4.40 shows the normality test findings for relational capital. It was necessary to perform further transformations to improve the linear relationship of the variable. The variable was normalized using a two-step procedure, which involved a) carrying out a fractional ranking. b) Computing a normalized variable by using the inverse difference of normal. The lilliefors' significance correction improved the linear relationship of the variables significantly.

4.10.4 Normalization of Relational Capital

Lilliefors' significance correction was sort in Table 4.41 to meet the threshold for further analysis.

Table 4.41: Normality Test on Relational Capital

Kolmogorov-Smirnov ^a			Shapiro-Wilk		
Statistic	Df	Sig.	Statistic	Df	Sig.
.055	89	.200*	.994	89	.019

*. This is a lower bound of the true significance.

a. Lilliefors' Significance Correction

Table 4.41 presents findings for the normalized relational capital variable with lilliefors significance correction. The normality test on Normalized relational Capital shows that on both Kolmogorov-Smirnov and Shapiro-Wilk the significance value is less than 0.05. From the findings, this implies that the normalized structural capital is statistically approximately normally distributed.

4.10.5 Descriptive Statistics on Relational Capital

Relational capital was operationalized as a composite of collaborative business intelligence, relationship with partners and relationship with customers. Descriptive statistics consisting of percentage distributions, means and standard deviations are provided below. Table 4.42 provides data on relationship with partners.

Table 4.42: Descriptive statistics on relationship with partners

Relationship with partners factors	SD	D	N	A	SA	M	SD
1.Our institution's relationship with partners brings more perspectives and ideas	0	5.6	10.0	67.8	16.7	3.96	.702
2.Our institution's Alliance relationships enable access to requisite resources	1.1	4.4	20.0	60.0	14.4	3.82	.773
3.Our institutions' Alliance partnerships exploit resources complementarily	0	3.3	30.0	53.3	13.3	3.77	.720
4.Combined economic value of resources owned by our institution and others is greater than their economic value separately	0	10.0	12.2	54.4	23.3	3.91	.870
5.Our Alliance relationships with other institutions enable realization of economic synergy among partner organizations	0	10.0	20.0	48.9	21.1	3.81	.886
6.My institution's Shared risks with other institution's accelerates technical progress	0	7.8	18.9	55.6	17.8	3.85	.811

Table 4.42 shows the percentage, mean and standard deviation distributions among respondents when asked to respond on their organization's relationship with partners. On whether the institutions relationship with partners brings more perspectives and ideas, 67.8% agreed, 16.7% totally agreed to more ideas and perspectives being generated. A mean of 3.96 and standard deviation of .702 was recorded indicating An agreement on more ideas and perspectives being drawn from partners with a fairly good distribution of responses around the mean. The findings are similar to those made by Mutindi, Namusonge and Obwogi, (2013) on the effects of strategic management drivers on organizational performance. The study identified alliances as a resource to be leveraged by firms to make use of shared capital and therefore reducing operational costs. When asked to respond on the institutions' alliance relationships enabling access to requisite resources, 60.0% agreed and 14.4% totally agreed forming the majority. This implies that most of the respondents agreed to alliance partnerships enabling access to resources. On institutions alliance partnerships exploit resources complementarily, 53.3% agreed while 13.3% totally agreed. 30.0% remained. More than average the number (66.6%) agreed to complimentary exploitation of resources with a mean of 3.77 and a standard deviation of .720.

On whether the combined economic value of resources owned by the institution and others is greater than their economic value separately, 54.4% agreed, 23.3% totally agreed, 12.2% were neutral on the matter. Majority (77.7%) agreed to the combined economic value of resources being greater than separate economic values with a mean of 3.91 and standard deviation of .870 which is fairly good distribution of respondents around the mean. Studies done in Kenya basing on collaborations and Partnerships/Alliances have found a positive significant correlation with firm performance (Akenga & Olang, 2017).

On alliance relationship with institutions enabling realization of economic synergy among partner organizations 48.9% agreed, 21.1% totally agreed, 20.0% remained neutral while 10.0% disagreed. A fairly large number, (70.0%) agreed to realization of economic synergies among member organizations with a mean of 3.81 indicating

agreement among respondents with a fair distribution of respondents around the mean (standard deviation of .886.).

Lastly, on the institution's shared risks with other institutions accelerating technical progress, 55.6% agreed, 17.85 totally agreed, 18.9%. Majority of the respondents (82.91%) agreed to accelerate technical progress being realized from shared risks with other institutions with a mean of 3.81 and standard deviation of .811 indicated a fairly good distribution of respondents around the mean. The findings are in agreement with those of Akenga, & Olang, (2017). Table 4.43 provides descriptive statistics on collaborative business intelligence.

Table 4.43: Descriptive statistics on Collaborative Business Intelligence

Collaborative Business Intelligence factors	SD	D	N	A	SA	M	SD
1. Our Resource pooling affects the level of service delivery in my institution	1.1	2.2	13.3	67.8	15.6	3.94	.693
2.Our shared risks have minimized the overall cost for organizational operations	1.1	3.3	26.7	48.9	20.0	3.83	.824
3. Our Long-term exchange of know-how, skills and expertise influences benefits accrued to the institution	0	7.8	40.0	42.2	10.0	3.54	.781
4. My institution's Variety of perspectives and ideas for the innovative product/service influences level of service delivery	0	3.3	21.1	58.9	16.7	3.89	.710
5. The institution's access to technological advancements influences level of service delivery	0	6.7	27.8	55.6	10.0	3.69	.744
6. Broadening the product/service offered influence level of service delivery	0	5.6	26.7	52.2	15.6	3.78	.776
7. Generation and protection of intellectual property improves level of service delivery	2.2	4.4	31.1	43.3	18.9	3.72	.900
8. Efforts made in Improving efficiency in service delivery yields better results for the institution	1.1	7.8	24.4	52.2	14.4	3.71	.851
9.The institution's ability to Cutting down on company costs affects level of profit margins to the institution	0	8.9	24.4	52.2	14.4	3.72	.821

Table 4.43 provides sampled distributions among responses on collaborative business intelligence. On resource pooling affects level of service delivery, 67.8% agreed, 15.6% totally agreed while only 13.3% remained neutral. Most of the respondents (83.4%) agreed that resource pooling affects service delivery with a mean of 3.94.

A standard deviation of .693 indicated fair distribution of respondents around the mean. On whether shared risks have minimized the overall cost for organizational operations, 48.9% agreed with the statement, 20.0% total agreed representing a total of 68.9% agreement that shared risks minimize overall cost on organizational operations with a mean of 3.83 and standard deviation .824. This findings tally with those done by (Akenga, & Olang, 2017). On whether long term exchange of know-how, skills and expertise influences benefits accrued to the institution, 42.2% agreed, 10.0% totally agreed, a total of 52.2% which is above the average number of respondents were in agreement. On the other hand, considerable number consisting of 40.0% remained neutral while only .1.1% disagreed. A mean of 3.89 and standard deviation of .710 indicated that the responses were fairly distributed.

On whether the institution's variety of perspectives and ideas for the innovative product/service influences level of service delivery, 58.9% agreed and 16.7% totally agree summing up a total of 75.6 % in agreement that a variety of ideas influence level of service delivery. Human capital mobilization was therefore found to yield Greater bundles of resourcefulness that synergized resulted in organizational efficiency (Munjuri et al, 2015). A mean of 3.89 and standard deviation of .710 indicated that responses were fairly distributed around the mean.

When asked to react to if the institutions access to technological advancement influences level of service delivery, 52.2% agreed, 15.6% totally agreed, 26.7% with a mean of 3.69 and standard deviation of .744. Majority of the respondents (67.8) agreed that access to technological advancement influences level of service delivery. This is in agreement with much of intellectual capital literate on education. (Siboni & Sangiorgi, 2017).

On whether generation and protection of intellectual property improves level of service delivery, 43.3% agreed, 18.9% totally agreed summing up to 62.1% agreement on property rights influencing level of service delivery. 24.4% were neutral on the matter with a mean of 3.72 and standard deviation of .900. The findings are consistent with those of Ngari et al. (2014) who also found that property rights positively influenced financial performance. On whether efforts made in improving efficiency in service delivery yields better results, majority at 52.2% agreed and 14.4% totally agreed making up a total of 66.6% agreed that efforts to improve service delivery yield better results for the institution. A mean score of 3.71 and standard deviation of .851 indicated that the respondents were fairly distributed around the mean.

Finally, on whether the institutions ability to cutting down on costs affects level of profit margins to the institution, majority consisting of 52.2% agreed and 14.4% totally agreed summing up to 66.6% agreement with the statement. On the other hand, 24.4% were neutral while 8.9% disagreed. A mean of 3.72 and standard deviation of .821 indicated that data was fairly distributed around the mean. Cost cutting strategies have been fairly reported to minimize losses and contributed to performance (Porter, 2011; Prahalad, 2006; Mutindi et al., 2013).

Table 4.44: Descriptive statistics on Relationship with Customers.

Relationship with Customers Factors	SD	D	N	A	SA	M	SD
1.Our relationship with partners enables recognition of unique needs and preferences	0	5.6	21.1	58.9	14.4	3.82	.743
2. Through the institution’s partners, intelligence on the clients' unmet needs is provided	0	6.7	41.1	45.6	6.7	3.52	.722
3. There is an Increased customer satisfaction based on the institution’s established relationships	0	11.1	23.3	55.6	10.0	3.64	.812
4. An enhanced reputation accrues to the institutions that have partnerships	0	10.0	28.9	47.8	13.3	3.64	.839
5. There is a general reduced effect of the competitors' efforts on our institution	0	7.8	30.0	51.1	11.1	3.66	.871
5. Customer loyalty has been attained through customer service delivery process	0	11.1	32.2	45.6	11.1	3.57	.835
6. There is a general Potential for repeat business with the same customer or similar customers	0	7.8	22.2	45.6	24.4	3.87	.877
7. My institution has greatly minimized of potential disputes with its partners	0	12.2	32.2	43.3	12.2	3.56	.863
8. My institution’s data base Enables identification of events that could generate repeat/future business	1.1	7.8	35.6	47.8	7.8	3.53	.796
9. Through institutional partnership firms can access critical and complementary resources	3.3	7.8	25.6	55.6	7.8	3.57	.875

Table 4.44 provides the descriptive distributions among respondents on relationship with customers. On whether relationship with partners enables recognition of unique needs and preferences, 58.9% agreed, 14.4% totally agreed, and this summed up to 73.3% agreement to the statement that partnerships enable recognition of unique needs and

preferences. 21.1% were neutral while only 5.6% disagreed. A mean of 3.82 and standard deviation of .743 was within the acceptable range of response distribution around the mean.

When respondents were asked whether through the institution's partners, intelligence on the clients' unmet needs is provided, 44.6% agreed and 6.7% totally agreed. On the other hand, 41.1% were neutral and 6.7% disagreed. This indicated mixed reactions and a lack of consensus on providing intelligence to the client's unmet needs. A mean of 3.52 and standard deviation of .722 indicated that the response distribution around the mean was acceptable. On whether there is an increased customer satisfaction based on the institution's established relationships, 55.6% agreed, 10.0% totally agreed 23.3% were neutral and 11.1% disagreed.

These finding implies that customer satisfaction is to a large extent derived from the institution's established relationships with a mean of 3.64 and standard deviation of .839. The findings are in agreement with those made by (Glynn et al, 2010). In response to enhanced reputation accrues to the institutions that have partnership, 47.8% agreed, 13.3% totally agreed summing up to 61.1% agreement to the statement with a mean of 3.66 and standard deviation of .781 which was acceptable distribution of respondents around the mean.

On the question of there being reduced effect of the competitors' efforts on institution, 51.1% agreed to the statement, 11.1% totally agreed and this made majority agreement that there is reduced competitor effect on institution. 30.0% were with a mean of 3.57 and a standard deviation of .835. most of the members agreed to this statement and this may be alluded to the institutions being more established than majority of the other institutions that were established after the year 2010. On Customer loyalty having been attained through customer service delivery process, 45.6% agreed, 11.1% totally agreed.

A majority (56.7%) agreed that customer loyalty is attained through customer service delivery which is in tune with most of the literature reviewed from marketing management which asserts the importance of customer service to sustaining growth and retaining customer through value delivery (Bowman, 2007; Wang, 2008). A mean score of 3.87 and a standard deviation of .877 indicating that data was fairly distributed around the mean.

On there being Potential for repeat business with the same customer or similar customers, majority of respondents, 45.6% agreed, 24.4% totally agreed and this made up a total of 70.0% agreement of repeat business with a mean of 3.56 and a standard deviation of .863. On the question of the institution greatly minimizing potential disputes with its partners, 43.3% agreed, 12.2% totally agreed, 32.2% were neutral and 12.2% disagreed. This implied that there are efforts to reduce disputes among partners with a mean of 3.53 and standard deviation of .796, an acceptable range of response distribution around the mean.

On whether the institution's data base enables identification of events that could generate repeat/future business, 47.8% agreed, 7.6% totally agreed, An above average number (55.3%) agreed their data bases enable identification of events that could generate repeat business, sentiments echoed in intellectual capital literature (Siboni and Sangiorgi, 2017; (Kaveh and Bontis, 2018).

Finally on whether through institutional partnerships firms can access critical and complementary resources, 55.6% agreed, 7.8% totally agreed making up to 63.4% of agreement with the statement with a mean score of 3.57 and standard deviation of .875 indicating that data was within range on distribution around the mean. A study done by Glynn et al, (2010) & Ngari et al, (2014) alluded to the importance of partnerships in access to resources complementarily among pharmaceutical companies.

4.10.6 Inferential analysis: Relational capital and Value Creation

The third hypothesis of the study was designed to assess the influence of relational capital initiatives on value creation in public universities in Kenya. The hypothesis was stated as follows.

H_{o3}; Relational capital initiatives has no significant influence on value creation in public Universities in Kenya.

Table 4.45 provides findings on the linear regression between relational capital and value creation.

Table 4.45: linear regression between relational capital and value creation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.369 ^a	.136	.127	.22471

a. Predictors: (Constant), Relational Capital

b. Dependent Variable: Value Creation

Table 4.45 depicts that Relational Capital has R²-value of .127 indicating a significant positive relationship between Relational Capital and Value creation. This is satisfactory to the objective of the study: to assess the influence of relational capital initiatives on value creation in public universities in Kenya. The p values are below $\alpha=.05$, (.01). This leads to rejection of null hypothesis that there is no significant relationship between relational capital initiatives on value creation in public universities in Kenya, at 5% level of significance. The study failed to reject the alternative hypothesis which states that relational capital initiatives have a significant influence on value creation in public Universities in Kenya.

The findings imply that enhancing relational Capital of an institution is positively correlated to Value Creation. The findings concur with those of Chu, Lin, Hsiung, & Liu (2006) as well as Ngari et al, (2014) who found a positive significant influence of relational capital of firm performance. The Anova findings on relational capital and value creation are indicated in table 4.46.

Table 4.46: ANOVA between Relational Capital and Value Creation

Model	Sum of Squares	Df	Mean Square	F	Sig.
1 Regression	.694	1	.694	13.752	.000 ^b
Residual	4.393	87	.050		
Total	5.087	88			

a. Dependent Variable: Value Creation

b. Predictors: (Constant), Relational Capital

The ANOVA Table 4.46 presents the findings. The F-test findings are significant since its p-value < 0.05, (F (1, 88) =13.752). This suggests that the overall model is a good predictor of the outcome. This lead to rejection of null hypothesis that there is no significant relationship between relational capital initiatives and value creation in public universities in Kenya. The study failed to reject the alternative hypothesis which stated that relational capital initiatives has a significant influence on value creation in public universities in Kenya at 95% confidence level. Similar findings are made by Ngari et al, (2014) whose model fit was good on the relationship between relational capital and firm performance in pharmaceutical companies in Kenya. The test statistic is significant at 95% confidence level with $P \leq .05$. (.00).

Table 4.47: Coefficients for Relational Capital and Value Creation

Model	Unstandardized		Standardized	T	Sig.	Collinearity	
	Coefficients		Coefficients			statistic	
	B	Std. Error	Beta				
(Constant)	3.318	.243		13.637	.000	tolerance	VIF
1 Relational Capital	.241	.065	.369	3.708	.000	0.894	2.08

a. Dependent variable: Value Creation

The coefficients Table 4.47 shows the intercept for the linear equation is 3.318 and the gradient is 0.369. The t-test of each of these parameters is significant since their p-value < 0.05. The intercept value represents the score of value creation when relational capital score is 0. The gradient value tells us that with every increase of a single score in relational capital, the value creation will increase by .369. In summary, the model equation is as shown below: $Y = \beta_0 + \beta_1 X$ where:

Y= Value capital

X= Relational Capital

$Y = RC (.369) + 3.318$

Value creation = $3.318 + 0.369 \text{Relational capital}$

The findings indicate that relational capital has a positive significant linear relationship with value creation, with a Pearson correlation coefficient of 0.369 and a p-value below 0.05 at 95% confidence interval. This implies that there is fairly strong positive correlation between relational capital and value creation in public universities in Kenya.

These findings conform to the studies undertaken by Khalique et al, (2011); Saari, (2011) with positive significant contribution between relational capital and firm

performance. The table 4.48 also indicates that the p-value is less than 0.05. Therefore, in this case the study rejected the null hypothesis and failed to reject the alternative hypothesis which implies that relational capital has a significant influence on value creation in public universities in Kenya. Similar findings and underscored by (Kaveh et al., 2018; Karanja et al., 2012; Priscila et al., 2014).

4.10.7 Influence of Relational Capital on Value Creation as moderated by Situational Environment

The regression coefficient Table 4.48 between relational capital and value creation as moderated by situational environment is as indicated.

Table 4.48: Model summary on relational capital when moderated

R	R Square	Adjusted R Square	Std. Error of the Estimate
.440 ^a	.194	.165	.22004

a. Predictors: (Constant), int_3 (product of zNRC and zNE) , Zscore of Situational Environment, Zscore of Relational Capital

Table 4.48 presents findings of the regression model on relational capital and value creation when moderated by situational environment. The value of R and R² are 0.440 and 0.194 respectively. The R value of 0.440 represents the correlation between value creation and the Z-score of normalized relational capital and normalized situational capital. The R squared which indicates the explanatory power of the independent variables is 0.194. This means that about nineteen point one (19.1%) of the variation in value creation is explained by the moderation of situational capital on relational capital. The R squared value as revealed by the result is low which means that about eighty percent (80%) of the variation in the dependent variable is unexplained by the model this findings denote a weak influence of the moderator on the independent variable. The standard error of the estimate is 0.22004, which explains how representative the sample

is likely to be of the population. The results presented in model summary table 4.81 indicated that 16.5% (R squared = 0.165) of the observed variance in value creation can be attributed to the interaction of both relational capital and situational environment. Table 4.49 indicates the Anova Table between relational capital and value creation as moderated by situational environment.

Table 4.49: ANOVA between Relational Capital and Value Creation when moderated

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	.978	3	.326	6.735	.000 ^b
Residual	4.067	84	.048		
Total	5.045	87			

a. Dependent Variable: Value Creation

b. Predictors: (Constant), int_3, zNSE (Zscore of Situational Environment), zNRC (Zscore of Relational Capital)

The strength of the model was also considered by examining the goodness-of-fit of the model. Findings in table 4.49 show that the model designed for the study is good as evidenced by the results ($F = 6.735, p < 0.05$).

The Anova Table 4.49 which is a test of the overall model therefore indicates that the influence of structural capital on value creation as moderated by situational environment in public university is significant ($F=6.735, p<0.05$).

Table 4.50 indicates coefficients between relational capital and value creation as moderated by situational environment.

Table 4.50: Coefficients on relational capital and value creation when moderated

Model	Unstandardized Coefficients		Standardized Coefficients		T	Sig.
	B	Std. Error	Beta			
(Constant)	4.211	.024			175.099	.000
Zrc	.082	.025	.340		3.335	.001
zSE	.049	.024	.204		2.024	.046
Int_3	.007	.024	.027		.271	.787

a. Dependent Variable: Value Creation

Table 4.50 shows findings for the coefficients on relational capital. The t-value for the interaction is 0.271 at p-value >0.05. (.787). This shows the condition for interaction is insignificant. It can be deduced from the results that there is no significant moderation of relational capital by situational environment to influence value creation in public Universities in Kenya. The coefficient for the interaction of relational capital and situational environment (int_3) is insignificant (B=-.027, t = 0.271, p>0.05). This implies that the influence of relational capital on value creation in public university is not moderated by situational environment.

The hypothesis that the influence of relational capital variable on value creation is moderated by situational environment was therefore not confirmed. This findings conform to a study by Muraguri (2016) who found a negative influence of the moderating effect of organizational environment on strategic execution. The study reported that the environment to a large extent does not affect the strategic intents of an organization and can therefore be downplayed as a contributor to organizational performance.

4.11 Principal Component Analysis for Situational Environment

The KMO and Bartlett's Test was carried to test whether the sample size is good enough for Principal component Analysis.

Table 4.51: Bartlett's Test on Situational Environment

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.806
	Approx. Chi-Square	140.152
Bartlett's Test of Sphericity	Df	21
	Sig.	.000

The table 4.51 above indicates that from the Bartlett's test done, data was fit for further statistical analysis given that the value was significant. $P < 0.05$

4.11.1 Eigen value extraction on situational environment

The Eigen values extraction using principal component analysis for situational environment is provided in Table 4.52.

Table 4.52: Eigen value extraction on situational environment

Component	Initial Eigenvalues			Extraction Total	Sums of Squared Loadings		
	Total	% of Variance	Cumulative %		% of Variance	Cumulative %	
1	3.049	43.553	43.553	3.049	43.553	43.553	
2	.987	14.106	57.659				
3	.776	11.088	68.747				
4	.678	9.690	78.437				
5	.592	8.451	86.887				
6	.506	7.231	94.118				
7	.501	5.882	100.000				

Extraction Method: Principal Component Analysis.

Table 4.51 indicates the output for principal component analysis. Principal component analysis was used to extract the components that had Eigen values above 0.5 as indicated in table 4.65 above. All the seven components were retained for further statistical analysis.

4.11.2 Eigen Values Rotated Component of Situational Environment

The rotated component matrix for situational environment is provided in table 4.52.

Table 4.52: Rotated Component Matrix for Situational Environment

Test items	Component
SE1institution recognizes superior performance	.760
SE6team multidisciplinary nature enables fairness and objectivity in service delivery	.703
SE3institution has a sense of pride in its organization members	.690
SE4there are flexible structure and procedure that are responsible to the specific needs	.648
SE7there is a formal innovation approach by the company that links new ideas to specific goals	.629
SE5institution has adopted good communication and information flows	.593
SE2ther is a value placed on innovativeness in the institution	.578

Table 4.52 indicates the Eigen value of the moderating variable (situational environment) and its components. The scree plot provided in the appendices indicates that seven (7) components were considered for further analysis. However out of the factors, two (2) of them were extracted from the scree plot since their Eigen values were >1 or equal to 1. These factors explained a cumulative variance of 70.622% as recommended threshold of +70 percent (David et al., 2010). The rule of the thumb is that for more subsequent analysis the Eigen value has to be 1 or more. These results of Eigen values

indicated that on situational environment variable seven sub variables were valid for subsequent analysis and this results conforms to the results of previous studies done by Bollen, et al.(2005); Seng, et al (2004). All the seven (7) sub variable items were confirmed to be valid for subsequent further analysis since their factor loading values were more than 0.5 which is considered to be good (Field, 2005).

4.11.3 Normality Test for Situational Environment

Normality was sort on the variable situational environment using the Kolmogorov Smirnov and Shapiro Wilk test. The findings are indicated in table 4.53.

Table 4.53: Normality Test for Situational Environment

Situational Environment					
Kolmogorov-Smirnov ^a			Shapiro-Wilk		
Statistic	Df	Sig.	Statistic	Df	Sig.
.128	90	.001	.958	90	.006

a. Lilliefors Significance Correction

From the Table 4.53 the p value $< \alpha$: this implies that the data do not follow a normal distribution .The normality test on situational environment in Table 4.54 shows that on both Kolmogorov-Smirnov and Shapiro-Wilk the significance value $P < 0.05$. This then implies that human capital is statistically insignificant and that the data may not be approximately normally distributed. As noted by Shenoy and Malone (1994) one way to make it very likely to have normal residuals is to have a dependent variable that is normally distributed and predictors that are all normally distributed. This indicated that human capital variable was not normally distributed. The two step procedure involved fractional ranking and calculating the inverse difference of normal. The mean after correction of the significance was 3.99 and its standard deviation is 0.29.

Table 4.54: Normality Test of Environment with lilliefors significance correction

Kolmogorov-Smirnov ^a			Shapiro-Wilk		
Statistic	Df	Sig.	Statistic	Df	Sig.
.075	89	.200*	.987	89	.550

*. This is a lower bound of the true significance.

a) Lilliefors significance correction.

Table 4.54 above indicate the normalized situational environment normality test findings. The $P\text{-value} > \alpha$: this then implies that the data does follow a normal distribution (Fail to reject H_0) If the p-value is larger than the significance level, the decision is to fail to reject the null hypothesis. This value implied that there was not enough sufficient evidence to conclude that the data do not follow a normal distribution. (Corder & Foreman, 2014).

4.11.4 Descriptive Statistics for Situational Environment

Descriptive statistics on situational environment component and provided. The construct was measure using the subcomponents organizational physical resources and organizational support. Table 4.45 indicates descriptive findings on situational environment.

Table 4.55: Descriptive findings on situational environment

Situational Environment Factors	SD	D	N	A	SA	M	SD
My institution adequately recognizes superior Performance	0	5.6	21.1	60.0	13.3	3.81	.733
There is a value placed on innovativeness in my institution	1.1	4.4	34.4	45.6	14.4	3.68	.819
My institution has a sense of pride in its organization's members	0	7.8	31.1	43.3	17.8	3.71	.851
There are Flexible structures and procedures that are responsive to the specific needs of the institution	0	14.4	23.3	45.6	16.7	3.64	.928
My institution has adopted good communication and information flows	0	14.4	28.9	48.9	7.8	3.50	.838
The Multidisciplinary nature of the team enables fairness and objectivity in the service delivery process	1.1	16.7	21.1	53.3	7.8	3.50	.903
There is a formal innovation approach by the company, linking new ideas to specific business goals.	3.3	15.6	27.8	38.9	14.4	3.46	1.029

The Table 4.55 indicates descriptive findings on situational environment. The percentage, mean and standard deviation distribution are shown. Situational environment was measure to determine the extent which changes that accompany the dynamic environment that can sometimes be unpredictable influence value creation in public universities. When respondents were asked whether the institution adequately recognizes superior performance, 60.0% agreed, 13.3% totally agreed, and 21.1% were neutral while 5.6% disagreed with a mean of 3.81 and a standard deviation of .733. The standard deviation indicated that the distribution of data was not far from the mean since it was less than one. On there being value placed on innovativeness realized by members within the institution, 45.6% agreed, 14.4% totally agreed, 34.4% were neutral, 4.4% disagreed while 1.1% totally disagreed with a mean of 3.68 and a standard deviation of .819.

On the opinion of the institution having pride in organizational members, 43.3% agreed, 17.8% totally agreed, and 31.1% remained neutral while 7.8% disagreed with a mean score of 3.71 and a standard deviation of .851 indicating that data was not distributed far from the mean. Majority, 61.2% agreed to the institution taking pride in the organizational members. On there being flexible structures and procedures that are responsive to the specific needs of the institution, 45.6% agreed, 16.7% totally agreed, 23.3% were undecided, while 14.4% disagreed. This implied that most of the academic deans and chairpersons of department, 62.3% agreed to there being flexible structures that were responsive to the needs of their institutions. The findings are in agreement with Gitonga & Gachunga, (2015) who found the organizations' environment and its establishments as being invaluable the dynamics that enable building capacities for problem solving.

On whether the institution had adopted good communication and information flows, 48.9% agreed, 7.8% totally agreed, 28.9% were neutral, while 14.4% disagreed. More than half the respondents, 56.7% agreed to good communication and information flows with their institutions. Findings are in agreement with relational capital literature which cites communication flows, culture and integration among organizational members as being important in enabling the sharing that breeds higher productivity and improves the competencies of its members.

On whether the multidisciplinary nature of the team enables fairness and objectivity in the service delivery process, 53.3% agreed, 7.8% totally agreed. This made a total of 61.2% agreement the statement that the multidisciplinary nature of the teams enabled fairness and objectivity in the service delivery process. 21.1% were neutral on the item while 16.7% disagreed and 1.1% totally disagreed. A mean of 3.50 and standard deviation of .838 were scored the multidisciplinary nature of the team being objective and enabling fairness in service delivery. The findings are in agreement with human resource management literature emphasizes the need for work diversity practices that encourage creativity and problem solving by bringing together diversity of perspective, skill, competencies and experiences (Nzuve et al., 2013).

On the question of there being a formal innovation approach by the company that links new ideas to specific business goals, 14.4% strongly agreed, 38.9% agreed adding up to an agreement by 53.3% of the members that there was a formal approach to linking new ideas to specific business goals. However, 27.8% of the members remained neutral to the question, 15.6% disagreed while 3.35 totally disagreed. The mean score of the formal approach to linking new ideas to specific business objectives was 3.46 with a standard deviation greater than one at 1.029.

4.11.5 Inferential findings for situational environment and value creation.

The fourth objective of the study was designed to evaluate the extent to which situational environment as a moderating variable influences value creation in public universities in Kenya. The hypothesis was stated as follows:

Ho4: situational environment has no significant moderating influence between intellectual capital and value creation in public universities in Kenya.

4.11.6 Linear Regression between situational environment and value creation.

The model summary on situational environment and value creation is provided in Table 4.56.

Table 4.56: Regression between situational environment and value creation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.277 ^a	.077	.066	.23235

a. Predictors: (Constant), Situational Environment

b. Dependent Variable: Value Creation.

In Table 4.56 model summary generated from the linear regression, the R^2 (coefficient of determination) value was 0.077 which indicated that 7.7% of the observed variations in the value creation can be explained by the model (value creation=M (situational environment) +constant). This is a very weak indicator that situational environment is a good predictor of value creation. Table 4.57 presents the Anova findings on situational environment and value creation

Table 4.57: ANOVA between Situational Environment and Value Creation

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	.391	1	.391	7.236	.009 ^b
Residual	4.697	87	.054		
Total	5.087	88			

a. Dependent Variable: Value Creation

b. Predictors: (Constant),Situational Environment

Table 4.57 on ANOVA between situational environment and value creation indicated a significant relationship between the variables ($F=7.236$, $P \leq .05$).

Table 4.58: Coefficients between situational environment and value creation

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.775	.166		22.769	.000
	Situational Environment	.122	.045	.277	2.690	.009

a. Dependent Variable: Value Creation

The coefficients Table 4.58 shows the intercept of the linear equation is 3.775 and the gradient is 0.277. The t-test of each of these parameters is significant since their p-value < 0.05. The intercept value represents the score of value creation when situational environment score is 0. The gradient value which tells us with every increase of a single score in situational environment, the value creation will increase by 0.277. In summary, the model equation is as shown below:

$$\text{Value Creation} = 3.775 + 0.277 \text{ Situational Environment.}$$

It is evident that institutional situational environment is statistically significant at $\beta=3.775$; $t = 0.277$; $p = 0.009$ In this case, at 95% level of confidence, situational environment has a weak influence on and value creation in public universities in Kenya. The findings of this study are in agreement with the argument by Porter (2011), that complexity and rapid changes in the institutional environment are more or less important as the basis for organizational performance.

This is because organizations have changed to become more concerned about knowledge assimilation and through acts of technological innovations. For these reasons, the institutional environment is unstable and organizations need to continuously build, integrate, and reconfigure their skills and abilities to adapt to their environment and sustain competitive advantage. This is also in line with the research findings of Muraguri (2016) who noted an insignificant contribution of organizational environment on strategic execution.

4.12 Principle Component Analysis for Value Creation

Principle component analysis for value creation was sort to determine the suitability of data for further analysis. The output for KMO and Barlett's test of Sphericity are provided in table 4.59.

Table 4.59: KMO and Bartlett's Test of Sphericity for Value Creation

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	Bartlett's Test of Sphericity		
	Approx. Chi- Square	Df	Sig.
.755	391.508	105	.000

The KMO and Bartlett's Test was carried to test whether the sample size is good enough for Principal component Analysis. The results are displayed in table 4.59. The significant value indicates that data was adequate to proceed with principal component analysis $P < .05$.

4.12.1 Eigen Values for extracted components of Value Creation

The components on Eigen values extraction are presented in table 4.60.

Table 4.60 Eigen values and extracted Components of Value Creation

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.621	30.804	30.804	4.621	30.804	30.804	2.410	16.070	16.070
2	1.491	9.942	40.746	1.491	9.942	40.746	2.368	15.788	31.858
3	1.445	9.636	50.382	1.445	9.636	50.382	2.019	13.459	45.317
4	1.205	8.036	58.418	1.205	8.036	58.418	1.965	13.101	58.418
5	.948	6.320	64.738						
6	.865	5.765	70.503						
7	.818	5.451	75.954						
8	.720	4.802	80.756						
9	.565	3.763	84.519						
10	.516	3.441	87.960						
11	.463	3.087	91.047						
12	.426	2.837	93.885						
13	.372	2.478	96.362						
14	.311	2.074	98.436						
15	.235	1.564	100.000						

Initial eigenvalue in Table 4.60 indicated that the first four factors explained 30.80%, 9.94%, 9.64% and 8.036% of the variance respectively. The three factor solution, which explained 58.42% of the variance, was preferred because of the ‘leveling off’ of eigenvalues on the scree plot. There was little difference between the four factor varimax and Oblimin solutions, thus both solutions were examined in subsequent analyses before deciding to use Varimax rotation for the final solution.

4.12.2 Eigen values for Rotated Component Matrix Value Creation

The Eigen values for the rotated matrix component on value creation is provided in Table 4.61.

Table 4.61: Rotated Component Matrix for Value Creation

	Component			
	1	2	3	4
The services offered by the institution achieve high levels of customer satisfaction	.748			
The institutions brand is comparably competitive in the market	.730			
The quality of compliance with regulatory standards such as CUE is way above that of competitors	.695			
There is profit generation from intellectual property rights	.523			
The organisation's enhanced reputation can be illustrated with articles in trade journals, patents etc.				
The organization has pooled variety of perspectives and ideas for innovative products/services		.745		
The services offered by the institution facilitate learning for future efforts		.717		
There is strategic positioning through innovation		.572		
The effectiveness of deployed intellectual capital has resulted in value creation for the organization				
There is strategic positioning through technological leadership			.791	
There has been cost reduction based on the available organisational intelligence resulting in institutional value creation			.725	
The activities, processes and operations of the institution produce higher output that results in value creation			.649	
The institution's intellectual resourcefulness has contributed to enhancing its reputation				.747
Customer loyalty has resulted from the organisation's enhanced intellectual capital				.678
The institution's services to a large extent meet their revenue goals				.536

Note: Factor loadings <.5 are suppressed.

The Table 4.61 indicates the factor loadings for value creation. The value creation variable was computed as a composite variable by calculating the mean of all extracted items using principal component analysis for each respondent. The mean for this variable is 4.21 and the standard deviation is 0.25.

4.12.3 Normality Test for Value Creation

It was necessary to perform further statistical analysis to determine the normality of the value creation component. The first test was determine the Kolmogorov Smirnov and Shapiro Wilk test as shown in Table 4.62.

Table 4.62: Normality of Value Creation Test

Statistics	Value Creation	
	Kolmogorov-Smirnov ^a	Shapiro-Wilk
Statistic	.149	.945
Df	90	90
Sig.	.000	.001

a. Lilliefors Significance Correction

Table 4.62 indicates findings on normality test of value creation .On carrying out test of normality, Kolmogorov-Smirnov and Shapiro-Wilk significance values were less than 0.05 as shown in table above. This is an indication that value creation is not statistically normally distributed. Value creation was transformed using the two-step process which involved carrying out a fractional ranking and Computing a normalized variable by using the inverse difference of normal (Daoud, 2017)) procedure.

4.12.4 Normality test on Value Creation with lilliefors correction

Normality was sort on value creation component using Lilliefors Significance Correction.

Table 4.63: Test of Normality of Value Creation

Test item	Value Creation	
	Kolmogorov-Smirnov ^a	Shapiro-Wilk
Statistic	.097	.979
Df	90	90
Sig.	.035	.153

a. Lilliefors Significance Correction

The Table 4.63 indicates findings on normality tests of value creation after carrying out the two step process on lilliefors significance correction. There was an improvement with the data transformation given that the significance value improved in both tests.

4.12.5 Descriptive Statistics on Value Creation

Value creation was presented as a composite of customer satisfaction and potential for future business. The means, standard deviations and percentage distribution are indicated in the tables' ensuing together with a description. Table 4.64 provides descriptive statistics on value creation.

Table 4.64: Descriptive findings on value creation.

Statement	SD	D	N	A	SA	M	SD
	%	%	%	%	%		
There is profit generation from intellectual property rights	0	0	0	58.9	41.1	4.41	.495
There is strategic positioning through innovation.	0	0	1.1	81.1	17.8	4.17	.404
There is strategic positioning through technological leadership	0	0	0	82.2	17.8	4.18	.384
The institutions brand is comparably competitive in the market	0	0	0	76.7	23.3	4.23	.425
The activities, processes and operations of the institution produce higher output that results in value creation	0	0	0	71.1	28.9	4.29	.456
The quality of compliance with regulatory standards such as CUE is way above that of competitors	0	0	5.6	66.7	27.8	4.22	.536
There has been cost reduction based on the available organizational intelligence resulting in institutional value creation	0	0	0	47.8	52.2	4.52	.536
The effectiveness of deployed intellectual capital has resulted in value creation for the organization	0	0	0	48.9	51.1	4.51	.503
The institution's services to a large extent meet their revenue goals	0	0	1.1	55.6	43.3	4.42	.519
The services offered by the institution achieve high levels of customer satisfaction	0	0	6.7	75.6	17.8	4.11	.484
The organization's enhanced reputation can be illustrated with articles in trade journals, patents etc.	0	0	0	61.1	38.9	4.39	.490
The services offered by the institution facilitate learning for future efforts	0	0	0	68.9	31.1	4.31	.466
The organization has pooled variety of perspectives and ideas for innovative products/services	0	0	0	74.4	25.6	4.26	.439
The institution's intellectual resourcefulness has contributed to enhancing its reputation	0	0	7.8	92.2	0	3.92	.269
Customer loyalty has resulted from the organization's enhanced intellectual capital	0	2.2	24.4	73.3	0	3.71	.503

The Table 4.64 provides descriptive findings on value creation in public universities in Kenya. On whether there was profit generation from intellectual property right, 58.9% agreed while 41.1% totally agreed with a mean of 4.41 and a standard deviation of .495. From the table, all organizational members agreed that profit is generated through intellectual property rights, findings echoed by Ngari et al. (2013). When respondents were asked whether there was strategic positioning through innovation, only 1.1% remained neutral while the rest agreed that there was strategic positioning through innovation (81.1% agreed while 17.8% totally agreed) with a mean of 4.17 and a standard deviation of .404. On whether there was strategic positioning through technological leadership, 82.2% agreed while 16.7% totally agreed with a mean score of 4.18 and a standard deviation of .384. These were high scores indicating an affirmation that the institution had deliberately positioned themselves strategically through technological leadership. Technology is therefore considered an important tool to enable these institutions to create and deliver value to their customers, a statement that is congruent with the research done by Karanja et al. (2012).

In response to the institutions' brand being comparably competitive in the market, 76.7% agreed while 23.3% totally agreed. From the sampled institutions, it was clear that the deans and chairpersons of departments strongly felt that their institution's brand was comparably competitive in the market. With a mean of 4.23 and a standard deviation of .425. When asked whether the activities, processes and operations of the institution produced higher output that resulted in value creation, 71.1% agreed and 28.9% totally agreed with a mean of 4.29 and a standard deviation of .456. These were high scores indicating that the organizational outputs resulted in value creation.

The institutions are therefore encouraged to continually institutionalize their activities, processes and operations as they result in higher output to the organization. On whether the quality of compliance with regulatory standards such as Commission of University Education is way above that of competitors, 66.7% agreed, 27.8% totally agreed while only 5.6% remained neutral on the matter with a mean of 4.22 and standard deviation .536. The findings indicate a strong commitment by universities in compliance with

regulatory institutions. This implies that the organizations provide accountability and openness to recommendations from the regulatory framework and a readiness to address flows in order to meet stakeholder expectations.

On whether there had been cost reduction based on the available organizational intelligence resulting in institutional value creation, 47.8% agreed and 52.2% totally agreed with a mean score of 4.52 and a standard deviation of .502. Members agreed that their institutions had realized cost reduction through utilization of the available organizational intelligence that resulted in value creation. The need to build on the use of organizational intelligence is therefore encouraged in order to enable informed decision making that result in value creation for the institutions.

On the effectiveness of deployed intellectual capital resulting in value creation for the organization, 48.9% agreed and 51.1% totally agreed with a mean score of 4.51 and a standard deviation of .503. The importance of intellectual capital in creating value is underscored from the findings such that as these resources are deployed, they are able to realize gains through value creation. In response to the institution's services to a large extent meeting their revenue goals, 55.6% agreed, 43.4% totally agreed and 1.1% was neutral on the matter with a mean of 4.42 and a standard deviation of .519.

The relevance of institutional services were underscored with a high level percentage agreement that they are self-sustaining in meeting their revenue goals. This implies that most of the service offered in public universities generated value. On the question of the services offered by the institution achieving high levels of customer satisfaction, 75.6% of respondents agreed, 17.8% totally agreed and 6.7% remained neutral with a mean of 4.11 and a standard deviation of .484. Value generated to the customers as echoed by the respondents implied that the institutions created value which answers the question that intellectual capital initiatives create value for public Universities. When respondents were asked if the organization's enhanced reputation can be illustrated with articles in trade journals, patents etc. 61.1% agreed and 38.9% totally agreed with a mean of 4.39 and a standard deviation of .490. These findings are in agreement with the research

findings of Karanja et al, (2012) and Ngari et al. (2013) that intellectual property rights were positively correlated with performance of firms.

In response to the services offered by the institution facilitating learning for future efforts, 66.6% agreed and 33.3% totally agreed with a mean of 4.31 and a standard deviation of .466. Members in overall agreed that their institution's services facilitated learning for future, an indication of the readiness among organizations to innovate in order to remain relevant. On the universities having pooled variety of perspectives and ideas for innovative products/services, 74.4% agreed and 25.6% totally agreed with a mean of 4.26 and a standard deviation of .439. This statement affirms that universities consult widely and draw perspectives from a wider network as to innovate their products and services.

Similar findings were provided by Porter and Kramer, (2011) who noted improved performance by firms that remained strategically relevant amidst the changing environment. The study underscored the relevance of innovating and applying strategic models that enable the organization to be on the cutting edge of competitiveness amidst the turbulent social economic changes that may not be favourable to organizational productivity. On the universities gaining various perspectives to innovate in service delivery, it affirms the commitment to future growth and relevance of the products and services offered. On whether the institution's intellectual resourcefulness has contributed to enhancing its reputation, 7.8% were neutral while 92.2% agreed with a mean of 3.92 and a standard deviation of .269. The resourcefulness endowed in institutions of higher learning was therefore found to be invaluable to enhancing the reputation of the organizations.

A study by Di Bernardino and Corsi, (2018) underscored that it is the human capital of universities that enables realization of mission and creates sustaining value. They further note that the knowledge among the researchers, together with their social connectivity and contacts within an enabling environment can significantly contribute higher financial returns through research, publications and commercialization of knowledge in

the society. They note that this may be invaluable to universities given the declining enrolment of students and the need for universities to be self sustaining amidst limited funding from governments and other establishments. This is evidenced through retention strategies employed in with some institutions offering better incentive strategies as they benchmarked with competitors in order to retain their human capital (Wanza et al, 2017).

On whether customer loyalty had resulted from the organization's enhanced intellectual capital, 2.2% disagreed, 24.4% were neutral while 73.3% totally agreed. The findings reinforce the relevance attached to intellectual capital theory by agreeing that customer loyalty can be derived by deliberate efforts instituted through intellectual capital initiatives to create value for the institutions.

4.13. Overall Regression Model for independent and dependent variables.

Multiple regression analysis was used to determine the significance of the relationship between the dependent variable and all independent variables pooled together (Corder and Foreman, 2014).

This analysis was used to answer the questions; how do the independent variables influence the dependent variable collectively; to what extent does each predictor variable affect the dependent variable in such a collective set-up, and; which are the more significant factors.

4.13.1 Overall Model without Moderating Variable.

The findings of the analysis are presented. They indicate that a combination of human capital, structural capital and relational capital explained an increased variation in

Value creation in public universities in Kenya ($R^2 = .866$). table 4.65 provides findings on the overall model without the moderator.

Table 4.65: Multiple Regression Model Summary without Moderating Variable

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.933 ^a	.870	.866	.08625

a. Predictors: (Constant), Relational Capital, Structural Capital, Human Capital

b. Dependent Variable: Value Creation

The results in Table 4.65 showed that the value obtained for R, which is the model correlation coefficient was R=.866 which is higher than any zero order value in the table. This indicates that the model improved when more variables were incorporated when trying to analyze the factors influencing value creation in public Universities. The adjusted r^2 value of $r^2=0.866$ also indicated that the multiple linear regression model explained for approximately 86.6% of the variation in the determinants of Value Creation in public universities in Kenya.

The findings are in agreement with other studies which indicate a marked improvement and increase of the regression coefficient when the intellectual capital components are combined. This implies that the combined effort of intellectual capital components has a greater effect than the isolated effect of the individual components. Similar findings were reported in previous studies. (Chahal & Bakshi, 2014; Hoang, Bui & Nguyen, 2018 ; Kamath, 2015). organizations with high intellectual capital resourcefulness are therefore encouraged to develop their intangible assets given the high value creation leverage that is associated with the concerted effort of individual constructs to create and deliver value. Table 4.66 indicates findings on Anova between independent and dependent variables.

Table 4.66: ANOVA between Independent and Dependent Variables.

Model		Sum of Squares	Df	Mean Square	F	Sig.
	Regression	4.188	3	1.396	187.674	.000 ^b
1	Residual	.625	84	.007		
	Total	4.813	87			

a. Dependent Variable: Value Creation

b. Predictors: (Constant), Relational Capital, Structural Capital & Human Capital

The Table 4.66 indicates that findings on ANOVA model of value creation with human capital, structural capital and relational capital was significant ($p < 0.05$) and explained value creation among public Universities in Kenya.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \varepsilon$$

From the table 4.66, the test statistic is significant with α value less than 0.05. This implies that reject the null hypothesis and fail to reject the alternative hypothesis. The study concludes that human capital initiatives, structural capital initiatives and relational capital initiatives have a significant combined effect on value creation. The F- ratio, which explained whether the results of the regression model could have occurred by chance (error) had a value of 187.674, $p = 0.00$ and was considered significant.

4.13.2 Association among variables

To answer the question about which of the independent variables is more important in Value Creation in public universities in Kenya, the beta value were explored and the results of this are summarized in Table 4.67

Table 4.67: Correlation between dependent and independent variables Coefficients.

Model	Unstandardized		Standardized	T	Sig.
	Coefficients		Coefficients		
	B	Std. Error	Beta		
	1.245	.137		9.061	.000
1					
(Constant)					
Human Capital	.658	.041	.819	16.031	.000
Structural Capital	.077	.026	.149	3.019	.003
Relational Capital	.028	.027	.044	1.049	.297

a. Dependent Variable: Value Creation

Table 4.67 illustrates the Pearson Correlation analysis used to examine the association among variables. Correlation coefficient is a measure of linear association between two variables. The beta coefficients and significance values at 95% confidence interval indicate that Human capital and Structural capital variables are significant and that they are positively correlated. Human capital has a higher correlation with value creation than structural and social capital constructs. Relational capital has a relatively weak positive insignificant relationship with value creation with $\alpha \geq .05$ ($p=.297$).

The ranking of the independent variables with relation to their contribution to value creation are; Human capital contributes more to value creation in public Universities with a Pearson correlation of 0.819 followed by Structural capital with a Pearson correlation of 0.149 and thirdly by relational capital with a Pearson product moment correlation of .044. Similar findings were reported by Ngari et al, (2014); Di Bernardino & Corsi, (2018). However, contradicting findings were also reported in a study which found a higher contribution by relational capital on performance compared to structural capital (Priscila, Luiz & Alin, 2014).

The findings indicate that value creation is positively and significantly influenced by human capital ($r = 0.819$, $p = 0.001$) structural capital with ($r = 0.149$, $p = 0.003$). However, on relational capital, the influence was insignificant ($r = 0.044$, $p = 0.297$) and relational capital ($r = .044$). The findings indicate that human capital is the most important component of intellectual capital initiatives in influencing value creation in public universities. Similar sentiments propose that human capital is a primary and very critical component of intellectual capital because it is a source of innovation (Kaveh & Bontis, 2018; Siboni, & Sangiorgi, 2017; Ramirez, Tejada & Manzaneque, 2016).

On the other hand, relational capital is ranked third. This is in agreement with the previous studies by Khalique et al. (2011) demonstrated that structural capital was ranked as a second contributor to business performance of pharmaceutical companies. Structural capital tended to have a lower influence on value creation than that of human capital. However, contradicting findings were also reported indicating a higher contribution of structural capital on competing values framework in shaping the culture of an institution (Quinn and Cameroon, 2011).

It can be concluded from the discussion that the findings revealed support for the hypothesis that human capital and structural capital positively and significantly influence value creation in public Universities. A study undertaken by Saari, (2011) provided contradicting results to those presented in this study. In his study of Iranian companies, the findings revealed that relational capital has a positive contribution to value creation. The study therefore notes that different components of intellectual capital will have different contributions to value creation in different settings. From table 4.69, the results illustrated that the three components of intellectual capital initiatives when combined have a positive significant influence on value creation. The findings demonstrated that intellectual capital can be used to mobilize, assemble and manage all intangible resources in order to enhance value creation and this is in agreement with the findings of others (Bontis & Fizenz, 2012; (Hoang, Bui and Nguyen, 2018; Kianto, Andreeva and Pavlov, 2013; Sharma, 2018).

These findings enhance intellectual capital theory by demonstrating that intellectual capital constructs have significant positive relationship with value creation. This emphasizes the importance of the constructs of intellectual capital theory which comprise human capital, structural capital and relational capital in influencing the value deliverables of an organization. As such, when an organization increases its intellectual capital, it is expected that its value deliverables will be enhanced. In a number of similar studies on the relationship between intellectual capital as predictor variables have yielded positive correlations regardless of industry (whether service or non- service industry).

This findings imply that organizational effort to codify organizational knowledge and thereby further develop their intellectual capital ultimately yielded positive results. This is in agreement with the findings of others (Ngari et al, 2014; Inkinen, 2016 and Onyekwelu and Ubesie, 2016). Implications for senior managers are that there exist a constant interplay among human capital, structural capital and relational capital to which organizations can leverage and deliver value (Ngugi, Gakure, & Kahiri, 2013; Bontis, & Fizenz, 2012; Kaveh & Bontis, 2018).

It is also concluded from this study that Isolated stocks of knowledge that reside in employees minds that are never codified into organizational knowledge will never positively affect business performance. This implies that there is insufficiency for organizations to hire and promote the human capital that they find but rather the need to codify and retain organizational knowledge in the systems and structures is equally important. An organization must therefore support and nurture sharing in their human capital through organizational learning and externalization into information systems.

The findings confirm that there is a positive significant relationship between intellectual capital initiatives and organizational value creation. Therefore it can be concluded from the findings that intellectual capital initiatives have a positive influence as indicated by the correlation results and supported by empirical research.

4.13.3 Overall Model with Moderating Variable

H₀₄: Situational environment has no significant moderating effect between intellectual capital initiatives and value creation in public universities in Kenya.

The fourth hypothesis sought to establish whether the influence of human capital on Value creation is moderated by situational environment. The Baron and Kenny approach in testing for moderation was employed for the purposes of this study. When the moderator variable Z (situational environment) was introduced into the model, the moderation effect of Z is modeled in the regression equation as follows:

$$Y = \beta_0 + \beta_1 X + \beta_2 Z + \beta_3 XZ$$

Where X = Independent variable (human capital)

Z = Moderator (situational environment)

XZ = Product of the standardized scores for the independent variable and the moderator

Y = value creation

The regression coefficient β_3 measures the interaction effect between independent variable X and moderating variable Z. The test of moderation was operationalized by the product term XZ (the multiplication between independent variable X and moderator variable Z). In order to test the moderation in the model, β_3 (the coefficient of interaction term XZ) was tested. If β_3 is significant, then one could conclude that moderator variable Z moderates the relationship between X and the moderator hypothesis would be supported if the interaction XZ in predicting value creation would yield a statistically significant coefficient. The regression analysis based on the standardized scores for the independent and moderating variables yielded the results presented in table below 4.70

Predictors: (Constant), XZ (product of Z score human capital, Z score relational capital and Z score relational capital).

4.14 Influence of Moderating Variable, Situational Environment

A regression analysis based on the standardize value of the independent variables (structural capital, human capital and relational capital) and moderating variable (situational environment) was carried out. Table 4.68 presents the overall model between independent, moderating and dependent variables.

Table 4.68: Overall regression between dependent, independent and moderator variables

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
	.933 ^a	.871	.864	.08677

a. Predictors: (Constant), Situational Environment, Structural Capital, Relational Capital, Human Capital

b. Dependent Variable: Value Creation

Table 4.68 presents a summary of regression model result. The value of R and R² are 0.933 and 0.871 respectively. The R value of 0.933 represents the correlation between value creation and intellectual capital. The R² which indicates the explanatory power of the independent variables is 0.871. This means that about eighty seven percent (87.1%) of the variation in value creation is explained by the independent variable. The R²-value as revealed by the result is high which means that about 13 percent (12.9%) of the variation in the dependent variable is unexplained by the model, denoting a strong relationship between the explanatory variables and value creation.

The standard error of the estimate is .08677 which explains how representative the sample is likely to be of the population. The variance among variables was determined using Anova as indicated in table 4.69.

Table 4.69: ANOVA between dependent, independent and moderator variables

Model	Sum of Squares	Df	Mean Square	F	Sig.
Regression	4.151	4	1.038	137.860	.000 ^b
Residual	.617	82	.008		
Total	4.769	86			

a. Dependent Variable: Value Creation

b. Predictors: (Constant), Situational Environment, Structural Capital, Relational Capital, Human Capital.

Table 4.69 presents Anova results. The strength of the model was considered by examining the goodness-of-fit of the model. Findings indicated that the model design for the study was good as evidenced by F value of 137.860, $P < 0.05$. Therefore the ANOVA table which is a test of the overall model indicates that the influence of structural capital, relational capital, human capital and situational environment on value creation in public university is significant ($F=137.860$ $p<0.05$). This findings statistically confirm that the model fit is good. Table 4.70 presents the coefficient values between independent, dependent and moderator variable.

Table 4.70: Coefficients for dependent, independent and moderator variable

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	1.253	.139		9.023	.000
Human Capital	.660	.044	.823	15.137	.000
Structural Capital	.076	.026	.148	2.943	.004
Relational Capital	.034	.028	.054	1.243	.217
Situational Environment	-.011	.018	-.025	-.597	.552

Table 4.70 presents findings of the coefficients of regression model with value creation as dependent variable and the intellectual capital components as independent variables together with the moderator, situational environment. The findings indicate that human capital had a significant contribution to value creation ($\beta=0.660$, $t=15.137$, $P<0.05$). Results in the second step involving structural capital provide significant contribution to value creation. ($\beta=0.076$ $t=2.943$ $P<0.05$). However, relational capital recorded insignificant contribution ($\beta=0.034$, $t=1.243$, $P > 0.05$) to value creation. Furthermore, when the third step for the interaction term was added in the model, the regression coefficient of the interaction term was statistically insignificant and negative ($\beta=-0.011$, $t=-0.597$, $P>0.05$) hence, the criteria for moderation was not met. The findings therefore indicated insufficient evidence to support the hypothesis that the influence of intellectual capital on value creation is moderated by situational environment. The findings of the study are in agreement with a study done by

Muraguri (2016) who found insufficient evidence to support moderation by environment on strategic intent execution on performance of public universities in Kenya. However, contradicting findings on role of learning culture on business performance indicated a significant influence of the environment (Chahal and Bakshi, 2014). Similarly, Chung-Jen, Huang and Hsiao, (2010) reported related findings of a positive significant influence of organizational climate on firm innovativeness with the same sentiments echoed by Gitonga and Gachunga, (2015) who found a positive significant influence of working environment on performance of Government ministries in Kenya.

It can be deduced therefore that situational environment as an overall moderator cannot be used to explain its influence on intellectual capital initiatives to create value in public universities in Kenya. More importantly, it has been established among corporate organizations that having forecasts, effective communication systems and channels, resource accessibility and deployment in addition to creating priorities, and monitoring and evaluating to inform further actions is of necessity for firms to gain competitiveness (Porter, 2011). Bratianu, (2018) argues that organizations which base their performance

on the interplay between these constructs: culture, organizational structure, and the connection with behaviors of people will remain competitive.

Similar sentiments are made by Muraguri et al. (2016) who indicates that individuals within an organization should make use of better communication, effective cultures and that commitment from management as well as use of systems and structures on deployment of resources would be invaluable to realization of goals. Bontis, Keow and Richardson,(2008) note that it is because organizations have changed to become more concerned about knowledge assimilation and through acts of technological innovations. The study findings indicate that the institutional environment may not be stable and consistent to adequately predict and influence value creation in public universities with similar findings reported by Muraguri et al. (2016) in Public Universities.

It is therefore important that organizations need to continuously build, integrate, and reconfigure their skills and abilities to adapt to their environment and sustain competitive advantage. A study done by Wang (2008) established that institutional control and institutional environment had negative impact on the performance of the Chinese Securities Market. These findings are not particularly surprising in Kenya where universities lay strict policies, which aim at shaping their value deliverables and priorities in line with their strategic intents (Muraguri et al, 2016). These changes can then be said to contribute to internal environmental instability that is dissociated from contributing to value creation in this study.

Based on the relationships established in this study, a summary of hypotheses findings and their interpretation are presented in Table 4.71

Table 4.71: Summary of Results of Hypotheses Testing

Research objective	Hypothesis	Hypothesis test status	
Objective 1	Hypothesis 1	Alternative Accepted	H ₁
To evaluate the influence of human capital initiatives on value creation in public universities in Kenya	Human capital initiatives have a significant influence on value creation in public universities in Kenya		
Objective 2	Hypothesis 2	Alternative Accepted	H ₂
To determine the extent to which relational capital initiatives influence value creation in public universities in Kenya	Structural capital initiatives have a significant influence on value creation in public universities in Kenya		
Objective 3	Hypothesis 3	Alternative Accepted	H ₃
To assess the influence of relational capital initiatives on value creation in public universities in Kenya	Relational capital initiatives have a significant influence on value creation in public universities in Kenya		
Objective 4	Hypothesis 4	Alternative rejected.	H ₄
To determine the extent to which situational environment moderates the influence of intellectual capital initiatives on value creation in public universities in Kenya	Situational environment has a significant moderating effect between intellectual capital initiatives and value creation in public universities in Kenya		

The summary of results in Table 4.71 shows that the study had four objectives and four hypotheses. As evidence in the table 4.71, three out of the four hypotheses tested, were confirmed and one was not confirmed. The summaries are elaborated in section 4.13.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The study sought to establish the influence of intellectual capital initiatives on value creation in public Universities in Kenya. The purpose of the study was to determine the extent to which intellectual capital initiatives influenced value creation in public universities and to examine how specific components of intellectual capital theory influenced value creation.

5.2 Summary

The findings from the study revealed that organizational capabilities are built through the continuous interaction of intellectual capital initiatives constructs over a period of time. Human capital construct positively and significantly influenced value creation in universities. Furthermore, the moderator, situational environment on human capital enhances value creation in universities. The findings imply that firstly, universities must continuously develop emergent issues locally and globally in relation to the intellectual capital constructs that would enable building of systems that are suitable and competitive structurally. It is also of importance to build competencies that develop capacities of institutions to remain self-sustaining in the long run. Secondly, that organizational capabilities do not exist as isolated resources that can be compartmentalized but rather as networks of interlinked intangibles that collectively affect one another. This was evident in the positive value creation at the interaction of the constructs collectively.

Thirdly, given the importance associated with integration as a whole mark of institutional capabilities, it is worthwhile stressing the importance of communities of individuals in form of relational capital as channels through which intellectual capital is generated, packaged and delivered.

The positive significant contribution of relational capital on value creation strengthens the relative importance of the construct in the value delivery process. From the foregoing, capabilities are unlikely to reside in entirety in an individual or a small team but rather collectively through all organizational members. It is therefore concluded that intellectual capital initiatives constructs collectively positively and significantly generate and deliver value in public universities in Kenya.

5.2.1 Influence of Human Capital initiatives on value creation.

The first key objective was to determine whether human capital initiatives influence value creation in public Universities in Kenya. The research findings indicated that human capital is the most important component of intellectual capital initiatives in influencing value creation public Universities in Kenya. The results indicated that human capital explains a high percentage (83.3%) of the variance of value creation in public Universities in Kenya. Human capital is a primary and very critical component of intellectual capital initiatives because it is a very important source of innovation, the creative force that develops unique competencies. It was noted that the employee's knowledge and capabilities are the most important sources of innovation. The study identified the association between intellectual capital accrued in Universities and their value creation as associated with innovation.

Based on the expertise of human capital, proficiency in service delivery was associated as well. Other marked improvements include quality and number of publications and research, increased licenses, patents and copyrights. The study findings maintain that human capital influences value creation in universities in Kenya with key contributions of the sub constructs: types of intelligence, levels of intelligence and creativity.

This implies that most of all the competencies and capabilities of human capital may not be imitated, a key source of competitiveness among firms. Correlation analysis results between human capital and value creation indicated that there was a strong positive linear correlation between human capital and value creation. The regression analysis was significant and therefore the alternative hypothesis was accepted: H_1 Human capital initiatives significantly influence value creation in public universities in Kenya.

5.2.2 Influence of structural capital initiatives on value creation

The second objective aimed to determine whether structural capital initiatives influences value creation in public Universities in Kenya. The research findings indicated that structural capital initiatives positively influences value creation in public Universities in Kenya. The results indicated that Structural capital explains 42.7 % of the variance of value creation in public universities in Kenya. From the results it can be concluded that universities with strong structural capital will have supportive systems that allows the organization to leverage its value delivery process.

In addition, structural capital is a critical link that allows intellectual capital to be measured at the organizational level of analysis. This then implies that organizational effort to build collective organization knowledge further develops structural capital. Ultimately this yields a sustainable competitive advantage and this competitive advantage translates itself into relatively higher value creation. This was evident with an improvement the overall model with a higher contribution of structural capital as moderated by situational environment.

Key contributions to structural capital initiatives include but not limited to enabling physical resources that built operational autonomy, adequate resources and facilities as well as leadership support and shared team experiences. Organizational expectations also played an important role in form of formalization of processes as well as the collective organizational knowledge.

It is noteworthy that collective organizational knowledge bridges the individual intellectual capital constructs in relation to the norms, values, shared vision and competencies that enable organizations to achieve objectives as well as to innovate.

Correlation results indicated that structural capital initiatives had a moderate positive significant relationship with value creation. The regression analysis results also indicated that the alternative hypothesis was supported, H_2 : structural capital initiatives significantly influence value creation in public universities in Kenya.

5.2.3 Influence of relational capital initiatives on value creation

The third objective aimed to determine the influence of relational capital initiatives on value creation in public Universities in Kenya. The research findings indicate that relational capital initiatives influences value creation in public Universities in Kenya. The findings indicated that relational capital explains 13.6% of the variance of value creation in public Universities in Kenya. Correlation results indicated that relational capital has a positive significant relationship with value creation in universities. Relational capital was associated with an improvement in the social perception of Public Universities as well as improved relations linked with non-academic partners such as industry as well as public authorities and members of the public at large.

The study concludes that deliberate establishment of relationships with partners creates value to organizations by providing more perspectives to issues, complementary exploitation of resources, combined economic value of entities that is fairer in the long run as well as synergy among partners. In addition, there is a remarkable collaborative intelligence that is nurtured which pools resources to enable technological advancement, increase efficiency as well as to generate and protect intellectual capital property. Through institutional partnerships, there is increased customer satisfaction, enhanced organizational reputation as well as enabling identification of activities that may generate future repeat business. In general, institutions improve their relationship with customers that enables them to harness the intelligence to meet the needs of clients.

The regression was significant and the objective supported the alternative hypothesis. H_3 : Relational capital initiatives significantly influence value creation in public universities in Kenya.

5.2.4 Influence of situational environment as a moderating variable

The fourth objective was to determine the influence of situational environment on intellectual capital constructs and value creation in public universities in Kenya. This was tested by the alternative hypothesis which stated that situational environment moderates the relationship between intellectual capital and value creation in public universities in Kenya.

The results of the moderating effect of situational environment did not provide sufficient support for the moderating effect on relational capital as well as on the overall model on intellectual capital components and value creation. The findings did not meet the criteria set for moderation. The overall models for moderation on human capital and structural capital with value creation was statistically significant. However, the regression coefficient for the interaction term of intellectual capital components as well as relational capital was insignificant thus failing to support moderation effect on the relationship between intellectual capital and value creation. Other studies in Kenya indicated similar sentiments where situational environment or business environment failed to provide a significant influence on moderation. The hypothesis under objective four was therefore, not supported. H_4 : Situational environment does not significantly moderate the influence of intellectual capital initiatives on value creation in public Universities.

5.3 Conclusions

The findings of the study, given their ANOVA and Regression coefficients indicated that only two variable, namely human capital initiatives and structural capital initiatives had a strong positive significant contribution toward value creation in public universities in Kenya.

However, relational capital revealed a low positive significant influence on value creation. When moderation was introduced, the regression coefficient was insignificant. Based on the first objective; human capital has a significant influence on value creation in universities, it is concluded that human capital has a strong positive and significant influence on value creation in universities in Kenya. On types of intelligence, it was also found to have a great contribution to value creation. The higher the level of diversity of competencies, the more the institution achieves improved value creation. However, the need to devote a lot of time and effort to update and develop employee's knowledge and skills, experience and expertise was found invaluable to developing creativity that positively contributes to value creation in public Universities.

On levels of intelligence, it was observed that this greatly contribute to value creation and therefore the need for institutions to diversify and fortify on the types of intelligence held as they lead to innovation that adds value to the institution. The findings indicate that employees are experts in respective areas. The study provides insights to practitioners in human resource management as well as policy makers of developing and third world countries to disseminate and advance intellectual capital concepts through institutionalization, measurement and valuation of their contributions to intended goals. This study found that human capital is the most important component of intellectual capital in contributing to value creation in universities. The study rejected the null hypothesis since a positive significant influence on value creation was associated with human capital initiatives. The study therefore suggested that institutional human resource management practices should lay emphasis on those practices that ensure the competitiveness of its human capital to leverage on its value creation.

On the second objective; accordingly, the university management should also reinforce the contributions drawn from structural capital. The study rejected the null hypothesis stating that structural capital initiatives have a positive and significant influence on value creation in universities in Kenya. The strong positive significant contribution of structural capital implies a need among firms to develop systems and processes that facilitate building of efficiency and effectiveness in service delivery. Collective

organizational knowledge was found to cumulatively positively and significantly influence value creation in university. Furthermore, organizational expectations as laid out in the institutions strategic plan positively and significantly influence value creation in universities.

The third hypothesis on relational capital initiatives and value creation in public Universities, there was a weak significant correlation with value creation. This implies that for universities in Kenya, collaborative business intelligence as well as relationship with partners and customers positively and significantly influence value creation with a low contribution compared to human capital and structural capital. Customer knowledge was also found to be widely distributed in Universities. The universities have useful and updated information system in use and that it was necessary for institutions to share knowledge with partners and to continually meet customers' needs as well as to find out what customers want from the Universities in terms of the products and services.

However, upon moderation by situational environment, there was an insignificant influence of relational capital on value creation in public universities in Kenya. While situational environment was found to have a positive and significant influence on value creation, its role as a moderator was found to be negative and insignificant. The study failed to reject the null hypothesis which stated that situational environment has no significant moderating effect between intellectual capital initiatives and value creation in public universities in Kenya.

Situational environment may therefore be dissociated as a moderator on intellectual capital constructs and that there is a need to treat the variable independently from others. When treated independently, situational environment was still found to have a low contribution to value creation. This implies that the contributions of situational environment to value creation in universities may be ignored since its contribution was generally insignificant.

With respect to the dependent variable, value creation, the following was concluded: customer satisfaction and potential for future business were found to positively and significantly be influenced by intellectual capital constructs.

An increase in intellectual capital initiatives positively and significantly influenced value creation in public Universities in Kenya. The purpose of the study was arrived at since it was established that intellectual capital constructs positively and significantly influence value creation in Universities and that the levels of their contribution vary significantly. The variations from literature reviewed differ across industries and within the environments as well as across geographic settings.

It was also realized that most of the secondary data that should be documented and publicized such as university enrolment, revenue generation across the years reviewed were not provided by a considerable number of institutions. This was considered a negative publicity to their operations in the market. The findings demonstrated that intellectual capital initiatives can be used to mobilize, assemble and manage all intangible resources in order to enhance value creation in universities in Kenya. Moreover the findings enhance intellectual capital theory by demonstrating that intellectual capital initiatives have significant positive influence on value creation. The study therefore rejected the null hypothesis and failed to reject the alternative hypothesis that intellectual capital initiatives have a significant influence on value creation in universities in Kenya. The findings emphasize the importance of the constructs of intellectual capital which comprise of human capital, structural capital and relational capital in value creation of an organization.

5.4 Recommendations

Recommendations based on this study are highlighted in relation to theory for knowledge's sake, policy and managerial practice.

5.4.1 Theoretical implications

This study contributes to the existing knowledge by asserting that intellectual capital initiatives are very important constructs that positively and significantly influence value creation in universities. There is a need for critical rethinking among institutions given the evolving nature of universities to tap into and leverage intellectual capital constructs to deliver to their core contribution in the creation and diffusion of knowledge. The communities to which knowledge is diffused ought to be in relations and partnerships with universities amid enabling systems and structures that help the academic staff to maximize their innovations and contribution.

There is also the need for these institutions to remain relevant. Universities therefore ought to codify their intelligence and to combine it in novel ways that create, deliver and sustain competitiveness and thereby create desired results. Universities may also build relational capital into their structural capital more proactively in order to extend the value creation beyond boundaries to impact the society in which they operate more effectively. This is based on the moderate contribution of structural capital initiatives on value creation in universities. The study established a statistically positive strong significant relationship between the dimension of human capital initiatives and value creation in public universities in Kenya.

More research needs to be done to gain insight on how the human capital construct interacts with situational environment to yield improvement in value creation yet when relational capital is moderated by the same construct, there is an insignificant and low moderation.

5.4.2 Recommendations for Policy

There is a need for universities to take up the challenge of instituting intellectual Capital management as a supportive or alternative approach to management of intangibles. The need for universities to be able to measure, manage and report on their intangible assets comes against a backdrop of reduced funding from the government to the university.

The organizational intangibles that ought to be instituted include and are not limited to processes, innovation capacity, patents, tacit knowledge of its members and their network of collaborations and contact. Therefore, to sustain competitiveness and efficiency in service delivery, intellectual capital management offers an alternative and supportive role to drive performance in universities. When processes and systems become ingrained in the institution, this enhances the flow of organizational intelligence the mechanisms of integration would be uniquely wired to meet organizational capabilities and whose outcomes are dependent on the combination of the constructs. .

5.4.3 Recommendations for management practice

The findings help in developing the linkage between intellectual capital and organizational strategy. The framework identified key intellectual capital factors that are critical to value creation and ranked them in measures of their importance in contribution to the predictor variable, value creation. Intellectual capital constructs may be developed in line with the strategic intents of the university by aligning the constructs in collaborative efforts to meet stakeholder expectations. Constructs considered in the findings to have the most contributions such as competencies, organizational intelligence and the network of relationships may be deliberately codified, measured and monitored in order to validate the management's core agenda. In addition, the findings make a significant contribution in identifying the intellectual capital factors that may be integrated in development of management information systems in relation to developing and reviewing performance indicators based on intellectual capital statements.

Universities need to institute practice of intellectual capital management because that is one of the key ways that higher institutions of learning can lure the investors by providing sufficient information to them and therefore to make informed decisions on partnerships and collaborations. Asymmetric information provided to stakeholders affects the perceptions held on value creation deliverables. The results and findings indicated that university management can improve their market value propositions through the three intellectual capital components.

First from human capital construct, the levels of intelligence, types of intelligence, expertise, innovation and creativity. This can be realized through deliberate human capital development approaches that integrate structure and customer capital in the delivery of value propositions. Secondly from structural capital constructs universities need to continuously provide enabling conditions to the human capital and to harness collaborative business intelligence that informs on the strategies adopted by the firm. The aim is to enable the institution leverage on value creation, third, from relational capital construct, Universities need to collaborate and partner more with other likeminded institutions to deliver added value.

5.5 Areas for further research

Based on the findings of this study, more qualitative methods are needed to study the phenomenon of intellectual capital utilizing multiple sources of information and respondents. Thus, future studies should take into account more respondents to avoid potential biases that may arise from key informant approaches. The study population was small and target a limited categories of academic staff. It would be appropriate that future studies should include more respondents or study different settings like Private sector organizations as well as other industries as part of the higher education efforts in creation and diffusion of knowledge. .

It would be useful that future studies re-examine this study further by using other market based measures such as Tobin Q and share price. Methodologically, more advanced statistical techniques such as structural equation modeling and least Squares methods may be used to test the relationships between predictor and dependent variables. Situational environment should provide a basis for further studies. This is because as a moderator, the variable yielded mixed results and failed to support the overall model as a moderator on intellectual capital constructs.

The findings were insignificant when moderation was introduced. An extension of the moderating effect may provide a better understanding of factors that moderate the influence of intellectual capital on value creation in other industries. Future researchers may also consider using different sub constructs for both predictor and dependent variables. While value creation has been attributed greatly.

There is need to build awareness among the academic staff in public universities to nurture the intellectual capital index of academic staff through building of competencies. This may in turn leverage the productivity of students and help to raise the intellectual capital readiness of the university's output, graduates to meet the market demands and exploit resources within their reach.

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APPENDICES

Appendix 1: Introduction Letter

Dear Respondent,

I am a postgraduate student from Jomo Kenyatta University of Agriculture and Technology. I would like to collaborate with you in determining the magnitude of the influence of intellectual capital initiatives on value creation in public Universities' in Kenya. I kindly request for your support through filling in of the questionnaire provided to you. The information you give will assist highly in the above goal, which would be very vital in improving the situation on provision of service delivery in public as well as private sector institutions that are knowledge intensive. The information provided will be treated with a lot of confidentiality. Your contribution is highly esteemed

Yours truly,

Wanambiro Victoria Rhoda

Appendix II: Questionnaire

SECTION A: GENERAL INFORMATION

This questionnaire is meant to test the influence of intellectual capital initiatives on value creation in public universities. Intellectual capital is knowledge that can be converted into profit. Intellectual capital is also defined as the sum of everything that everybody in a company knows that gives it a competitive edge. The organizational perspective views human capital as the source of innovation and strategic renewal. Structural capital is viewed as encompassing all the non-human storehouses of knowledge in an organization such as databases, technology, infrastructure, processes, information systems and procedures.. Relational capital represents knowledge embedded in the constellation of external relationships a firm has with any stakeholder that influences the organization's life (Bontis, 2001).

GENERAL INFORMATION

1. Position held in the institution (Dean or Chairperson of department)
2. Academic qualifications (Master's degree, Doctorate degree, post-doctoral degree Professor).
3. Institution of affiliation.

Answer the following based on how you feel about the statement.

SECTION 1: STRUCTURAL CAPITAL INITIATIVES AND VALUE CREATION

1.a Enabling conditions

1. What level of support do you receive during service delivery, in terms of(as shown in the table) [Rate based on the following scale in relation to what you feel where 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree)]

Statement	5	4	3	2	1
I enjoy Operational autonomy in my areas of jurisdiction					
I have Requisite power to act					
I enjoy Leadership support to address problems					
We often hold Shared team experiences					
I receive Constructive feedback in my work					
My institution boosts of Stimulating co-workers					
I access adequate resources – Information to act in my capacity					
I have adequate resources -Time to efficiently deliver service					
I have adequate resources - Funds to effectively deliver in my jurisdiction					
Adequate Facilities (, databases, electronic networking) enable effectiveness in service delivery					

1.b organizational expectations

2. On a scale of 1-5, indicate the influence of the following factors on your service as a scholar: where 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree

Statement	5	4	3	2	1
Lack of motivation influences my service delivery					
Frequent diversions/interruptions affect level of service delivery					
Lack of control to a large extent affects my services as a scholar.					
Excessive workload has greatly influenced my service delivery as a scholar					
Formalization of processes (bureaucracy)influences my service delivery as a scholar					

1. c collective organizational knowledge

3. On a scale of 1-5 indicate the influence of the following factors on the institution’s service delivery? where 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree,

Statement	5	4	3	2	1
Industry recognized unique competences of the service team influence the institutions service delivery					
The organizations’ stock of skills which evolved from its past achievements greatly influence value delivery					
My institution’s core competences are difficult to copy by competitors					
Our Participation in important work related decisions influence’s the institution’s service level					

SECTION 2: HUMAN CAPITAL INITIATIVES AND VALUE CREATION

2 (a) Types of Intelligence

To what extent do the following factors influence your work in the service as scholars where 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree

Statement	5	4	3	2	1
Expertise in the specific field influences my service delivery					
Previous experience affects my service as a scholar					
Professional development plays a critical role in my service delivery					
Training and skills development plays a critical role in my proficiency and service delivery					
Intuition is important if I am to be successful in service delivery as a scholar					
Problem-solving plays a significant role in my service delivery to the institution					
Creative thinking skills are important for me to effectively deliver service to the institution					
My interpersonal relationships have greatly influenced my ability to deliver service					
My persuasive skills play an important role in my service delivery to the institution					

2 (b) Levels of Intelligence

Indicate the influence of the following factors on your service delivery as a scholar (where 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree

Statement	5	4	3	2	1
My Self-discipline is critical to the value delivery process for the institution					
My Belief in values of the institution affects its level of service delivery					
Minimal Tolerance for ambiguity affects the level of service delivery in the institution					
High levels of perseverance are needed in the delivery of service					
My emotional stability is an asset that contributes towards effective service delivery in the institution					
My commitment to the institution has largely affected its value creation					

2 (c) creativity

Indicate your level of agreement with the following provisions being made available to organizational members :(where 5 stands for totally agree, 4 agree, 3 not sure, 2 disagree and 1 totally disagree)

Statement	5	4	3	2	1
The institution Prides in members abilities to achieve					
Offensive strategy of taking the lead toward the future motivates staff to achieve better results					
My institution avails Sufficient resources to aid work					
My institution recognizes achievements attained by staff					
My institution provides rewards that are perceived fair and equitable					

SECTION 3: RELATIONAL CAPITAL INITIATIVES AND VALUE CREATION

3 (a) Relationship with partners

Indicate your level of agreement with the following factors that may influence the organization's ability to generate potential solutions during the service delivery process?

Where 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree

Statement	5	4	3	2	1
Our institution's relationship with partners brings more perspectives and ideas					
Our institution's Alliance relationships enable access to requisite resources					
Our institutions' Alliance partnerships exploit resources complementarily					
Combined economic value of resources owned by our institution and others is greater than their economic value separately					
Our Alliance relationships with other institutions enable realization of economic synergy among partner organizations					
My institution's Shared risks with other institution's accelerates technical progress					

3 (b) Collaborative Business Intelligence

Indicate the level of benefits to your organization of the external collaborative partnerships to your organisation? Please rank (1=Lowest,2=below average,3=average, 4=above average, 5=Highest)

Statement	Ranking
Our Resource pooling affects the level of service delivery in my institution	
Our shared risks have minimized the overall cost for organisational operations	
Our Long-term exchange of know-how, skills and expertise influences benefits accrued to the institution	
My institution's Variety of perspectives and ideas for the innovative product/service influences level of service delivery	
The institution's access to technological advancements influences level of service delivery	
Broadening the product/service offered influence level of service delivery	
Generation and protection of intellectual property improves level of service delivery	
Efforts made in Improving efficiency in service delivery yields better results for the institution	
The institution's ability to Cutting down on company costs affects level of profit margins to the institution	

3 (b) Relationship with Customers

What are the major benefits to your organization of the close relationships with partners?

Please rank (1=Lowest,2=below average,3=average, 4=above average, 5=Highest)

Statement	Ranking
Our relationship with partners enables recognition of unique needs and preferences	
Through the institution's partners, intelligence on the clients' unmet needs is provided	
Through institutional partnerships', firms can access critical and complementary resources	
There is an Increased customer satisfaction based on the institution's established relationships	
An enhanced reputation accrues to the institutions that have partnerships	
There is a general reduced effect of the competitors' efforts on our institution	
Customer loyalty has been attained through customer service delivery process	
There is a general Potential for repeat business with the same customer or similar customers	
My institution has greatly minimized of potential disputes with its partners	
My institution's data base Enables identification of events that could generate repeat/future business	

SECTION 4: SITUATIONAL ENVIRONMENT

4 (a) Enabling Conditions, resources and support.

Indicate your level of agreement with the following organizational characteristics present in your institution? where 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree

Statement	5	4	3	2	1
My institution adequately recognizes superior Performance.					
There is a value placed on innovativeness in my institution					
My institution has a sense of pride in its organization’s members.					
There are Flexible structures and procedures that are responsive to the specific needs of the institution					
My institution has adopted good communication and information flows					
The Multidisciplinary nature of the team enables fairness and objectivity in the service delivery process					
There is a formal innovation approach by the company, linking new ideas to specific business goals.					

SECTION 5: VALUE CREATION IN PUBLIC UNIVERSITIES

5 (a) customer satisfaction, service delivery and potential for future business

Indicate your level of agreement with the following statements on the efforts put in by your organization to create value? Where 1 = strongly disagree, 2 =disagree, 3 = neutral, 4 = agree, 5 = strongly agree

Statement	5	4	3	2	1
There is profit generation from intellectual property rights					
There is strategic positioning through innovation.					
There is strategic positioning through technological leadership					
The institutions brand is comparably competitive in the market					
The activities, processes and operations of the institution produce higher output that results in value creation					
The quality of compliance with regulatory standards such as CUE is way above that of competitors					
There has been cost reduction based on the available organisational intelligence resulting in institutional value creation					
The effectiveness of deployed intellectual capital has resulted in value creation for the organization					
The institution's services to a large extent meet their revenue goals					
The services offered by the institution achieve high levels of customer satisfy					
POTENTIAL FOR FUTURE BUSINESS					
The organisation's enhanced reputation can be illustrated with articles in trade journals, patents etc.					
The services offered by the institution facilitate learning for future efforts					
The organization has pooled variety of perspectives and ideas for innovative products/services					
The institution's intellectual resourcefulness has contributed to enhancing its reputation					
Customer loyalty has resulted from the organisation's enhanced intellectual capital					

5(b) customer satisfaction

CUSTOMER SATISFACTION	5	4	3	2	1
I receive caring and individualized attention from the institution's staff					
There is prompt and efficient dealing with complaints in my institution					
We regularly access and retrieve accurate records whenever there is a need					
We receive service within a reasonable time frame					
There is sufficient and convenient consultation in decision making by the entire university staff					
Our faculty are educated and experienced academicians who assure quality service					
Our institution boasts of reputable programmes and employable graduates					

Appendix III: List of Universities

Public Chartered Universities

University of Nairobi

Moi University

Kenyatta University

Egerton University

Jomo Kenyatta University of Agriculture and Technology

Maseno University

Masinde Muliro University of Science and Technology

Dedan Kimathi University of Technology

Chuka University

Technical University of Kenya.

Technical University of Mombasa

Pwani University

Kisii University

University of Eldoret

Maasai Mara University

Jaramogi Oginga Odinga University of Science and Technology

Laikipia University

South Eastern Kenya University

Meru University of Science and Technology

Multimedia University of Kenya

University of Kabianga

Karatina University

Kibabii University

Public University Constituent Colleges

Machakos University College

Co-operative University College of Kenya

Embu University College

Kirinyaga University College

Rongo University College

Alupe University College

Kaimosi University College

Garissa University College

Taita Taveta University College

Murang'a University College

Private Chartered Universities

University of Eastern Africa, Baraton

Catholic University of Eastern Africa

Daystar University

Scott Christian University

Africa Nazarene University

St. Paul's University

Pan African Christian University

Strathmore University

Kabarak University

Mount Kenya University

Africa International University

Kenya Highlands Evangelical University

Great Lakes University of Kisumu

KCA University

Adventist University of Africa

United States International University

Kenya Methodist University

Private University Constituent Colleges

Hekima University College

Tangaza University College

Marist International University College

Regina Pacis University College.

Uzima University College

Private Universities with Letters of Interim Authority

Kiriri Women's University of Science and Technology

Aga Khan University

GRETSA University

Presbyterian University of East Africa

The East African University

Riara University

Management University of Africa

UMMA University

International Leadership University

Zetech University

Lukenya University College

Pioneer International University

Registered Private Universities

KAG EAST University

(Source: CUE, Discussion paper 04, Nairobi, Kenya.)