EFFECT OF INNOVATION STRATEGY ON SERVICE DELIVERY IN PUBLIC UNIVERSITIES IN WESTERN REGION, KENYA.

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A thesis submitted in Partial Fulfilment of the Requirement of the Award of Degree of Master of Business Administration (Strategic Management) of Masinde Muliro University of Science and Technology

November, 2025

DECLARATION AND CERTIFICATION

Declaration

This thesis is my own original work and has not been submitted for a degree or any other academic award at any other university.

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Certification

The undersigned certify that they have reviewed the thesis entitled "**Effect of innovation strategy on service delivery in public universities in Western region, Kenya**.*"* and hereby recommend its acceptance by Masinde Muliro University of Science and Technology.

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DEDICATION

This thesis is dedicated to my parents Mr. Wycliffee Wochami and Mrs. Anjelina Isutsa, and siblings Johnson, Dennis and Celestine, for always giving me unwavering support throughout its writing. To my nephews and nieces Liam, Klein, Marlin, the Late Natalie and Nadia. May they value education and strive to attain knowledge in their life.

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ABSTRACT

The changing operational landscape of public universities necessitates innovation strategy. Funding constraints due to reduced government funding and budget cuts is a major challenge affecting service delivery in public universities globally and even universities in Western region. Innovation strategy is regarded to be a significant factor in enhancing service delivery within these institutions. The main objective of this study was to investigate the effect of innovation strategy on service delivery in public universities in Western Region. The specific objectives of the study were the effect of technological innovation, service innovation, organizational innovation and moderating effect of management support on service delivery. The study was anchored on resource-based view theory and dynamic capability. The study adopted a causal research design collecting data using structured questionnaires. The target population of the study were deputy vice chancellors, directors, deans of schools and heads of departments from four public universities in Kenya. Hence, a target population of 220 respondents with a sample size of 142 respondents was determined using Yamane's formula. Simple random and stratified sampling techniques were used. The sample universities were MMUST, JOOUST, Maseno and Kibabii. A pilot study was conducted in Moi University in Uasin Gishu county. Content and construct validity of the research instrument adopted in this study were evaluated through assessment by university supervisors and factor analysis. The reliability of the research instrument was assessed using the Cronbach alpha test. Data collected was processed and analyzed using the SPSS software version 23, adopting descriptive and inferential statistical analysis methods. Data collected was presented in the form of tables and figures. The findings of the study indicated that technological innovation had a positive and statistically significant effect on service delivery in public universities in Western region ($\beta = 0.835$, $p = 0.00$). Service innovation was found to have statistically significant influence on service delivery ($\beta = 0.789$, $p = 0.00$). Organizational innovation was found to have a statistically significant impact on service delivery ($\beta = 0.756$, $P = 0.00$). Management support was found to have a positive and significant moderating effect on the relationship between innovation strategy and service delivery. From these findings, the study concluded that technological innovation had the most significant effect on service delivery in public universities. The study recommended that universities should prioritize improvement of digital infrastructure to support effective virtual learning, digital administration of students and increased access to learning resources. Also, universities are encouraged to regularly review and update their service delivery systems and curriculum to meet their customers' needs and expectations. Correspondingly, the public universities should embrace resource exchange partnerships and networks to improve the quality of services offered. Additionally, universities are encouraged to revolutionize their management structures and systems to embrace managerialism in the university administration. Study findings are instrumental in improving policy formulation and decision-making by educational institutions such as public universities, Commission for University and Ministry of education

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ABBREVIATIONS AND ACRONYMS

HRMIS	Human Resources Management Information System
ICT	Information and Communication Technology
JOOUST	Jaramogi Oginga Odinga University of Science and Technology
MMUST	Masinde Muliro University of Science and Technology
NACOSTI	National Commission for Science, Technology and Innovation
SME	Small and Medium Enterprise
SPSS	Statistical Package for Social Sciences
TVET	Technical ,Vocational Education and Training
STEM	Science, Technology, Engineering, and Mathematics
STI	Science, Technology, and Innovation
SPIIC	Science Park Innovation and Incubation Center
JKUAT	Jomo Kenyatta University of Agriculture and Technology

OPERATIONAL DEFINITION OF TERMS

Innovation strategy	Refers to the adoption of an array of innovation strategies, including technological, service and organizational innovation to enhance service delivery efficiency.
Management support	Effective resource allocation and support of the senior and executive management to guarantee effective implementation of innovation strategy.
Service innovation	Centralised at development of efficient and integrated service delivery systems that are efficient, accessible and satisfy the needs of users.
Technological innovation	Integration of new technological systems within the operations of an organization to improve the access, customer satisfaction and efficiency: in the dispensation of its products and services
Organizational innovation	Adoption of improved organizational methods and procedures to improve service delivery.
Service delivery	Efficient dispensation of products or services that satisfy the needs and expectations of customers.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Innovation strategy remains instrumental in supporting the perpetual growth and development of organizations (Musyoka, 2023). The operational environment of public universities is ever changing. Different factors such as globalization and emergence of new technologies are instigating new complexities within their operational environment (Al-Omoush, 2020). Innovation strategy is critical in allowing corporations to manage business environment challenges and changes (Kanyi & Kihara, 2022). Innovation strategy allows organizations to identify imminent opportunities initiated by changes (Nduati, 2023), as a result, they are able to effectively use them to sustain their operations, thus allowing them to remain competitive.

Leitao and Ratten (2023) describe innovation strategy as a multi-function approach that amasses creative assets and capabilities of corporations, to drive transformational growth and sustainable competitive advantage. Correspondingly, innovation strategy is defined as a revolution of organizational strategies to introduce or enhance a corporation's operational value, value to its customers and other stakeholders (Mdasha, 2018). According to Robert (2017) and Bernath (2019), innovation strategy revolves around the creation of new business models, optimization of existing models and processes; continuous improvement of current products and services offerings, the exploration of new markets.

Innovation strategy in service delivery can be technological, service or organizational. Technological innovation strategy is adopted to improve quality, effectiveness and

efficiency of services within public universities, thus enhancing their competitive advantage (OECD, 2021). Correspondingly, service innovation is centralized at ensuring institutions provide relevant, competitive and customer centric services (Kanyi & Kihara, 2022).Organizational innovation is focused on revolutionizing operational and management systems of an organization to improve service delivery efficiency (Ndebele & Enaifoghe, 2023).

In the recent times, different industries across the globe have recognized the growing need to incorporate innovation within their operations. Innovation has become a critical driver of enhanced resource efficiency and operational performance (Al-Omoush, 2020). The manufacturing sector in Europe and North America are increasingly using innovative technology production practices (Duarte, 2024).Latin America has embraced technological innovation to promote the growth of its key sectors of Fintech and agriculture (Al-Omoush, 2020). In Asia and the Middle East, technological and service innovation models have been used to improve the efficiency of their healthcare industry (Fu, Wang & Zhao, 2017).

Globally, higher education learning institutions are adopting different innovation strategies such as technological and service innovation strategies in order to retain their competitive edge and relevance (Bernath, 2019: Marczewska, Weresa & Lachowiz, 2023). Bernath (2019) has affirmed the positive impact of information technology and distance e-learning technology among global institutions especially institutions in the USA and UK. The technologies have increased student enrollment rates, improved the quality of education and service delivery efficiency (Bernath, 2019).

Universities in Asia, US and UK are increasingly adopting Generative AI to enhance service delivery, student engagement, administrative efficiency and curriculum development (Xiao, Chen & Bao, 2023; Kwan & Wong, 2022; Krishna, 2019). These technologies are being integrated into academic programs, campus operations, and research initiatives to create more personalized and immersive educational experiences (Wang & Li, 2024: Slimi, 2023). However, educators and policymakers have raised concerns of research ethics and academic integrity (Jin & Centre for Learning Analytics at Monash, 2024; Chiu, 2023; Rahman & Watanobe, 2023).

Service innovation has also been embraced by global universities. Universities have enhanced innovative practices in their curriculum and service delivery systems (Burnham, 2024). These practices are focused on enhancing educational experiences, curriculum content and improving student engagement (Burnham, 2024; Leat, 2023). Universities in the UK and US are introducing micro-credential programs focused on addressing specific industrial and entrepreneurial knowledge gaps (Selvaratnam & Sankey, 2021). Unlike the traditional degree programs, micro-degrees and short certificate courses target to address knowledge gaps among corporate management, skilled industrial personnel and entrepreneurs (Burnham, 2024).

Evidently, innovation strategy has been identified as a major factor that is instrumental in supporting the transformation of African countries (Duarte, 2024).Thus, different African countries have embraced innovation in different sectors. West African countries such as Nigeria and Ghana have embraced innovation to support their agricultural and education sector whereas other countries such as Algeria and Libya productively use it to support

their mining and manufacturing sector (Moreira & Mehra, 2022; World Bank, 2022;Otache, Ogbodo & Okwor, 2024). Correspondingly, universities in different African countries have embraced innovation strategy within their operations. Universities in South Africa, Nigeria and Egypt have automated their service delivery models, and embraced information technology to support teaching and research activities (Jakovljevic, 2020; Egyptian Higher Education, 2022; Obiakor and Adeniran, 2022).This has positively impacted their service delivery efficiency , and quality of education improving their global and regional competitive edge (Jakovljevic, 2020; Egyptian Higher Education, 2022).Mozambique's higher education sector has undergone significant reforms and innovations in recent years, aimed at enhancing quality, accessibility, and relevance to the country's socio-economic needs (Malque, 2022; Mavume & Mavume, 2021). Mozambique's government has prioritized the development of science and technology programs within its higher education framework (Cossa & Nhamo, 2023).

In East Africa, countries have actively implemented innovation strategies within their operations (World Bank, 2022).Uganda’s agriculture sector has greatly embraced technology through using digital gadgets and digital platforms for marketing and financing (World Bank, 2022). The telecommunication industry in Rwanda has proactively enacted different innovation strategies to create products and services portfolios that align with customer changing needs and expectations (Joyce, Namusonge & Iravo, 2020).SMEs in Uganda are also using product and service innovation strategies to continuously improve service delivery and performance(Oketch, 2023).

In Kenya, innovation strategy has been adopted by businesses across different sectors to improve business productivity and efficiency. Internet provider firms within the telecommunication industry, have integrated technological and service innovation practices to enhance the business performance (Kanyi & Kihara, 2022).SMEs and insurance companies have also adopted technological innovation, improved service delivery systems and management practices to optimize and scale their business operations (Mdasha , 2018; Kawira , 2021; Kisuya, Kihara & Macheru, 2023).The

Additionally, the government of Kenya has greatly prioritized innovation strategy in lieu to improving service delivery within public institutions. As outlined within the public service innovation strategy, the government of Kenya's innovation objective is centralized at ensuring effective utilization of public resources to guarantee enhanced quality of services to the public (Maroa & Namusonge, 2019; Vision 2030, 2008). This has prompted the digitalization of processes and procedures within the operations of public institutions. Correspondingly, public institutions have been keen on revolutionizing their service delivery systems to enhance quality and efficiency (Musyoka & Henry, 2023).

Within the higher education sector in Kenya, different innovative practices such as technological innovation techniques, service innovation, and improved organizational systems and models have been adopted to increase service quality (Maroa & Namusonge, 2019; Musyoka, 2023; Nyamagwa, 2019;Commission for University, 2025). Universities have adopted blended teaching and learning methodologies, to increase access, attractiveness and efficiency (Musyoka, 2023). Correspondingly, the universities have been actively implementing curriculum reforms and program designs tied towards the

attainment of Kenya Vision 2030. Universities are revising their curriculum to emphasize STEM and technical skills relevant to national economic priorities (Maroa & Namusonge, 2019; KIPPRA, 2023; Commission for University, 2022).

Also, public universities are embracing the creation of income generating units such as short courses and micro-credential programs to increase revenue generation and further strengthen industry linkages (Kamau & Mang'ana, 2024). For example, universities such as Kabarak and Strathmore have corporate executive education and training programs that have proven to significantly increase their revenues and industrial linkages.

Public universities across the world face multiple common challenges including financial constraints caused by reduction in government funding and increasing operational costs (Taylor, 2025; Ahmed et al., 2024). UK universities' funding crisis is driven by capped domestic tuition fees, a large research funding deficit, and declining international student enrollments due to stricter visa policies and political pressures reducing migration (Taylor, 2025). In the US, public universities face significant funding challenges in 2025 due to federal grant cuts and political pressures (Gewin, 2025). Public in Africa universities confront similar issues but with greater intensity due to systemic underfunding and infrastructural deficits (Ahmed et al., 2024;Teferra & Altbach, 2022). Declining state funding, low faculty salaries, strikes, and poor staff morale are widespread, leading to reduced research output and lower instructional standards (Kakembo, 2024).

In Kenya, universities are facing a multifaceted financial crisis driven by severe budget cuts, underfunding and debts which have limited availability of resources (Mungai, 2024; Ahmed et al., 2024;Ministry of Education, 2024). For instance, the government's move to

cut university funding by 26% has heavily affected service delivery efficiency within the institutions (Nganga, 2020). Subsequently, poor governance systems and mismanagement in universities have further affected the universities' quality of education (Ahmed et al., 2024). Additionally, Kenyan public universities are still lagging behind in the adoption of emerging technologies such as Gen AI into their operations(Ogembo, 2025).

Innovation strategy remains a key solution in assisting public universities deal with operational challenges and business environment changes (Musyoka, 2023; Ogembo, 2025). Technological innovations and systems are instrumental in assisting the universities to access services and service delivery efficiency at lower costs (Kanyi & Kihara, 2022). Correspondingly, service innovation focused on capitalizing on professional and entrepreneurial short courses is a major income generating strategy for the universities (Kamau & Mang'ana, 2024). This approach will create new revenue streams promoting improved financial sustainability, allowing them to address funding challenges. Improved governance and organizational systems are also key in promoting better use of available resources enhancing financial and operational sustainability (Kuguru, Jaensson & Nganga, 2022; Wekesa & Njoroge, 2023).

Universities in Western region have made efforts to embrace innovation strategy within their operations. The universities are embracing online and distance learning as well as the adoption of digital tools and systems to support service delivery (Maroa & Namusonge, 2019). The universities have actively been introducing new academic programs over the years as well as developing their curriculum. However, the universities are still lagging behind in effectively adopting innovation in their operations. The universities still heavily

rely on traditional learning and student management approaches (Musyoka, 2023). Correspondingly, the universities are yet to implement emerging technologies such as Gen Al into the operations which is fundamental in enhancing their operational efficiency and attractiveness (Ogembo, 2025).

Public universities are institutions wholly governed by the government and operate as per the requirements of the University Act. The institutions have the mandate of providing research, education and training to all Kenyan citizens (Maroa & Namusonge, 2019). Public universities have evolved and grown over the years. The public universities sector has grown from Nairobi College as the only institution providing higher education to 37 public universities (Commission for University, 2025). The growth of public universities was mainly instigated by the growth in the enrollment rates of students to pursue diverse academic programs (Musyoka & Henry, 2023). Western Region has four public universities distributed in different counties. The universities are namely; Masinde Muliro University of Science and Technology in Kakamega county, Kibabii University in Bungoma county, Maseno University in Kisumu County, and Jaramogi Oginga Odinga University of Science and Technology in Siaya county. The main objective of this study was to determine the effect of innovation strategy on service delivery in public universities in Western region, Kenya.

1.2 Statement of the problem

The rise in concern of the quality of services and products delivered within public institutions such as universities has prompted the need for innovation (Musyoka, 2023:Wekesa & Njoroge, 2023). Public universities need to embrace innovation strategy to ensure that education services delivered are of high quality, relevant and attractive amidst increased demand and operational challenges being faced (Musyoka & Henry, 2023;Maroa & Namusonge, 2019).

The UNESCO report highlights limited resources, funding constraints, inadequate infrastructure, and poor governance structures as major factors lowering the quality of education and service delivery within public universities in Africa and Kenya (UNESCO, 2023). Strategic plans and reports of public universities in the Western region highlight numerous homogeneous operational challenges that have affected their service delivery efficiency. The universities highlight funding constraints, marketing challenges, power politics, inadequate requisite structures, low levels of automation and inadequate ICT capacity as some of the challenges compromising its service delivery (MMUST, 2024; Maseno, 2022; JOOUST, 2021; Kibabii, 2024;Ministry of Education, 2024). Innovation has been identified as one of the most proactive solutions to addressing operational challenges and enhancing service delivery efficiency (Maroa & Namusonge, 2019; Musyoka, 2023; MMUST, 2024; Maseno, 2022; Kibabii, 2024).

Contextual gaps are also imminent since previous studies have focused on innovation strategy and service delivery in different sectors. Studies were done in insurance companies (Kisuya, Kihara & Macheru, 2023), telecommunication companies in Rwanda

(Joyce, Namusonge & Iravo, 2020). Conceptually, most of the previous studies have focused on technological innovation and product innovation as fundamental aspects in the innovation strategy (Kanyi & Kihara, 2022; Nyamagwa, 2019). Few studies are yet to satisfactorily review other aspects of innovation such as organizational innovation and service innovation (Musyoka & Henry, 2023). Previous studies have adopted different moderating variables such as corporate governance (Kempner-Moreira, Freire & Zilli, 2020), regulatory framework (Kisuya, Kihara & Macheru, 2023) and entrepreneurial orientation (Nduati, 2023). This current study focused on assessing the effect of innovation strategy on service delivery in public universities in Western region, with the moderating variable of management support. Study findings are intended to fill highlighted conceptual, sectoral and contextual gaps by determining the effect of innovation strategy on service delivery in public universities in Western region, Kenya.

1.3 Objectives

1.3.1 General objective of the study

The purpose of the study was to determine the effect of innovation strategy on service delivery in public universities in the Western region, Kenya.

1.3.2 Specific objectives of the study

The specific objectives of the study were;

i) To determine the effect of technological innovation on service delivery in public universities in Western region, Kenya.
ii) To assess the effect of service innovation on service delivery in public universities in Western region, Kenya.

iii) To establish the effect of organizational innovation on service delivery in public universities in Western region, Kenya.

iv) To examine the moderating effect of management support on the relationship between innovation strategy and service delivery in public universities in Western region, Kenya.

1.4 Research hypotheses

i) **Ho_1:** Technology innovation has no significant effect on service delivery in public universities in Western region, Kenya.

ii) **Ho_2:** Service innovation has no significant effect on service delivery in public universities in Western region, Kenya.

iii) **Ho_3:** Organizational innovation has no significant effect on service delivery in public universities in Western region, Kenya.

iv) **Ho_4:** Management support has no significant moderating effect on the relationship between innovation strategy and service delivery in public universities in Western region, Kenya.

1.5 Significance of the study

This research is instrumental in supporting improved policy development and decision-making processes. Primarily, it has shed light on the crucial role of innovation in enabling government bodies like the Commission for University Education and the Ministry of Education to formulate and apply effective innovative strategies that enhance service delivery in public universities. The study has also identified current shortcomings in the implementation of innovation strategies within these institutions. Addressing these gaps

will help the government design policies that guide the adoption of innovative approaches to boost service delivery in public universities.

Additionally, the study provides valuable insights for public universities administrators and management on how to embrace innovative strategies to improve the quality and efficiency of their services. For example, the results may help institutions pinpoint which innovative methods to implement for better service delivery. Moreover, the findings contribute to the existing body of knowledge and literature on innovation strategies and service delivery, serving as a useful resource for researchers and academic scholars.

Study findings will provide university faculties and staff with foundational knowledge for designing capacity-building programs and digital competency training that strengthen their professional capabilities. By understanding different innovation strategies, enhanced frameworks, processes and procedures can be developed to promote creativity, teamwork, and continuous improvement in teaching, research, and administrative functions.

1.6 Scope of the study

The main aim of this study was to examine how innovation strategies influence service delivery in public universities located in the Western region. Specifically, evaluated the impact of technological, organizational, and service innovations, as well as how management support moderates these effects on academic service delivery. The study concentrated on academic services, recognizing that universities in the Western region prioritize research and innovation and seek to foster a collaborative scientific environment. This underscores the necessity for a localized investigation to determine whether innovation strategies meaningfully affect service delivery in public universities within Western Kenya. The universities included in this research were Masinde Muliro University

of Science and Technology, Maseno University, Kibabii University, and Jaramogi Oginga Odinga University of Science and Technology. Only institutions that have operated as chartered public universities for at least eight years were selected, as this duration was considered sufficient to assess their research and innovation activities. The study targeted a group of 220 respondents, comprising deputy vice chancellors, directors, deans, and department heads from the four universities. Data collection for the study took place between September and October 2024.

1.7 Limitation of the study

The study focused on the effect of innovation strategy on service delivery within public universities in Western region as opposed to all universities in Kenya. This limitation has been dealt with through the inclusion of studies carried out on innovation strategy within other regions in Kenya. This provided a comprehensive review that increased the relevance of its findings to all the public universities in Kenya. The research study took more time than expected due to the availability of the respondents. The respondents of the research study have senior roles and responsibilities. This limitation was resolved through setting of prior appointments and deployment of more research assistants to allow simultaneous data collection.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter presents a theoretical, conceptual and empirical literature review of the research study. The theoretical review discusses relevant theoretical frameworks that have been referred to expound on the research area. Conceptual review analyzes concepts of innovation strategy, management support and service delivery. Empirical review has focused on relating innovation to service delivery with reference to previous studies to highlight imminent research gaps. Additionally, table summary of literature identifying the knowledge gaps that inform this current research study. Finally, this chapter concludes the conceptual framework of the research study.

2.2 Theoretical Review

The study reviewed relevant theories to guide its research. These theories included Resource Based View Theory and Dynamic capability theory of innovation.

2.2.1 Resource Based View Theory

The main theory of this study was resource-based view theory. Three major contributors to the Resource-Based View (RBV) theory are Birger Wernerfelt, Jay Barney, and Prahalad (Barney, 2021). Wernerfelt (1984) pioneered the concept by emphasizing that a firm's strategy should be built around its resources (Wernerfelt, 2016; D'Orea, 2021; Barney, 2021). Jay Barney expanded the framework by introducing the attributes of resources for sustained competitive advantage. The attributes are valuable, rare, imperfectly imitable, and non-substitutable (Lubis, 2022).Prahalad, together with Gary

Hamel, enhanced the RBV perspective by introducing the idea of core competencies, which enable firms to achieve and maintain strategic success (D'Orea, 2021). The theory outlines that a firm has a set of assets; tangible, intangible and competencies. The core idea behind this theory is that a firm attains a competitive edge by effectively using its assets (Lubis, 2022). Theory further emphasizes that the resources must be heterogeneous, immobile, inimitable and non-substitutable (Maroa & Namusonge, 2019).

According to this theory, a resource has to have those characteristics in order to provide a strategic and sustainable competitive advantage to an organization. Heterogeneity of resources means that the resources must be mutually reinforcing or further differentiating the capabilities of a firm (Wernerfelt, 2016; Barney, 2021). For instance, the resources must diversely differ from that of its competitors. Inimitability and non-substitutability of a resource is critical in ensuring that the resource provides a sustainable advantage to an organization. The resources have to be unique and cannot be imitated by other firms (D'Orea, 2021). The resources should be immovable to allow organizations to maximumly utilize them. They should not be able to be moved from one firm to another even in the short run.

The RBV theory emphasizes the importance of firms cultivating unique, non-imitable and highly differentiated resources in order to build competencies and competitive edge (Kanyi & Kihara, 2022). The resources must create value for the organization and support its survival through the ever-changing business conditions. However, RBV theory has been greatly criticized. Primarily, as much as a firm's resources are important, they are not the only factors that support the growth and performance of a business (Kempner-Moreira,

Freire & Zilli, 2020). Other aspects such as strategic planning, regulatory policies and other factors matter too. Correspondingly heterogeneity of resources does not necessarily imply uniqueness (Wernerfelt, 2016). Furthermore, certain types of resources of an organization such as reputation and knowledge are subjective. It is also important to note that just because an organization has valuable resources does not mean they are competitive (Norah & Kiarie, 2019). Other external factors such as the ability of the organization to plan and effectively use the resources affect the level of competitiveness realized.

Innovative strategy remains an intangible resource that public universities can use to improve their operational efficiency and competitive advantage (Leitao & Ratten, 2023). Technological innovation, service innovation, and organizational innovation are strategic resources that public universities should effectively adopt to enhance their service delivery efficiency and customer satisfaction rates (Lubis, 2022). Technological and service innovations are unique and difficult to imitate by competitors, thus, can be effectively used by public universities in Western region to enhance their competitive edge. Organizational innovation instigates distinctive organizational routines and capabilities (Barney, 2021), which facilitate better resource coordination and innovation implementation, crucial for maintaining high service delivery standards in public universities in Western region.

2.2.2 Dynamic capability theory of innovation

This study adopted dynamic capability theory as a supporting theory. Dynamic capability theory focuses on how firms develop and acclimatize their resources to respond to changing business environments. The theory was initially introduced by David Teece and Gary Pisano in 1994 ,Teece, Pisano, and Shuen in 1997 and further elaborated by

Patterson, Pugalia and Agarwal in 2022 (Bhadra, 2024; Patterson, Pugalia & Agarwal, 2022). The theory emphasizes how organizations can acquire and use their resources to respond to rapidly changing business environments. Dynamic capabilities refer to an organization's capacity to adjust and realign its strategies and resources in order to improve its competitive position and achieve outstanding performance (Patterson, Pugalia & Agarwal, 2022). These capabilities comprise various elements such as skills, processes, organizational frameworks, and strategic plans (Maroa & Namusonge, 2019).

Correspondingly, Teixera *et al.* (2019) defined dynamic capability as the ability of an organization to strategically readjust internal and external competencies to create new synergy value to improve its competitive advantage. Dynamic capability involves three dimensions (Musyoka, 2023). First, an organization must identify and assess emerging opportunities within its operational environment. Thereafter, it has to mobilize its resources to address the opportunity and capture value (Bhadra, 2024; Musyoka, 2023).

However, the dynamic capability theory has been intensely criticized. The dynamic capability theory's inability to provide clear frameworks and guidelines to measure capabilities and how they affect the performance of organizations is a major shortcoming of the theory (Akram & Hilman, 2025). For that reason, it becomes difficult for the theory to be effectively applied for the benefit of modern organizations. Bhadra (2024) asserts that continued collaborative efforts from researchers are necessary to clarify concepts related to the theory and connect them to the practical experiences of organizations.

According to Maroa and Namusonge (2019), innovation strategy is acknowledged as one of the most fundamental capabilities of an organization that has a great impact in providing

it with sustained competitive advantage and performance. Innovation strategy allows public institutions in Western Region to effectively use their current resources to create new processes and procedures(Adan, 2023), to enhance service delivery efficiency and accessibility. Also, through innovation strategy, the public institutions in the region are able to formulate relevant solutions to address different challenges they are facing in their operations (Akram &Hilman, 2025).Technological innovation strategy enables public universities to swiftly adopt new digital tools that transform administrative and teaching methods improving service delivery (Musyoka,2023). Correspondingly, service innovation allows public universities to continuously identify changing student and stakeholder needs (Adan, 2023), develop and deploy new academic and support services (Musyoka, 2023), reconfigure service processes and structures for improved quality and efficiency (Bhadra, 2024).

2.3 Conceptual review

The conceptual review sought to provide a comprehensive understanding of the concepts of technological innovation, service innovation, organizational innovation, management support and service delivery.

2.3.1 Technological innovation

According to Jayeola *et al.* (2022), modern technology is dynamic and ever changing, hence, the need for organizations to continuously and proactively adopt emerging technologies within their operations. Technological innovation is vital in improving the efficiency and productivity of an organization. It ensures that organizational resources available are efficiently and productively used (Musyoka, 2023). Technological innovation

seeks to streamline processes and procedures within an organization, thus increasing its operational efficiency and productivity (Nduati, 2023). Technological innovation focuses on maximizing the value of services or products to different stakeholders within an organization.

Operationally, according to Kisuya, Kihara & Macheru (2023), technological innovation is defined as integration of innovative technological tools within an organization to improve their operational, strategic and overall business performance. Correspondingly, technological innovation refers to improvement of existing technological systems incorporated within an organization(Ndebele & Enaifoghe, 2023). Technology innovation is geared at encouraging systematic implementation of technology (Leitao & Ratten, 2023), to increase the overall value and performance of a firm.

Within this study, technological innovation is defined as the adoption of technology to improve service delivery in public universities(Kanyi & Kihara, 2022;Musyoka & Henry, 2023). Technological innovation in public universities further alludes to the implementation of technologically innovative solutions to support better delivery of educational services (Kawira, 2021). It encompasses adoption of emerging technologies such as e-learning and digital student management systems, to promote timely and efficient service dispensation.

Different previous studies have showcased that technological innovation is perceived and quantified diversely depending on the sector and nature of products and services dispensed by an organization. A study by Kanyi and Kihara (2022) measured technological innovation as the efficiency in information technology systems, commercialization of

technological services and efficiency in information sharing. Nyamagwa (2019), conceptualized technological innovation as the digital administration of students, digital information dissemination and digital learning programs. Musyoka and Henry (2023) quantified technological innovation as the implementation of virtual learning, e-learning resources and digital records. Technology innovation within this research study was measured as the implementation of virtual learning, digital administration of students and digital learning resources in lieu to improving the efficiency and accessibility of services delivered.

2.3.2 Service innovation

Over the years, service innovation has mainly prevailed within the hospitality and service sector (Kawira, 2021). Nduati (2023) emphasizes the significance of service innovation in supporting continued relevance of the services rendered by an organization. The tastes and preferences of consumers are ever changing. There is a need for organizations to effectively innovate their services to match the changes and remain relevant to customers (Ndebele & Enaifoghe, 2023). Service innovation aims at enhancing the customer experience to increase customer satisfaction rates hence increasing customer loyalty levels

Operationally, service innovation is described as the introduction of new service concepts within existing service delivery systems to satisfy customer's unmet needs (Ndebele & Enaifoghe, 2023).Thus, service innovation aims at developing effective and efficient service delivery systems that improve the efficiency of service delivery. This includes changes in the service design, delivery channels and technologies, customer interaction points and models (Musyoka, 2023;Nduati, 2023).

This study defines service innovation as the introduction and implementation of new or enhanced service products, processes, delivery methods, within public universities (Maroa & Namusonge, 2019). This includes innovations in the creation of new academic programs, continuous curriculum development, and continuous improvement of existing service delivery systems and processes to enhance efficiency and timeliness, of services delivery to students and other stakeholders (Musyoka, 2023:Maroa & Namusonge, 2019).

Mdasha (2018) has conceptualized service innovation as service marketing and service delivery system. Correspondingly, another study by Kisuya, Kihara and Macheru (2023) measured service innovation through new services introduced, incremental improvement of existing service delivery systems and service infrastructure. Maroa and Namusonge (2019) reviewed service innovation as e-learning services, online student registration and e-messaging services. Service innovation in this research study was assessed by service delivery systems, new academic programs and continuous curriculum development within the institutions

2.3.3 Organizational innovation

Organizational innovations concentrate on enhancing customer satisfaction by redesigning the organization's routines, procedures, activities, mechanisms, and systems through administrative initiatives (Kanyi & Kihara, 2022). This approach encourages teamwork, facilitates information exchange, simplifies coordination, fosters collaboration, supports learning, and drives innovation (Joyce, Namusonge & Iravo, 2020). Consequently, it leads to higher customer satisfaction and a more efficient organizational operation. Organizational innovation is centered at increasing the efficiency and productivity of an

organization through evolving its structure, systems and procedures to align with changes within its operational environment (Musyoka & Henry, 2023).

Organizational innovation is among the most recent innovative solutions that organizations are adopting globally as asserted by Alharbi, Mahamood and Shabaraoun (2019). Kuguru, Jaensson and Nganga (2022) well-defined organizational innovation as employment of new organizational methodologies and procedures in terms of company business practices, internal and external relations, systems and procedures. Correspondingly, organizational innovation refers to the strategic alignment and change of existing organizational methods and procedures. Organizational innovation can be categorized as either be radical or incremental in nature (Nduati, 2023).

Organizational innovation in this study was defined as the implementation of new or significantly improved organizational methods in public universities (Nduati, 2023; Maroa & Namusonge, 2019). This includes changes in organizational structure, management practices such as transformative leadership and decision-making processes to enhance institutional performance and service delivery effectiveness. Organizational innovation greatly targets at revolutionizing processes and procedures used by the management and employees of public universities(Musyoka, 2023).

Disparities in the measurement of organizational innovation remains evident. Organizational innovation has been measured as organizational restructuring and new organizational techniques and strategies by Kuguru, Jaensson and Nganga (2022). A study by Musyoka (2023) measured organizational innovation within public universities as retraining of workers, transformative leadership and restructuring. Nduati (2023) reviewed

organizational innovation as new systems, new structures and business practices and new management roles. This study adopted regular review of management structure, new systems of training and development and partnerships and networks as dimensions of organizational innovation.

2.3.4 Management Support

Management support has been identified as a fundamental tool in promoting the attitudes, productivity and performance of employees in organizations (Norah & Kiarie, 2019). Management support is focused on improving the wellbeing and relationship between the management and employees, and among employees. Thus, management support seeks to motivate employees to attain the optimal desired level of performance. Good management support ensures the optimum allocation of resources in supporting all the activities within an organization (Mabubi, Kogei & Kosgei, 2018).

Management support denotes the effective allocation of resources to support different strategies enacted within an organization (Nduati, 2023). Also, management support can be defined as the favorable attitude and behavior of senior and execute level management towards operational and strategic strategies of an organization (Sima, Misoi & Omillo, 2019). This entails providing guidance, encouragement and actively participating in the implementation of organizational strategies.

Management support in the context of public universities refers to the commitment, and proactive role of university leadership (Kihara, Kisuya& Macheru, 2023) in facilitating, guiding, and sustaining innovation strategies aimed at improving service delivery (Nduati, 2023). It encompasses the provision of essential resources, formulation of supportive

policies, encouragement of creative problem-solving, and empowerment of academic and administrative staff to implement innovative practices(Norah & Kiarie, 2019). When management support is high, innovation strategies are more likely to translate into improved service delivery because leaders provide the necessary conditions for innovation to succeed (Sirma, Misoi & Omillo, 2019;Njenga, Kariuki & Wanjohi,2023).

Njenga, Kariuki and Wanjohi (2023) operationalized top management support as management commitment, management vision and articulations and management policies. Another study by Norah and Kiarie (2019), measured top management support as man power provision and time allocation. Within this study, management support was operationalized as resource allocation and employee empowerment.

2.3.5 Service delivery

Kawira (2021) denote service delivery as processes and procedures that seek to provide customers or end users of service with products or services of a predetermined quality that satisfies their different needs and expectations. The main dimensions of service entail the conformance to the requirements, purpose, standards and preferences of the customers (Musyoka & Henry, 2023:Maroa& Namusonge, 2019). Also, service delivery is defined in terms of efficiency in dispensation of services. Efficiency refers to service delivery systems and procedures that dispense services with the least amount of time and effort (Musyoka, 2023).

In the context of this study, service delivery reflects how well a university's systems and processes transforms institutional goals and innovation strategies into tangible outcomes(Kanyi & Kihara, 2022); such as improved academic experiences, efficient

administrative procedures, and enhanced stakeholder satisfaction (Maroa& Namusonge, 2019). Effective service delivery in public universities is therefore a measure of institutional performance, accountability, and the ability to adapt to changing educational demands through innovation(Kisuya, Kihara & Macheru, 2023).

Different studies have operationalized service delivery diversely. Wambugu, Wachira and Mwamba (2016), defined service delivery in terms of time, transparency and accountability, reliability and customer satisfaction. Maroa and Namusonge (2019) used efficiency, accessibility, timelessness, satisfaction and quality as the indicators of service delivery. This study used efficiency, accessibility and customer satisfaction as the indicators of service delivery.

2.4 Empirical Review

The study reviewed existing literature and studies done on technological innovation, service innovation, organizational innovation and management support in relation with service delivery.

2.4.1 Technological innovation and service delivery

Technological innovation has been identified as a predominant type of innovation across different sectors in both the local and global economies. A study by Tallon *et al*. (2018) in the USA concluded that technological innovation enhances the performance of firms. The study adopted document analysis of peer reviewed journals as its methodology thus heavily relying on secondary data. Current study focused on the education sector and adopted causal research design relying on both primary data and published secondary data, which increased the reliability of its results.

Namusonge, Muturi, and Olaniran (2016) within listed firms on the Nigerian Stock Exchange revealed a negative correlation between innovation and performance. Using quantitative analysis, the study relied on secondary data from 60 firms listed firms. However, it lacked an empirical review of the role of innovation on performance, which limited the literature informing the study's objectives. The conflicting results in their findings highlight the need for further research. This current study utilized both primary and empirical literature review on technological innovation and service delivery in university contexts and other industries. This increased the relevance of the study findings across different sectors.

Nyamagwa (2019) study on public TVETs in Kenya concluded that technological innovation had both significant and immaterial influence on performance. Digital administration of students and digital learning programs has significant effects on performance of TVETs. However, digital information dissemination and digital administration of academic staffs had insignificant contribution on performance. The study adopted causal research design collecting primary data using questionnaire and analyzed collected data using descriptive and correlation methods. This study has adopted causal research design study and sought ought to evaluate as to whether technological innovation significantly contributed to improved service delivery or not.

A study on technological innovation strategies and the performance of internet service providers by Kanyi and Kihara (2022) found significant and positive relationship between the two variables. Descriptive research design with target population drawn from 60 internet service provider companies was adopted. Study focused on internet service

providers with most of its literature review from insurance and banking sectors. The difference in sectors necessitated this current study as most of the findings from Kanyi and Kihara(2022) study could not be sufficiently applied in this study.

Musyoka and Henry (2023) found a strong positive relationship between technological innovation and organizational performance. The study utilized a descriptive research design, sampling 80 participants from 10 public universities. Data was collected using questionnaires, and analyzed using descriptive statistics and linear regression techniques. Unlike previous research that examined only the direct link between technological innovation and performance, this study incorporated management support as a moderating variable.

Wambugu, Wachira, and Mwamba (2016) conducted a study on the impact of innovation on service delivery in the public sector, finding that technological innovation had a significant positive influence. The study employed a descriptive research design, with data collected through questionnaires and analyzed primarily using descriptive statistics. In contrast, the current study used both descriptive and inferential statistics, resulting in more accurate and comprehensive findings.

2.4.2 Service innovation and service delivery

Fu, Wang and Zhao (2017) study in pharmaceutical firms in China concluded strong positive and significant association between service innovation and network effect. However, the study used the multiple case study research design mainly analyzing secondary data from different case study prompting a methodological gap. Also, the study focused on pharmaceutical firms in China with little literature applicable within the

university education in Kenya. Further, the difference in research design and research methodologies necessitates the need for this current research.

Joyce, Namusonge, and Iravo (2020) study in telecommunication companies in Rwanda, concluded that there is a positive and significant relationship between innovation and performance. The methodology used was a descriptive survey design. Legal and regulatory framework serving as a moderating factor unlike this current study which adopted management support. Since the study was conducted within the Rwandan telecommunication sector, its findings provide limited applicability to the current research context, highlighting the need for further studies to fill existing knowledge gaps.

Oke (2015) empirical review on the impact of innovation on the performance of SMEs in Tanzania found minimal empirical evidence between the two variables. The study revealed that literature surveys have concentrated in Western and middle East and only few studies have been done in Africa. The study used exploratory design using desktop methodology to review existing literature. Within existing literature reviewed, service innovation was found to have a significantly positive effect on performance. This current study adopted similar research design; however, it used both primary and secondary data to evaluate if the results would be similar or differ.

Mdasha (2018) investigated strategic innovation in SMEs and found that service innovation had a positive and meaningful impact on their performance. The research applied a mixed methods approach, combining quantitative and qualitative techniques. It tailored the concept of service innovation to address the specific knowledge requirements and deficiencies within the SME sector. Therefore, this current research to sought to

redefine service innovation in the context of the education sector to bridge the knowledge gaps that exist between these two areas of study.

Maroa and Namusonge (2019) found a positive relationship between strategic innovation and service delivery in public universities. Study research employed a descriptive design and focused on students at Kenyatta University as the target population. However, the scope was limited as it excluded key stakeholders involved in formulating and implementing strategic innovations, such as senior management and administrative staff. In contrast, the current study target respondent were management staff who were responsible for developing and executing innovation strategies.

According to Kisuya, Kihara, and Macheru (2023), service innovation has a positive and significant effect on the competitive advantage of insurance companies in Kenya. Their study concentrated on insurance firms and included the regulatory framework as a moderating variable. A cross-sectional research design was used, both primary and secondary data. In contrast, the current study applied management support as the moderating variable within the context of the higher education sector.

2.4.3 Organizational innovation and service delivery

Dadfar, Dahlgaard, Brege and Alamirhoor (2013) study within pharmaceutical SMEs in Iran concluded that there is a positive association between organizational innovation and performance. The study adopted mixed methods research design which qualitatively and quantitively collected and analyzed data. Data was collected from eight pharmaceutical companies. The study focuses on pharmaceutical SMEs in Iran introducing a contextual

knowledge gap as most findings are largely applicable to SMEs in Iran. This study focused on the education sector in Kenya.

A positive and significant link exists between organizational innovation and performance of public universities in Kenya (Musyoka, 2023). The study employed a cross-sectional design involving ten public universities. Data was collected via structured questionnaires and analyzed using descriptive statistics and linear regression. The difference in Musyoka (2023) study and current study is evident in the conceptualization of organizational innovation constructs. This current study conceptualized organizational innovation as regular review of management structure, new system of trainings and development and partnerships and networks.

Kuguru, Jaensson and Nganga (2022) study asserts that organizational innovation positively and significantly influences performance within coffee co-operatives in Kenya. The study used descriptive research design. Primary data was collected using structured questionnaires and analyzed using descriptive statistics. However, organizational innovation is directly linked to performance. This study assessed the relationship between organizational innovation using management support as the moderating variable. Further, the study was done in cooperatives in Kenya which is a different sector from the current study which was done in universities.

Nduati (2023) agrees that innovation strategies are critical in stimulating performance of data provider firms in Kenya. Descriptive research design was used in which data was collected using structured questionnaires and analyzed using SPSS software. Entrepreneurial orientation was adopted as the moderating variable. Sector gap and

moderating variable differences are imminent which inform this current study. The current study focused on the education sector specifically public universities.

2.4.4 Moderating effect of management support on service delivery

García-Sánchez, Guerrero-Villegas and Aguilera-Caracuel (2018) study found that top management support has strong and positive moderating effect on the use of information technology and innovativeness with high-tech firms in European countries. The study adopted cross sectional research design. Research study focused only on high-tech firms in European countries, hence an imminent contextual and sector knowledge gap. Few of the findings can be applicable within the higher education sector in Kenya. This current study focused on public universities within the education sector.

A study on the moderating effect top management support in Pakistan public sector concluded that project governance and top management support are positively significantly correlated with project performance (Muhaamad & Su, 2022). The study adopted a quantitative deductive approach and quantitative data was collected using questionnaires. This current study used causal research design and analyzed data using descriptive and inferential statistical analysis methods.

Al-Omoush (2020) conducted a study on the influence of top management support and organizational capabilities in facilitating e-business entrepreneurship among manufacturing firms in Jordan. The findings revealed a significant association between top management support and e-business entrepreneurship. The study also emphasized the critical role of top management in creating an organizational environment that promotes learning and agility, which are essential for establishing e-business entrepreneurship. Data

was gathered through self-administered questionnaires and analyzed using SmartPLS. While the study was centered on Jordan's manufacturing sector, the current research is focused on the education sector in Kenya. The research study sought to assess the management support regulated the relationship between innovation strategy and service delivery in public universities.

Kagoya and Mbamba (2020) study on the moderating effect of top management support on key attributes to e-government implementation success of Ugandan Ministries found that top management support latent variable positively moderates the relationship between user participation attributes and e-government implementation success. The study adopted a cross-sectional research design. Data was collected through a survey and analyzed using $SmartPLS_3$.The variation in the findings within this study informs this current study. Correspondingly, this current study evaluated the moderating effect of innovation strategy on service delivery in public universities in Kenya.

Amudavi, Kimutai and Nyaboga (2023) study within the Civil Service in Kenya found that top management play a significant moderating role in shaping the relationship between HRMIS and employee performance. The study adopted a mixed methods approach combining survey data from employees and in-depth interviews with the top managers. Data was collected using structured questionnaires and analyzed using statistical techniques. This current study adopted causal survey research design.

The study by Njenga, Kariuki, and Wanjohi (2023) investigated the effect of top management on the performance of state corporations and established a significant positive relationship between the two. It further revealed that the commitment of management plays

a key role in determining organizational success and performance, and that government policies, in collaboration with State Corporations, impact performance levels. The research employed a descriptive design, using semi-structured questionnaires for data collection, which was analyzed using SPSS software. While that study treated management support as an independent variable, the current study considers top management as a moderating variable.

Norah and Kiarie (2019), adopted management support as an independent variable to find the relationship between top management and project performance within selected state corporations in Kenya. The study concluded that management support to be a significant factor that positively influences performance. The study adopted descriptive research design using questionnaires to collect data and SPSS software version 20 to analyze the collected data. There is a need for more studies to interlink innovation strategy and service delivery with the moderating effect of management support which necessitated this current study.

Sirma, Misoi and Omillo (2019) study on the effect of top management support on operational performance of commercial banks in Nandi County concluded that there is a significant positive effect of top management support on commercial banks' performance. The study adopted ex- post facto research approach strategy and data collected using questionnaires. Current study adopted causal research design and adopting management support as moderating variable in evaluating innovation strategy and service delivery interrelatedness.

2.5 Summary and research gap

Reviewed literature highlights the significant positive influence of various types of innovation strategies; technological, service, and organizational innovation strategies on performance and service delivery across multiple sectors both globally and within Kenya. Technological innovation is associated with enhanced performance in diverse sectors such as internet service providers and public universities; however, inconsistencies in findings and methodological approaches reveal a need for focused empirical research within the education sector (Kanyi & Kihara, 2022; Musyoka & Henry, 2023; Nyamagwa, 2019). Service innovation similarly shows beneficial effects on competitive advantage and service delivery, though existing studies have been done in different sectors and limited in scope, with insufficient attention to public universities (Kisuya, Kihara, & Macheru, 2023; Maroa & Namusonge, 2019; Oke, 2015; Mdasha, 2018). Organizational innovation research demonstrates a positive impact on performance but remains concentrated in particular sectors, lacking thorough conceptual exploration within Kenyan public universities (Dadfar et al., 2013; Kuguru, Jaensson, & Nganga, 2022; Musyoka, 2023).Management support has further been highlighted as a pivotal factor in enhancing the implementation of strategies such as innovation strategies across different sectors(Al-Omoush,2020;Kagoya & Mbamba, 2020).

This study addressed the gaps identified by adopting a causal research design that deploys use of primary and secondary scholarly journals, articles and reports. Correspondingly, the study focused on providing comprehensive knowledge on the effect of innovation strategies on service delivery in public universities in Kenya, particularly Western region.

It also showcased the moderating role of management support on the relationship between innovation strategy and service delivery.

2.5. Summary of literature review and gaps

Author	Focus of the study	Research methodology	Findings	Research gap
Technological innovation and service delivery				
Kanyi & Kihara (2022)	Innovation strategies and the performance of internet service providers.	Descriptive survey design.	Technological innovation strategy positively and significantly influences performance.	Difference in sectors under which studies have been done.
Musyoka & Henry (2023)	Technological innovation and performance of public universities in Kenya.	Cross-sectional research design.	Strong correlations between technological advancements and performance of public universities.	Direct relationship between variables.
Nyamagwa (2019)	Technological innovation and performance of public TVETs in Kenya.	Causal research design.	Technological innovation has both significant and insignificant effect on performance.	Variation in the findings of the study.
Tallon *et al.* (2018)	Information technology and the search for organizational agility in firms in the United States of America.	Document analysis of peer reviewed journals.	Technological innovation enhances performance of firms.	Contextual and methodological gap. The study relies on secondary data.
Wambugu, Wachira & Mwamba (2016)	The effect of innovation on service delivery in the public sector in Kenya	Descriptive research design	Technology innovations to have major positive effects on service delivery	Direct relationship between variables
Fu, Wang & Zhao (2017)	Influence of platform service innovation on value co-creation activities and the network effect in China.	Multiple case study research design.	Strong positive and significant association between service innovation and network effect.	Difference in research designs and data collection methods adopted

Author	Focus of the study	Research methodology	Findings	Research gap
Service innovation and service delivery				
Kisuya, Kihara &Macheru (2023)	Innovation strategies and competitive advantage of insurance firms in Kenya.	Cross-sectional survey design.	Service innovation has positive and significant impact on competitive advantage.	Regulatory framework was used as the moderating variable.
Maroa & Namusonge (2019)	Strategic innovation and service delivery within public universities: A case of Kenyatta University.	Descriptive research design.	Strategic innovation has a significant effect on service delivery.	Limitation in scope and population of study.
Oke(2015)	The impact of innovation on performance of SMEs in Tanzania	Exploratory design	Service innovation has a positive and significant impact on performance	Difference in study methodology.
Mdasha (2018)	Strategic innovation practices and performance of SMEs in Nairobi, Kenya.	Mixed methods research design.	Service innovation has a positive and significant influence on performance.	Study was done in the SMEs sector; current study is in education sector.
Organizational innovation and service delivery				
Dadfar *et al.* (2013)	Linkage between organizational innovation capability, product platform development and performance; The case of pharmaceutical small and medium enterprises in Iran.	Mixed methods research design.	Positive relationship between organizational innovation capabilities and performance.	Study was done in Iran; current study has been done in Kenya.
Kuguru, Jaensson &Nganga (2022)	Organizational innovation and performance of coffee co-operatives in Kenya.	Descriptive research design.	Organizational innovation and performance are positively and significantly related.	Direct link of organizational innovation to performance. Sector gap.
Musyoka (2023)	Strategic innovation and performance of public universities in Kenya.	Cross sectional research design.	Positive significant link between organizational innovation and performance.	Conceptualization of organizational innovation.

Author	Focus of the study	Research methodology	Findings	Research gap
Nduati (2023)	Innovation strategies, entrepreneurial orientation and performance of data providers in Kenya.	Descriptive research design.	Innovation strategies are important in stimulating performance.	Difference in moderating variables.
Moderating effect of management support and service delivery				
Al-Omoush (2020)	Role of top management support and organizational capabilities in achieving e-business entrepreneurship; Jordan manufacturing firms.	Exploratory research design.	Significant impact of top management support on business entrepreneurship in manufacturing firms in Jordan.	Study was done in the manufacturing sector in Jordan. Current study has been done in the education sector in Kenya.
García-Sánchez, Guerrero-Villegas & Aguilera-Caracuel (2018)	The moderating role of top management support in information technology use and innovativeness in high tech firms in the European countries	Cross-sectional research design.	Top management support for IT use strengthened the positive effect of technological skills and innovativeness.	Study was done in tech firms; current study was done in public universities.
Norah & Kiarie (2019)	Top management support and project performance in selected state corporations in Kenya.	Descriptive research design.	Top management support has a positive and significant contribution to performance.	Top management support adopted as an independent variable.
Kagoya & Mbamba, (2020)	Moderating effect of top management support on key attributes to E-government implementation Success in developing countries: A study of Ugandan Ministries.	Cross-sectional research design.	Top management support has conflicting moderating effect on key attributes to E-government implementation success.	Variation in findings of the study.
Muhaamad &Su (2022)	Project Governance and Project Performance: the moderating role of top management support in Pakistan public sector.	Quantitative deductive approach.	Project governance and top management support are positively significantly correlated with project performance.	Study was done in Pakistan's public sector.

Author	Focus of the study	Research methodology	Findings	Research gap
Namusonge, Muturi & Olaniran (2016)	Role of innovation on performance of firms on Nigerian stock exchange.	Secondary data collection instruments.	Innovation has a negative relationship with returns on assets and returns on equity in firms.	The implication of the study is that innovation is still in its infancy level. The study lacked empirical review.
Njenga, Kariuki &Wanjohi (2023)	Influence of top management support on the performance of selected state corporations.	Descriptive research design.	Top management support has a positive and significant relationship with performance.	Study was done in state corporations; current study was done in public universities.
Sirma, Misoi &Omillo(2019)	Effect of top management support on operational performance of commercial banks in Nandi county,Kenya	Ex-post facto research approach strategy.	Significant positive effect of top management support on commercial banks' performance	Difference in study research designs

Source: Reviewed literature

2.6 Conceptual framework

A conceptual framework is a visual representation of the variables and constructs of a research study (Ravitch & Riggan, 2016). The study focused on establishing the effect of innovation strategy on service delivery in public universities in Western region. The constructs of innovation strategy as the independent variable were technological innovation, service innovation and organizational innovation. Technological innovation was measured using the constructs of implementation of virtual learning, digital administration of students, digital learning resources. Service innovation constructs were infrastructure of service delivery systems, continuous curriculum development and new programs. Organizational innovation constructs were regular review of management structure, new system of trainings and development and partnerships and networks. The moderating variable under this study was management support with constructs of resource allocation and employee empowerment. The dependent variable was service delivery which was measured using the constructs of efficiency level, accessibility level and customer satisfaction.

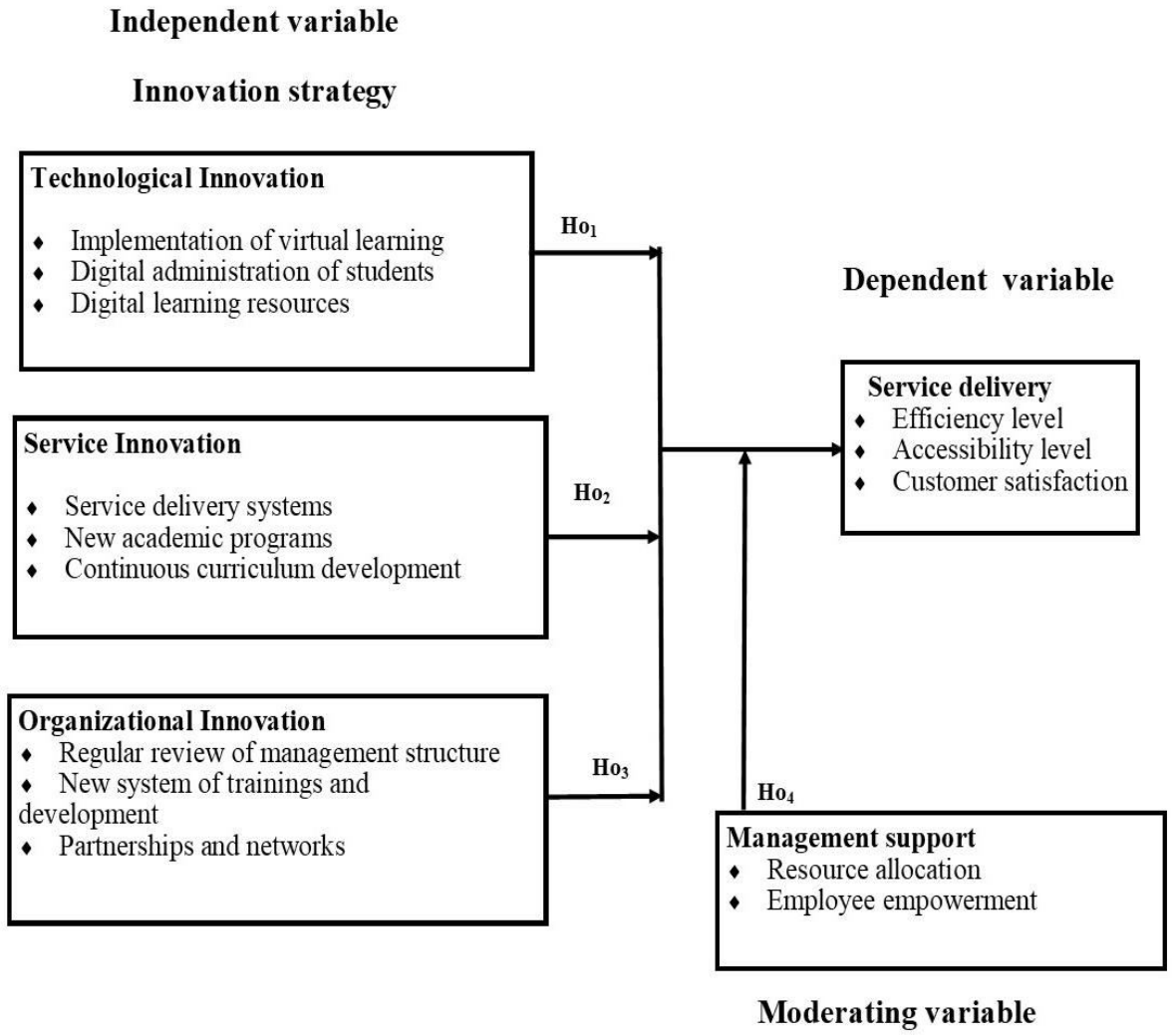


Figure 2.1: Conceptual framework

Adapted from other studies: (Maroa & Namusonge, 2019; Norah & Kiarie, 2019; Kanyi & Kihara, 2022; Al-Omoush, 2020; Dadfar *et al*., 2013; Wambugu, Wachira & Mwamba, 2016)

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter describes the methods employed in collecting and analyzing data. The research design, target population, sampling strategy, and the method of gathering data are discussed. It also describes the procedures which were used to evaluate the validity and reliability of the data collection instruments. Further, it elaborates the data analysis and presentation techniques and ethical considerations observed.

3.2 Study Area

The geographical location for the research study was Western region, Kenya. Geographically, the highest point in the region is Mount Elgon, located in Bungoma County, while the lowest point is Busia town on the shores of Lake Victoria. The region is located on a latitude of 0.5°N and longitude: 34°35′E giving a spatial frame for research data collection and contextual analysis .The public universities under study were MMUST in Kakamega county, Kibabii in Bungoma county, Maseno in Kisumu County and JOOUST in Siaya county. The choice of the public universities under study is attributed to homogeneity in the locational factors. The universities are located in semi urban towns surrounded with multicultural communities.

3.3 Research Design

Dunn (2025) defines research design as a research strategy adopted by a researcher to collect, analyze and interpret data. This study utilized the causal research design. Causal research design is instrumental in understanding cause and effect relationships between

two or more variables(Varghese, Ranwah & Varghese, 2025). It investigates why something happens and what factors influence specific outcomes (Dunn, 2025). It focuses on discovering causation rather than correlation. Causal research design often involves controlling and manipulating independent variables to observe effects on dependent variables (Kumar, 2018;Dunn, 2025). For instance, the research design was instrumental in assessing the independent effect of innovation strategies, combined effect and moderating effect of management support on service delivery. Additionally, the research design further augured well with the research data collection instruments used in the study (Darlington & Hayes, 2016). Attitudes and perceptions towards the effect of innovation strategies on service delivery were gathered efficiently.

3.4 Target Population

According to Dunn (2025), population refers to the group of people, subjects or things of concern that the researcher intends to study that are in a position to answer queries related to the study. The target universities were universities that have been operational for over 8 years as chartered universities. The period is considered adequate for assessment of evolution and implementation of innovation strategies by the universities. Hence, four public universities in Western region were selected. Within this research, target respondents were the management staff including deputy vice chancellors, directors and deans of schools and head of departments. The respondents participate in the planning and execution of innovation strategies adopted by the universities in regards to the dispensation of academic services. Thus, they were able to provide adequate and relevant information to the research study. Previous studies have highlighted the target respondents as the most relevant in providing useful information and holistic view on the implementation of

innovation strategy and service delivery within public universities. (Musyoka, 2023; Musyoka & Henry, 2023; Nyamagwa, 2019) The distribution of respondents within the targeted universities is shown in Table 3.1.

Table 3.1: Target population

Target respondents	MMUST	Kibabii	JOOUST	Maseno	Total
Deputy vice chancellors	3	3	2	3	11
Directors	7	10	4	7	28
Dean of schools	11	7	7	13	38
Head of departments	45	24	22	52	143
Total	**66**	**44**	**35**	**75**	**220**

Source: MMUST; JOOUST; Kibabii; Maseno Universities Employee data (2023)

3.5 Sampling procedure

Sampling is most preferable where the area of study is a bit widespread and the researcher cannot cover all the target population and carry out a profound assessment (Tan, 2022).Simple random sampling and stratified sampling methods were used in this study. The target population was divided into subgroups in accordance to universities. Then, random samples were taken from each subgroup. Combination of both random and stratified sampling techniques aimed at reducing sampling bias which increased population representation and precision (Kumar,2018). Out of a target population of 220 respondents, a sample size was determined using Yamane formula. The formula is in form of;

$$n = \frac{N}{1 + N(e)^2}$$

Where;

n = sample size, N = population size, e = confidence interval

$n= 220/ (220(0.05)^2)$

n = 142

Table 3.2: Sample size category

Category of management staff	MMUST	Kibabii	JOOUST	Maseno	Total
Deputy vice chancellors	2	2	1	2	7
Directors	4	6	4	4	18
Dean of schools	7	5	5	8	25
Heads of departments	29	18	15	30	92
Total	**42**	**31**	**25**	**44**	**142**

Source: University Employee data (2023)

3.6 Data collection

3.6.1 Data collection instrument

Questionnaires were used to collect primary data from sampled target respondents from the selected universities. The questionnaire was composed of close ended questions. Questionnaires were considered to be appropriate for this study since they allowed the researcher to collect comprehensive data (Ayiro, 2024). This enhanced the accuracy and reliability of data collected. However, questionnaires have significant drawbacks such as low response rate as well as concomitant prejudice (Tan, 2022). The response rate was

enhanced through continuous follow up and simplification of the statements and questions adopted in the questionnaire.

“Respondents were expected to evaluate questionnaire items using a Likert-type scale, ranging from 1-5 with 5- Strongly Agree, 4- Agree, 3-Fairly agree, 2- Disagree and 1-Strongly Disagree” (Tan, 2022). There were four parts in the questionnaire. Demographic questions were included in the first part. The second part was subdivided into three sections which comprised of questions attributed to innovation strategy. The third part had questions relating to management support and the final part had questions relating to service delivery.

3.6.2 Data collection procedures

Drop-and-pick data collection method was used in the distribution of questionnaires to respondents. Questionnaires were delivered at the respondents’ workplace for filling and collected two days after to enhance response rate. Prior to this, necessary approvals were be observed as follows: first, the study sought for an approval letter from the university and NACOSTI before proceeding to data collection. Secondly, approval letter together with the introductory letter and research instrument were delivered to the key authorities of selected institutions to seek their approval and consent for their staff to participate in the data collection activity. Four qualified research assistants were deployed to assist in data collection.

3.7 Pilot study

A pilot study is a miniature version of the main study conducted to refine procedures, materials, and parameters, as well as to assess the reliability and validity of the research

instruments (Kumar, 2018). The pilot study targeted 10% of the sampled respondents thus targeting 14 respondents from Moi university, a public university in Uasin Gishu county. The respondents targeted by the pilot study were deputy vice-chancellors, directors, deans of schools and heads of departments. Participants voluntary participated in the piloting exercise. The participants were provided with an introductory letter as well as a verbal explanation on study objectives to enable them answer the questionnaire correctly. To assess the reliability and validity of the research instrument, some of the participants were asked to share their feedback on whether questions were clear and easy to understand. From the feedback gathered, revisions to the contents of the questionnaire were done under the guidance of the supervisors.

3.7.1 Validity of research instrument

"Validity is the degree to which an instrument measures the characteristics traits of the research with high levels of precision and accuracy"(Tan, 2022). Various validity tests that can be assessed in a research instrument involve face validity, content validity and construct validity" (Ayiro, 2024). "Face validity is defined as the degree to which a research instrument can evaluate what it is purported to measure precisely. Content validity refers to the level which a research instrument contains relevant facts that reflect what the study seeks to measure. Construct validity is the level to which the research instrument comprises constructs that reflect the principles of the already existing theories"(Bergin, 2018;Kumar, 2018;Darlington & Hayes, 2016).

Face validity was attained in this research through ensuring that the instrument is clear, logical and in a logical order and that the same variables are observed by all the sample

respondents(Bergin, 2018). Content validity was assessed by the university supervisors. University supervisors approved the content of the instruments(Maroa & Namusonge, 2019). Construct validity was evaluated using factor analysis. KMO and Bartlett's test was done to assess the relationship between independent and dependent variables (Ayiro, 2024).

3.7.2 Reliability of research instrument

Reliability of the data collection instrument is defined as the ability of the instrument to give the same results continuously (Bergin, 2018). The reliability of the instrument was assessed using the Cronbach alpha test. A coefficient of 0.7 and above indicated that variables under study are sufficiently and consistently measured by the research instrument(Varghese, Ranwah & Varghese, 2025). If the research instrument has a lower coefficient, then the variable questions will be reassessed and reformulated. The researcher also evaluated items of the questionnaire during the pilot study and the questions were revised appropriately (Bergin, 2018).

3.8 Data Analysis and Presentation

Primary data gathered from the questionnaires was cleaned, processed and coded to ensure consistency of the results (Kumar, 2018). “To enable quantitative data analysis, the data was keyed into the computer system. Data analysis was performed using statistical packages for social sciences (SPSS) version 23. To assess the general pattern of data, descriptive statistics such as percentages, frequencies, mean scores, and standard deviations were used” (Tan, 2022). Inferential statistical methods such as simple regression, multiple regression, hierarchical regression, and Pearson correlation were

utilized. The results were presented using tables, charts, and figures. Karl Pearson's correlation analysis was applied to determine the relationship between the variables. The simple regression model assessed the connection between the independent and dependent variables (Kumar, 2018). Multiple regression was employed to analyze the collective influence of the independent variables on the dependent variable (Bergin, 2018). Hierarchical regression was used to evaluate the impact of the moderating variable on the relationship between the independent and dependent variables (Gelman& Hill,2 025).

Simple regression analysis model used in the interpretation of data;

$Y=\beta_0+\beta_1X_1+e$…….....(i)

$Y=\beta_0+\beta_2X_2+e$……. (ii)

$Y=\beta_0+\beta_3 X_3+e$ …….....(iii)

Multiple regression model used;

$Y= \beta_0+\beta_1 X_1+\beta_2X_2+\beta_3X_3 +e$……. (iv)

Hierarchical regression model used;

$Y = \beta_0+\beta_1 X_1+\beta_2X_2+\beta_3X_3+M +e$ ……(v)

$Y=\beta_0+\beta_1 X_1+\beta_2X_2+\beta_3X_3+ M+\beta_1 X_1M+\beta_2X_2M+\beta_3X_3M +e$…….....(vi)

Where:

Y =Service delivery.

$\boldsymbol{\beta_0}$ = Constant (Y intercept).

$\mathbf{X_1}$ = Technological innovation.

$\mathbf{X_2}$ = Service innovation.

$\mathbf{X_3}$ = Organizational innovation.

M = Management support (moderator)

$\boldsymbol{\beta_1, \beta_2, \beta_3}$ **and** $\boldsymbol{\beta_4}$ = regression coefficient.

e = error term.

3.8.1 Diagnostic tests

The regression models adopted the following assumptions in its analysis.

3.8.1.1 Normality

Histograms along with statistical tests such as the Shapiro-Wilk test and the Kolmogorov-Smirnov test were employed to evaluate the normality of data distribution. According to, Kumar (2018) the model assumes normal distribution when histograms display a symmetric bell-shaped curve. For both the Shapiro-Wilk and Kolmogorov-Smirnov tests, a p-value greater than 0.05 (Gelman & Hill, 2025) indicates that the null hypothesis stating the distribution significantly deviates from normality should be rejected

3.8.1.2 Multi-collinearity

Multi-collinearity occurs within the regression model when two or more independent variables are highly correlated (Bergin, 2018). Multicollinearity was tested using the Variance Inflation Factor (VIF) and tolerance levels. A VIF of less than 10 or tolerance level of less than 1 is acceptable (Kumar, 2018).

3.8.1.3 Homoscedasticity

Homoscedasticity is a key principle in linear regression, referring to the condition where the variance of the errors, or residuals, remains consistent across all levels of the independent variables (Tan, 2022). A Q-Q plot showing a linear trendline fitted on the scatter plot was used to visualize the relationship between the independent and dependent variables (Kumar, 2022). If the residuals appear randomly scattered without any clear pattern in relation to the predicted values, the assumption of homoscedasticity is likely met (Kumar,2022: Ayiro, 2024).

3.9 Ethical Considerations

It was essential to maintain high ethical standards (Dunn,2025), throughout all phases of the research process. The researcher was authorized to conduct the study by MMUST postgraduate research department and NACOSTI. Throughout data collection process, key ethical principles such as informed consent, confidentiality, and privacy were strictly observed (Tan, 2022). Respondents' participation was entirely voluntary since the respondents were not coerced into participating in the study. Respondents were fully briefed on the study's purpose, objectives, potential risks, and the intended use of their data (Dunn, 2025). Respondents who were comfortable to participate in the study, verbally agreed to and answered the questionnaire. To protect participants' identities and privacy, questionnaires were assigned codes, ensuring that individual responses remained anonymous and confidential (Tan, 2022; Kumar, 2018). The data gathered was exclusively used to address the objectives of this particular research and not for any other purpose, and its dissemination will follow the university's established code of practice.

CHAPTER FOUR

RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

This chapter outlines the research findings, including the outcomes of data analysis, their interpretation, and subsequent discussion. Both descriptive and inferential statistical methods were employed to examine the collected data. The findings are displayed using tables, charts, and graphical illustrations.

4.2 Response rate

A total of 142 questionnaires were distributed to the intended respondents, with 123 completed questionnaires returned. However, 32 questionnaires were not returned, and 10 of the returned ones were partially filled and thus excluded. Consequently, 118 questionnaires were deemed valid and used for data analysis, resulting in a response rate of 83.09%. This rate exceeds the 50% minimum threshold recommended by Mugenda and Mugenda (2019), where a response rate of 50% or higher is considered adequate to represent the sample and target population effectively.

Table 4.1: Response rate

Questionnaires	Frequency	Percentage (%)
Returned completely filled	118	83.09
Returned incompletely filled	5	3.52
Not returned	19	13.39
Total	142	100%

Source: Field data (2024)

Table 4.2: Demographic results

Demographic characteristic		Frequency	Percentage
Gender	Male	66	55.9
	Female	52	44.1
Duration of employment	Less than one year	5	4.24
	1 to 2 years	15	12.71
	3 to 5 years	40	33.90
	Over 5 years	58	49.15
Highest level of education	Diploma	0	0.0
	Undergraduate	3	2.54
	Masters	45	38.14
	PhD	70	59.32
	Others	0	0.0

Source: Field data (2024)

"As illustrated in the table above, most of the respondents were male accounting for 55.9% while 44.1% were female. This indicates that most management roles in public universities located in the Western region are occupied by male employees, with fewer positions held by female employees"(Field data, 2024). However, the ratio of male to female employees upholds the two thirds gender rule. The two thirds gender rule is embedded in Kenya's Constitution to promote gender equality in leadership and public offices. It explicitly states that one gender should not exceed two-thirds of members in elective or appointive bodies (Chumba & Kamuyu, 2023). Male employees do not surpass 66.7% threshold while women are above the one third threshold of 33.3%.

"A total of 4.24% of respondents had worked in their organizations for less than a year, 12.71% for one to two years, 33.90% for three to five years, and 49.15% for over five

years"(Field data, 2024). Therefore, most respondents have had the opportunity to observe and experience the development of innovation within their organizations, which contributes to their deeper understanding of the impact of innovation strategy on service delivery.

A significant portion of the respondents had attained PhD as their highest levels of education (Field data, 2024), 59.32% had attained a PhD, 38.14% master degree and 2.54% undergraduate degree. Hence, all the respondents had attained the required education level to hold managerial positions within public universities.

4.3 Reliability and validity tests

4.3.1 Reliability tests

Table 4.3: Reliability tests

Variable	Number of test items	Cronbach Alpha	Comment
Technological innovation	8	0.754	Reliable
Service innovation	5	0.764	Reliable
Organizational innovation	6	0.787	Reliable
Management support	5	0.772	Reliable
Service delivery	7	0.761	Reliable

Source: Field data (2024)

As showcased in the table above, the Cronbach Alpha co-efficient range from 0.754 to 0. 772.Since the coefficients are greater than the threshold value of 0.7(Gelman & Hill, 2025), it confirmed the reliability of the questionnaire test items which were kept and utilized in the current study.

4.3.2 Validity tests

Construct validity of the questionnaire items was analyzed using KMO and Bartlett's Test. Results were summarized in Table 4.4

Table 4.4: KMO and Barlett's test

		Technological innovation	Service innovation	Organizational innovation	Management support	Service delivery
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.634	.546	.602	.768	0.7825
Bartlett's Test of Sphericity	Approx. Chisquare	181.486	150.568	186.247	176.178	185.45
	Df	8	5	6	5	7
	Sig	0.00	0.00	0.00	0.00	0.00

Source: Field data (2024)

The KMO and Bartlett's tests are essential for evaluating the adequacy of the sample and the suitability of data for factor analysis (Tan, 2022). According to Dunn (2025), KMO values range from 0 to 1, with values nearer to 1 indicating greater appropriateness for factor analysis. "In this study, the KMO values ranged from 0.602 to 0.768, showing that data was suitable for factor analysis. Bartlett's test of sphericity showed a strong correlation among the study items, with chi-square values between 150.568 and 185.45 and a p-value of .000" (Field data, 2024). This indicates a significant correlation between the independent and dependent variables, enabling meaningful interpretation.

The results of communalities in table 4.5 in the appendix indicate that the values of the communalities after extraction range from 0.132 to 0. 916.Variables with higher

communalities were retained for further analysis while those with lower communalities were dropped.

The results presented in table 4.6 in the appendix indicate the factor loadings of each variable after principal component analysis has been carried out. The factor loadings extracted range from 0.344 to 0.922 (Field data, 2024). Factors with factor loadings of above 0.60 indicate sampling adequacy hence should be retained for should be for further analysis and others dropped.

Table 4.7: Test items dropped and retained

Variable	Composite measure	Test items retained	Eigen values	Test items dropped	Eignen values
Technological innovation	8	3	1.921 1.717 1.259 1.973 1.898 1.569	5	.548 .502 .392 .208
Service innovation	5	4	1.940 1.503 1.877 1.443	1	.394
Organizational innovation	6	5	2.562 1.160 1.325 1.318 1.274	1	.512
Management support	5	4	1.808 1.238 1.680 1.366	1	.344
Service delivery	7	4	2.286 1.932 1.926 1.286	3	.542

Source: Field data (2024)

Eigen values tell how much variance each component explains. As indicated in table 4.7 above, variables with eigen values greater than 1 were retained while those of less than 1 were dropped (Field data, 2024).

4.8 Descriptive statistics results

4.8.1 Descriptive results on technological innovation

The study's first objective was to evaluate the effect of technological innovation on service delivery and the descriptive statistics gathered summarized in Table 4.8.

Table 4.8: Descriptive results on technological innovation

Technological innovation Statements	5 (SA)	4 (A)	3 (FA)	2 (D)	1 (SD)	Mean	Std Dev
My organization has effectively implemented online and distance learning.	0	24	16	68	10	2.46	0.91
		20.3%	13.6%	57.6%	8.5%		
In my organization, training or support has been provided to the academic staff to deliver online and distance learning.	0	14	12	85	7	2.34	0.68
		11.9%	10.2%	72.0%	6%		
My organization has implemented of online and distance learning which has improved service delivery.	1	22	45	50	0	3.76	0.74
	0.85%	18.6%	38.14%	42.4%	0.0		
My organization has created efficient working digital systems for the administration of students' records and activities.	45	61	12	0	0	4.28	0.64
	38.1%	51.7%	10.2%	0.0	0.0		
In my organization implementation of digital systems of administration has improved the service delivery efficiency.	42	76	0	0	0	4.36	0.481
	35.6%	64.4%	0.0	0.0	0.0		
In my organization learners are able to access e-learning materials and resources.	54	42	14	8	0	4.20	0.90
	45.8%	35.6%	11.8%	6.8%	0.0		
In my organization access to e-learning materials and resources has improved the quality of learning.	26	49	25	15	3	3.68	1.03
	22.0%	41.5%	21.1%	12.7%	2.5%		
In my organization majority of the learners use e-learning resources and materials compared to traditional learning resources and materials.	6	12	80	8	12	2.93	0.88
	5.0%	10.2%	67.8%	6.8%	10.2%		
Grand Total						**3.50**	**1.1**

Source: Field data (2024)

Research findings showcased that respondents' agreement level was as follows; 20.3 % agreed and 13.6 % fairly agreed, whereas, 57.6% disagreed and 8.5% strongly disagreed that online and distance learning has been effectively within their organizations. An average score of 2.46 and standard deviation of 0.91(Field data, 2024), affirm high level of disagreement and high variation in responses to the aforementioned assertion by the respondents.

Research data showed that 11.9% agreed while 10.2 % fairly agreed, whereas, 78 % of the respondents disagreed to the assertion that training or support has been provided to the academic staff to deliver online and distance learning. The aforesaid assertion yielded to an average of 2.34 and a significant standard deviation of 0.68 (Field data, 2024).These indicated that training or support has not been sufficiently provided to the academic staff contributing to the inability to effectively deliver online and distance learning within public universities.

Significant portion of 42.4% disagreed, 38.14 % fairly agreed while 18.6% agreed and 0.85 strongly agreed that the implementation of online and distance learning has enhanced service delivery. "Mean of 3.76 and standard deviation of 0.74"(Field data, 2024) shows that there is moderate variability in responses, but averagely most respondents either disagreed or unsure on whether online and distance learning had positively impacted service delivery.

Large portion of respondents positively agreed that public universities have created efficient digital systems for the administration of student's records and activities. Specifically, 38.1% strongly agreed, 51.7% agreed, and 10.2% remained neutral. A high

mean of 4.28 shows high agreement with the assertion while a moderate standard deviation of 0.64 indicates that while most respondents agreed, there was a range of opinions with some respondents being neutral (Bergin, 2018).

The unanimous agreement of respondents with 35.6% strongly agreeing, 64.4% agreeing that implementation of digital systems had enhanced service delivery efficiency. A high mean of 4.36 affirms that the respondents strongly believe that digital systems have improved efficiency. A small standard deviation of 0.481 shows that the responses were consistent reinforcing strong agreement (Tan, 2022).

A majority of the respondents confirmed that learners are able to access e-learning materials and resources. In particular, "45.8 percent of the respondents expressed strong agreement, 35.6 percent agreed, 11.8 percent remained neutral, while 6.8 percent disagreed"(Field data, 2024). A high mean of 4.20 indicates that most respondents feel positively about learners' access to e-learning materials. A high standard deviation of 0.90 suggests high variation in responses(Gelman & Hill, 2025), meaning not all respondents felt equally strongly about the accessibility of e-learning materials.

Research findings indicate that "22% of the respondents strongly agreed, 41.5 agreed 21.1% had a neutral response, 12.7% disagreed while 2.5% strongly disagreed"(Field data, 2024) that access to e-learning materials and resources improved the quality of learning. A mean of 3.68 indicated a more neutral perception of how much access to e-learning materials has improved learning quality. A standard deviation 1.03 shows variation in positive, neutral and negative responses amongst the respondents.

A small proportion of respondents “5% strongly agreed and 10.2% agreed with the statement that most learners utilize e-learning resources and materials more than traditional ones. Meanwhile, 67.8% moderately agreed, 6.8% disagreed, and 10.2% strongly disagreed with the assertion. A mean of 2.93 shows that majority of the respondents hold a neutral stand with neither strong agreement nor strong disagreement to the statement. A standard deviation of 0.88 shows a high variation in responses’’(Field data, 2024).

Grand mean of 3.50 indicates a moderate perception on the adoption of technological innovation in public universities in Western region. Averagely, respondents fairly agree that their organization has effectively implemented technological innovations related to online learning, digital administration systems, and access to e-learning resources. The grand standard deviation of 1.11 indicates a moderate level of variability in responses(Field data, 2024). This means that while many respondents may lean towards agreement, there is still some diversity of opinions, with a noticeable number of respondents either strongly agreeing or disagreeing on certain aspects.

Generally, public universities in Western region have embraced technological innovation within their operations to increase service delivery efficiency. Majority of the respondents agree that technological innovations such as online and distance learning, digital systems for administration and e-learning resources platforms have been implemented in the universities. The implementation of these technologies has improved learners access to services and resources. However, there is still need for improvement in employee training

and resources support to promote the effective implementation of technologies adopted as the universities still rely on traditional modes of learning and learning resources.

4.8.2 Descriptive results on service innovation

The study's second objective sought to determine the effect of service innovation on service delivery. Descriptive statistics gathered were summarized in Table 4.9.

Table 4.9: Descriptive results on service innovation

Service innovation Statements	5 (SA)	4 (A)	3 (FA)	2 D	1 (SD)	Mean	Std Dev.
My organization has implemented digital service delivery systems such HRMIS, financial management systems.	44	70	4	0	0	4.34	0.54
	37.3%	59.3%	3.4%	0.0	0.0		
My organization conducts upgrades of existing service delivery systems regularly to improve efficiency.	50	48	15	5	0	4.21	0.82
	42.4%	40.7%	12.7%	4.2%	0.0		
My organization revises and improves the curriculum periodically to remain relevant and up to date with current industry standards and practices.	16	76	20	4	2	3.95	0.57
	13.6%	64.4%	16.9%	3.4 %	1.7		
My organization conducts research and offers market driven courses.	49	59	10	0	0	4.33	0.63
	41.5%	50%	8.5%	0.0	0.0		
My organization introduces new programs regularly which has attracted many students.	31	54	30	3	0	3.96	0.79
	26.3%	45.8%	25.4%	2.5%	0.0		
Grand Total						**4.16**	**0.70**

Source: Field data (2024)

"As summarized in the table above, a significant portion of respondents were positively in agreement with the assertion that public universities have implemented digital service

delivery systems. In particular, 37.3% strongly agreed, 59.3% agreed while 3.4% gave a neutral response. An average of 4.34 and standard deviation of 0.54 indicates moderate variation in responses with most of the respondents being in agreement with the aforementioned assertion"(Field data, 2024).

Research findings outline that, "42.4% strongly agreed, 40.7% agreed, 12.7% gave a neutral response and 4.2 % disagreed that public universities conduct upgrades of existing service delivery systems to improve efficiency. A mean of 4.21 and standard deviation of 0.82 show positive agreement with moderate level of variability"(Field data, 2024).

A considerable majority of respondents supported the view that the curriculum is consistently reviewed and updated to maintain relevance with current industry standards and practices. Among them, "13.6% strongly agreed, 64.4% agreed, 16.9% were neutral, 3.4% disagreed, and 1.7% strongly disagreed. The mean value of 3.95, together with a standard deviation of 0.57"(Field data, 2024), reflects overall agreement with the statement and a moderate spread in responses.

Research findings indicated that "41.5% of the respondents strongly agreed, 50% agreed that research was conducted to ensure that public universities offered market driven courses. However, 8.5% of the respondents remained neutral. A mean and standard deviation of 4.33 and 0.63''(Field data, 2024) showcased strong agreement with the aforementioned assertion with moderate variation in responses.

Most respondents acknowledged that public universities frequently introduce new programs that draw in more students, with "26.3% strongly agreeing and 45.8% agreeing. Additionally, 25.4% of respondents were neutral on the matter, while 2.5% disagreed.

Mean and standard deviation of the responses were 3.96 and 0.79 respectively''(Field data, 2024). This affirms a general positive response with moderate variability in responses.

The grand mean of 4.16 indicates an overall positive perception among respondents on the implementation of service innovation within public universities in Western region. There is a strong agreement among respondents that the organization has implemented effective service innovations, including digital systems, curriculum updates, and market-driven programs. The grand standard deviation of 0.70 indicates moderate variability in responses (Tan, 2022), suggesting a consistent agreement among respondents regarding the effectiveness of service innovation practices.

Overall, service innovation has been implemented in public universities in Western region. The universities have made strides in implementing digital service delivery systems that are integrate their key operations. Correspondingly, the universities are proactive in creating relevant courses and curriculum to attract more prospective students.

4.8.3 Descriptive results on organizational innovation

The study's third objective focused on assessing the effect of organizational innovation on service delivery. Descriptive statistics gathered were summarized in Table 4.10

Table 4.10: Descriptive results on organizational innovation

Organizational innovation		5 (SA)	4 (A)	3 (FA)	2 (D)	1 (SD)	Mean	Std Dev
My organization has a charter in which it conducts regular review of the management.		82	12	20	4	0	4.46	0.89
	%	69.5%	10.2%	16.9%	3.4%	0.0		
In my organization all departments are flexible to management changes.		4	27	74	3	10	3.27	0.56
	%	3.4%	22.9%	62.7%	2.5%	8.5%		
In my organization there has been development and implementation of periodical training programs for staff.		4	59	44	6	5	3.61	0.55
	%	3.4%	50%	37.3%	5.1%	4.2%		
In my organization staff are encouraged to advance their education by provision of staff scholarship which is fair to all staff.		6	90	22	0	0	3.85	0.44
	%	5.1%	76.3%	18.6%	0.0	0.0		
My organization has partnered with external partners across different industries locally and globally,		22	96	0	0	0	4.19	0.39
	%	18.6%	81.4%	0.0	0.0	0.0		
University partnerships and networks have improved the quality of education offered within the universities.		50	55	3	10	0	4.48	0.55
	%	42.4%	46.6%	2.5%	8.5%	0.0		
Grand Total							**3.98**	**0.73**

Source: Field data (2024)

Research findings as depicted in the table above show that “69.5 % strongly agreed,10.2 % agreed, 16.9% neutral and 3.4% disagree (Field data, 2024) to the assertion that public universities had a charter in which it uses to conduct regular review of the management. “A mean of 4.46 and standard deviation of 0.89” (Field data, 2024) implied a strong agreement to the assertion by most respondents with moderate variability in responses.

A small proportion of respondents, “3.4% strongly agreed and 22.9% agreed that all departments are adaptable to management changes. The majority, 62.7%, remained

neutral, while 2.5% disagreed and 8.5% strongly disagreed with the statement. Mean of 3.27 and standard deviation of 0.56"(Field data, 2024) indicated that most of the respondents gave a neutral response with moderate variability in responses. This indicated that there was high resistance to management change within the universities.

"Only 3.4% of respondents strongly agreed and 50% agreed that periodic training programs have been implemented within public universities. In contrast, 37.3% remained neutral, while 5.1% disagreed and 4.2% strongly disagreed with the statement"(Field data, 2024). A mean 3.61 and standard 0.555 indicate moderate positive agreement with moderate variability in responses.

Research findings depict that 81.4% of the respondents positively agreed while 18.6% gave a neutral response on the assertion that fair scholarships were provided to the staff in order to advance their education. A mean of 3.85 and standard deviation of 0.44 suggest a positive agreement with minimal variation among respondents.

All the respondents positively agreed that universities have partnered with local and external partners, "18.6% strongly agreed while 81.4 % agreed"(Field data, 2024). A mean 4.19 and standard deviation 0.39 was attained. This implies that there is a strong agreement with the aforementioned assertion with minimal variation in responses.

Research findings show that "42.4 % of the respondents strongly agreed, 46.6% agreed and 2.5% gave a neutral response while 8.5%"'(Field data, 2024) disagreed with the assertion that university partnerships and networks have improved the quality of education. A mean of 4.48 and standard deviation of 0.55 affirm that many respondents

believe that university partnerships and networks have positively impacted the quality of education within public universities.

The grand mean of 3.98 indicates that, averagely respondents were in agreement with the statements (Bergin, 2018) relating to the implementation of organizational innovation within public universities in Western region. Grand standard deviation of 0.73 indicates moderate variability in the responses of the respondents (Tan, 2022). This means that the responses were fairly consistent and not widely spread out from the mean.

From the findings above, it is evident that public universities in Western region have embraced aspects of organizational innovation. The universities have a charter that guides management review; however, the universities are not always flexible to management changes. This shows that as much as the charter guides on the how management changes should be made, it does not accommodate the change management process. Also, the universities have provided its staff with education scholarships to support their career progress and development.

4.8.4 Descriptive results on management support

The study sought to determine the degree of agreement on the moderating effect of management support on service delivery. Descriptive statistics gathered were summarized in Table 4.11.

Table 4.11: Descriptive results on management support

Management support		5 (SA)	4 (A)	3 (FA)	2 (D)	1 (SD)	Mean	Std Dev.
My organization allocates adequate financial resources to support continuous innovations for improved service delivery.	F	10	60	44	4	0	3.64	0.686
	%	8.5	50.8	37.3	3.4	0.0		
My organization has allocated enough resources to improve its ICT capacity.	F	12	66	32	8	0	3.69	0.745
	%	10.2	56	27.1	6.8	0.0		
The university ensures that employees are involved in decision making	F	0	24	16	68	10	2.46	0.912
	%	0.0	20.3	13.6	57.6	8.5		
Employees are provided with enough resources and information to perform their jobs effectively.	F	0	108	10	0	0	3.92	0.280
	%	0.0	91.5	8.5	0.0	0.0		
There is effective collaboration between the employees and the university management.	F	12	92	14	0	0	3.98	0.471
	%	10.2	78	11.9	0.0	0.0		
Grand Total							**3.54**	**0.657**

Source: Field data (2024)

Research findings showed that "8.5% strongly agreed, 50.8% agreed, 37.3% neutral and 3.4%"(Field data,2024) disagreed on the allocation of adequate financial resources to support continuous innovations for improved service delivery. A moderate mean and standard deviation of 3.64 and 0.686 respectively showcased a general positive agreement to the assertion with moderate variation in responses (Tan, 2022).

"A large portion of the respondents positively agreed that enough resources had been allocated to improve public universities ICT capacity.Specifically,10.2% strongly agreed,

56% agreed, 27.1% neutral and 6.8% disagreed. This led to mean of 3.69 and standard deviation of 0. 745" (Field data, 2024).The mean suggests a positive agreement to the aforementioned assertion. The standard deviation affirms variation in responses, while generally there were significant positive responses, some responses were neutral and others negative.

Research findings indicated that 20.3% of the respondents agreed,13.6% neutral response, 57.6% disagreed while 8.5% strongly disagreed that all the employees were involved in decision making (Field data, 2024). A low mean of 2.46 indicated that there is a negative agreement with the assertion and all the employees did not partake in decision making. A standard deviation of 0.912 showcased moderate variation in responses. There were positive, neutral and negative responses to the above-mentioned assertion.

According to the research data, 91.5% of the respondents agreed that employees were provided with enough information to perform their jobs effectively, however, 8.5% gave a neutral response. The assertion had a positive mean of 3.92 and a low standard variation of 0.280 affirm a strong positive agreement with minimal variation in responses(Field data, 2024).

Most respondents expressed positive views regarding effective collaboration between employees and management, "with 10.2% strongly agreeing and 78% agreeing. Nonetheless, 11.9% of respondents maintained a neutral position"(Field data, 2024). An average of 3.98 and standard deviation of 0.471 showed a significantly positive agreement with the assertion.

A grand mean of 3.54 indicates a moderate to high level of agreement overall (Kumar, 2018). This suggests that, on the average, respondents tend to agree that their organization supports continuous innovation, improves ICT capacity, involves employees in decision-making, provides adequate resources, and fosters collaboration between employees and management. Grand standard deviation of 0.657 indicates a moderate level of variability (Kumar, 2018). The mean suggests that while most respondents generally agree with the statements, there is some variation in how strongly they agree or disagree.

From the results above, management of the public universities are positively supporting the enactment of innovation strategies within the institutions. Management plays a vital role of empowering employees with knowledge to perform their roles and responsibilities This has fostered effective collaboration between the employees and the management. Collaboration is key in promoting better implementation of innovation strategies to support service delivery. However, employees are not involved in the decision-making process which affects their perception towards management decisions. Additionally, the universities have made efforts towards allocating more resources within their budgets to research and innovation. This has supported the implementation of innovation strategies especially service and technological innovation, improving service delivery.

4.8.5 Descriptive results on service delivery

The study aimed to ascertain the effect of innovation strategy on service delivery. Descriptive statistics gathered were summarized in Table 4.12

Table 4.12: Descriptive results on service delivery

Service delivery	5 (SA)	4 (A)	3 (FA)	2 (D)	1 (SD)	Mean	Std Dev.
Technological systems of my university function efficiently with minimal disruptions.	60	47	9	2	0	4.398	0.703
	50.8	39.8	7.6	1.7	0.0		
My university's online platforms are easily accessible and user friendly.	63	55	0	0	0	4.534	0.499
	53.3	46.6	0.0	0.0	0.0		
In my university staff handles student inquiries efficiently.	0	47	36	35	0	3.102	0.827
	0.0	39.8	30.5	30	0.0		
My university' digital learning resources are accessible to all students	0	49	20	34	15	2.872	1.093
		41.5	17	28.8	12.7		
In my university, the time taken to process academic services such as registration and releasing results is satisfactory	4	58	56	0	0	3.559	0.561
	3.4	49.2	47.5	0.0	0.0		
Students and other stakeholders have recommended my university to others based on their experience with academic services dispensed.	6	71	35	6	0	3.653	0.656
	5.1	60.2	30	5.1	0.0		
The students and other stakeholders have expressed great satisfaction from the services offered by my university.	0	98	12	6	2	3.746	0.627
	0.0	81.4	11.2	5.55	1.85		
Grand Total						**3.695**	**0.733**

Source: Field data (2024)

The study examined whether technological systems of public universities functioned efficiently with minimal disruptions; "50.8% of the respondents strongly agreed, 39.8% agreed, 7.6 gave a neural response while 1.7% disagreed. Hence, a mean of 4.398 and

standard deviation of 0.703 was attained"(Field data, 2024). Generally, there is a strong positive agreement with moderate variation with the statement.

Research findings depicted that "53.3% of the respondents strongly agreed while 46.6% agreed that online platforms in public universities were easily accessible and user friendly. Mean of 4.534 and standard deviation of 0.499 imply that most of the respondents positively agreed to the assertion with moderate variation in their responses"(Field data, 2024).

The study sought to find out if university staff handled student inquiries efficiently. It was noted that 39.8% of the respondents agreed, "30.5% were neutral while 30% disagreed"(Field data, 2024). A mean of 3.102 and standard deviation 0.827 showed that the respondents gave neutral to slightly positive responses with most responses relatively close to the mean (Kumar, 2018).

Research findings indicate that "41.5% of the respondents agreed, 17% were neutral, 28.8% disagreed and 12.7% strongly disagreed that public universities ' digital learning resources were accessible to all students"(Field data, 2024). A mean of 2.872 suggests dissatisfaction with the effectiveness of digital learning resources, indicating a need for significant improvements. A standard deviation of 1.093 indicates moderate consistency in these responses, with most ratings being relatively close to this average.

The study aimed to assess if the time taken to process academic services such as registration and releasing results was satisfactory; 3.4% of the respondents strongly agreed, 49.2% agreed while 47.5% gave a neutral response. A mean of 3.559 suggests that while some respondents agree that academic services were processed in a timely and effective way, however, majority of the respondents are unsure of the effectiveness of the

current processes. Standard deviation of 0.561 shows desirable consistency in the responses.

Research findings indicated that 5.1% strongly agreed, 60.2% agreed that students and other stakeholders had recommended their university to others based on their experience with academic services dispensed. However, 30% of the respondents fairly agreed assertion while 5.1% disagreed. A mean of 3.653 indicates a generally positive perception regarding the incorporation of feedback from students and stakeholders while standard deviation of 0.656 shows moderate variation in responses.

Majority of the respondents agreed that students and other stakeholders have expressed satisfaction from the services offered by public universities.81.4% agreed while 11.2% gave a neutral response,5.55% disagreed while 1.85% strongly disagreed (Field data, 2024). A standard deviation of 3.746 and a mean of 0.627 affirm strong positive agreement to the assertion with minimal variation in responses.

The grand mean of 3.695 suggests that respondents perceive the university's service delivery systems, including administrative efficiency, technological adoption, and stakeholder satisfaction, as being reasonably effective but with some room for improvement. Grand standard deviation of 0.733 indicates the average variation of responses from the grand mean. This shows a moderate level of variability in responses suggesting that as much as most respondents agreed with the assertions on service delivery, there are some variations in responses.

4.9 Diagnostic tests

Normality, multi-collinearity and homoscedasticity tests were used within this study and the outcomes presented below.

4.9.1 Normality

Kolmogorov-Smirnov and Shapiro-Wilk tests were applied to determine if the data distribution for each variable conforms to a normal distribution. Shapiro-Wilk test is more sensitive thus was used for testing normality in smaller samples(Tan, 2022). Kolmogorov-Smirnov was used to check for deviations between cumulative distribution functions and the reference distribution of the sample data. The results were presented below in Table 4.13

Table 4.13: Kolmogorov-Smirnov and Shapiro Wik tests

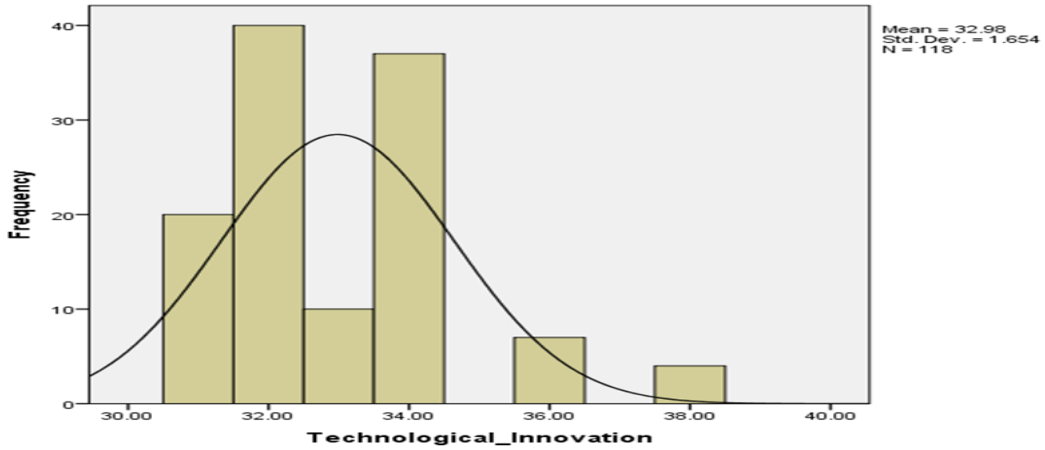
	Kolmogorov-Smirnov[a]			**Shapiro-Wilk**		
	Statistic	**Df**	**Sig.**	**Statistic**	**Df**	**Sig.**
Technological Innovation	.232	118	.001	.856	118	.000
Service Innovation	.310	118	.000	.740	118	.000
Organizational Innovation	.287	118	.010	.893	118	.000
Management Support	.218	118	.000	.863	118	.000
Service delivery	.184	118	.000	.929	118	.000

a. Lilliefors Significance Correction

Source: Field data (2024)

As depicted by the findings in table 4.6.1 Both Kolmogorov-Smirnov and Shapiro-Wik tests indicate that all the variables have a p-value of less than 0.05. This implies that the data sets of five variables significantly deviate from a normal distribution. Kolmogorov-Smirnov and Shapiro-Wik tests are sensitive to sample sizes especially for moderate to large sample sizes of more than 50 (Kumar,2018; Dunn,2 025). With a sample size of 118,

even minor deviations from a perfect normal distribution may be detected as statistically significant. As a result, small and practically irrelevant deviations can cause the test to reject the null hypothesis of normality. Hence, normal data may be flagged as abnormal data due to structural biases. However, according to Tan (2022), it is possible to conduct parametric tests even in cases where the data does not follow a normal distribution. Histograms were used to visualize the distribution of data. Histograms with normal distribution were bell-shaped and symmetrical around the mean (Dunn, 2025; Kumar, 2018).

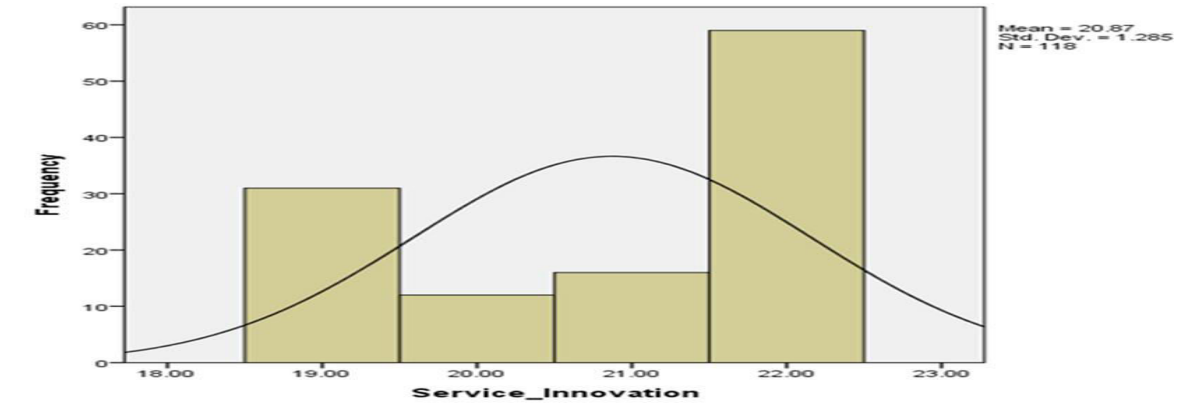


Source: Field data (2024)

Figure 4.1: Histogram of technological innovation

Shape of the histogram above shows an abnormal distribution with most values clustered around the mean. The curve overlaid on the histogram suggests that the data approximates to a normal distribution, with minimal deviations. The curve is positively skewed to the right. Consequently, the data distribution closely resembled a normal distribution,

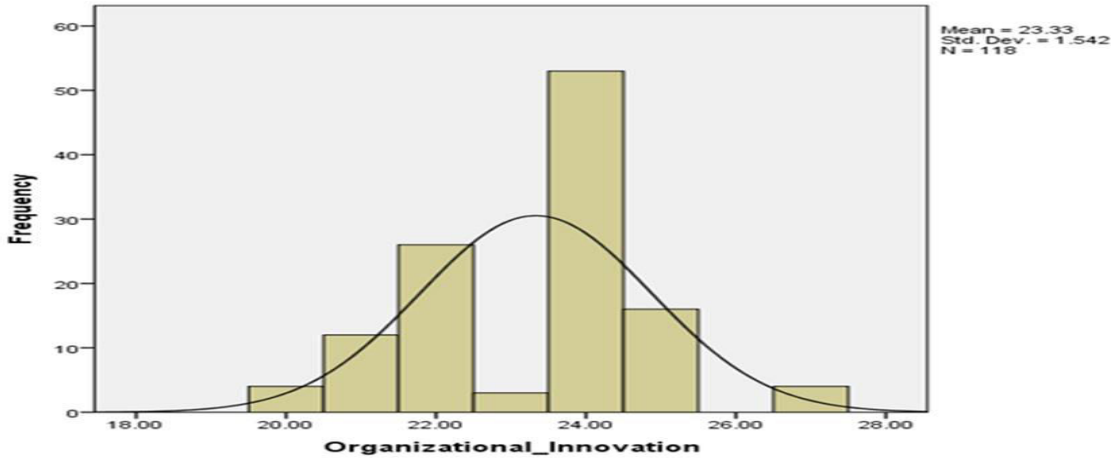
indicating its suitability for use in regression analysis.



Source: Field data (2024)

Figure 4.2 Histogram of service innovation

Shape of the histogram above shows an asymmetrical distribution with most values clustered around the mean. The curve is negatively skewed to the left suggesting deviation from normality. However, deviation from normality is rather small. The data distribution indicated that it was close to a normal distribution thus appropriate for regression analysis.

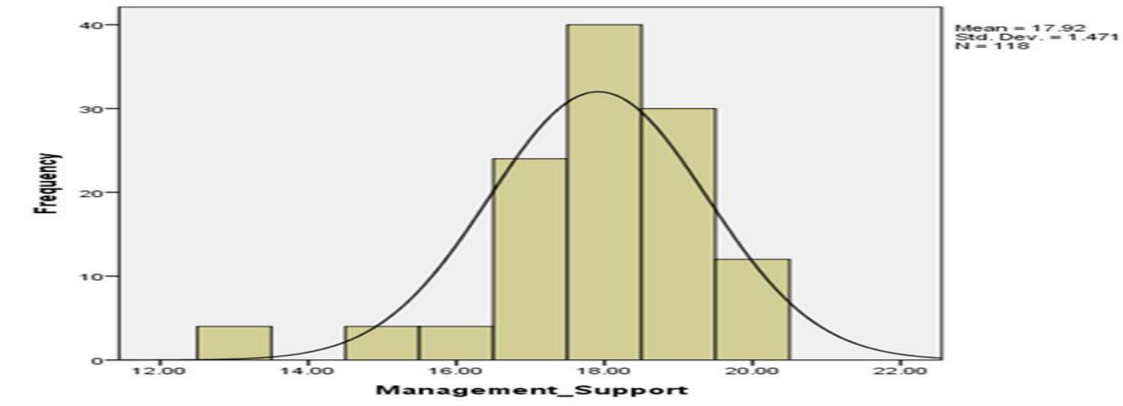


Source: Field data (2024)

Figure 4.3: Histogram of organizational innovation

Shape of the histogram shows a normal distribution with most values clustered around the mean. The curve overlaid on the histogram suggests that the data approximates to a

normal distribution, with no significant skewness observed, hence being appropriate for further analysis.



Source: Field data (2024)

Figure 4.4: Histogram of management support

Shape of the histogram above shows a normal distribution with most values clustered around the mean. However, the curve is slightly skewed to the left. The deviation from normality is rather small, thus, the data is assumed to follow a normal distribution.



Source: Field data (2024)

Figure 4.5: Histogram of service delivery

The shape of the histogram in figure 4.5 shows normal distribution with most values clustered around the mean. The curve overlaid on the histogram suggests that the data

approximates to a normal distribution, with no significant skewness observed, as a result the data was suitable for regression analysis.

4.9.2 Multicollinearity

Table 4.14: Multicollinearity

Model		Sig.	Collinearity Statistics	
			Tolerance	VIF
1	(Constant)	.000		
	Technological Innovation	.000	.949	1.054
	Service Innovation	.433	.435	2.297
	Organizational Innovation	.000	.466	2.145
	Management Support	.000	.833	1.201

a. Dependent variable: Service delivery

Source: Field data (2024)

From the results presented in the table above, the tolerance values of the four variables range between 0.435 to 0. 949. Correspondingly, the variance inflation factors range between 1.054 and 2. 297.Since all the tolerance values are less than one and variance inflation factors less than the threshold of 10 which implied that there were no significant correlations within the data that would undermine the reliability of regression analysis.

4.9.3 Homoscedasticity

The homoscedasticity test results shown in Figure 4.6 below demonstrate that the data points closely follow the linear trendline with only slight deviations. The Q–Q plot of standardized residuals shows that the observed cumulative probabilities closely follow the expected normal distribution line. The points are evenly dispersed around the diagonal, indicating that the residuals are approximately normally distributed and that the assumption of homoscedasticity is reasonably met.

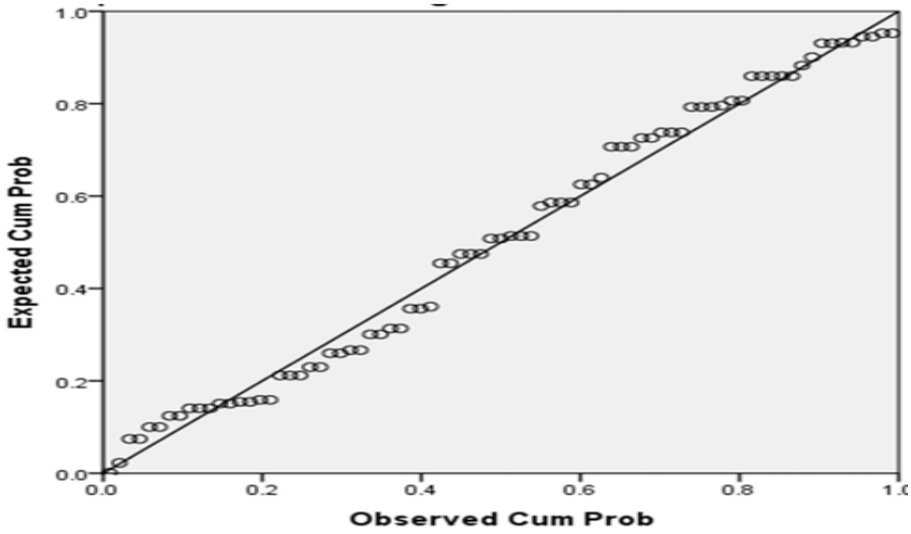


Figure 4.6: Homoscedasticity

Source: Field data (2024)

4.10 Inferential statistics results

Simple regression, multiple regression, hierarchical regression and Pearson correlation methods were employed in assessing the relationship between independent variables and dependent variable.

4.7.1 Pearson Correlation analysis result

Pearson correlation analysis assessed the relationship between technological, service, organizational innovation strategies and service delivery. The results are summarized below.

Table 4.15: Pearson Correlation Analysis Results

		Technological Innovation	Service Innovation	Organizational Innovation	Service delivery
Technological Innovation	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	118			
Service Innovation	Pearson Correlation	.035	1		
	Sig. (2-tailed)	.000			
	N	118	118		
Organizational Innovation	Pearson Correlation	0.690*	.551**	1	
	Sig. (2-tailed)	.000	.000		
	N	118	118	118	
Service Delivery	Pearson Correlation	.715**	.506*	.563*	1
	Sig. (2-tailed)	.000	.000	.000	
	N	118	118	118	118

Source: Field data (2024)

According to the Pearson correlation analysis in Table 4.15, there is a statistically significant positive correlation between technological innovation and service delivery ($r = 0.715$, $p < 0.05$). This suggests that implementing effective technological innovation strategies is likely to enhance service delivery in universities. These findings concur with earlier research studies conducted by Musyoka and Henry (2023) and Nyamagwa (2019).

According to a study by Maroa and Namusonge (2019), service innovation was found to have a significant effect on service delivery. This study found a positive and significant correlation ($r = 0.506$, $p < 0.05$) between service innovation and service delivery (Field

data, 2024). These findings indicate that service delivered within universities would immensely improve if service innovation was effectively implemented.

Research findings indicate a statistically positive and significant interrelation ($r = 0.563$, $p < 0.05$) between organizational innovation and service delivery (Field data, 2024). The findings of these studies affirm previous studies by Kuguru, Jaensson and Nganga (2022) and Musyoka (2023). As a result, the prioritization of organizational innovation by public universities in Western region would positively enhance their service delivery efficiency levels, accessibility and elevate customer satisfaction rates.

4.7.2 Simple regression

4.7.2.1 Effect of technological innovation on service delivery

The study aimed at testing the null hypothesis; technological innovation has no significant effect on service delivery in public universities in Western region. The results are shown in table 4.16

Table 4.16: Simple regression analysis results of technological innovation and service delivery

Model Summary[a]

R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
				R Square Change	F Change	df1	df2	Sig. F Change
.715[a]	.511	.498	1.302	.511	44.18	1	116	0.000

a. Predictors: (Constant), technological innovation

ANOVA[a]

Model		Sum of squares	Df	Mean Square	F	Sig
1	Regression	36.801	1	36.801	44.18	0.00[b]
	Residual	30.240	116	.2607		
	Total	67.041	117			

a. Dependent variable: Service delivery

b. Predictors:(Constant), technological innovation

Coefficients[a]

Model		Unstandardized coefficients		Standardized coefficients	t	Sig.
		B	Std.Error	Beta		
	Constant	2.680	1.782		1.504	0.134
1.	Technological innovation	.835	.129	.715	6.647	0.00

a. Dependent variable: Service delivery

Source: Field data (2024)

The model summary table confirms that technological innovation significantly influences service delivery. “The correlation coefficient (R) of 0.715 reflects a strong positive relationship between technological innovation and service delivery. The R squared value of 0.511 shows that technological innovation explains 51.1% of the variation in service delivery. Additionally, the ANOVA results indicate that the F test produced a value of (1, 116) = 44.18 at a 5% significance level, demonstrating that technological innovation is a significant predictor of service delivery” (Field data, 2024).

Unstandardized coefficients of technological innovation when the significance threshold is less than 0.05 indicate that when all other external factors are held constant (Tan, 2022), for every unit increase in technological innovation, service delivery increases by 0. 835. Hence, public universities that embrace and prioritize technological innovation experience immense improvement in service delivery. Standardized coefficients of ($t = 6.647$, $P = 0.00$) further confirm that the relationship between technological innovation and service delivery is statistically significant (Field data, 2024). Thus, the study rejected the null hypothesis that technological innovation has no significant effect on service delivery in public universities in Western region.

The regression equation to assess the relationship between technological innovation and service delivery within public universities in Western region is presented as follows:

$Y = 2.680 + 0.835$ technological innovation

The findings of this study concur with the Musyoka and Henry (2023) and Kanyi and Kihara (2022). Musyoka and Henry(2023) study found that technological innovation had a significant impact on performance of public universities in Kenya. Kanyi and Kihara (2022) study also affirmed the positive and significant effect of technological innovation strategies on the performance of internet providers in Kenya. However, study findings differ with that of Nyamagwa (2019) whose study concluded that technological innovation had insignificant influence on the performance of public TVETs in Kenya. Based on the findings of this research and literature review there exists a substantial correlation between technological innovation and service delivery.

4.7.2.2 Effect of service innovation on service delivery

The study sought to test null hypothesis stating that service innovation has no significant effect on service delivery in public universities in Western Region. The results of the analysis are tabled below.

Table 4.17: Simple regression analysis results of service innovation and service delivery

Model Summary[a]

R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
				R Square Change	F Change	df1	df2	Sig. F Change
.506[a]	.256	.2360	0.9819.	.256	32.65	1	116	0.00

b. Predictors: (Constant), Service innovation

ANOVA[a]

Model		Sum of squares	Df	Mean Square	F	Sig
1	Regression	36.283	1	31.283	32.65	.00[b]
	Residual	29.543	116	.25468		
	Total	65.826	117			

a. Dependent variable: Service delivery

b. Predictors:(Constant), Service innovation

Coefficients[a]

Model		Unstandardized coefficients		Standardized coefficients	t	Sig.
		B	Std.Error	Beta		
	Constant	1.980	0.859		2.305	0.01
1.	Service innovation	.789	.125	.506	6.314	0.00

b. Dependent variable: Service delivery

Source: Field data (2024)

According to the model summary table results, "a coefficient of correlation (R) of 0.506 indicated a moderate correlation between service innovation and service delivery. Correspondingly, the R squared value of 0.256 shows that service innovation influenced

service delivery by 25.6%"(Field data, 2024). Service innovation is a significant predictor of service delivery, although a substantial portion of the variance remains unexplained by this model.

ANOVA table results indicate that F test analysis results attained an F value of 32.65 which indicated that the model significantly predicts service delivery, and therefore the null hypothesis that service innovation does not predict service delivery was to be rejected.

"Unstandardized regression coefficient of service innovation was 0. 789.This indicated that service delivery improved by 0.789 units when there was one unit increase in service innovation. Standardized coefficients of (t = 6.314, P = 0.00) further indicates that service innovation has a statistically significant effect on service delivery. As a result, this study rejected the null hypothesis that service innovation has no significant effect on service delivery in public universities in Western region" (Field data, 2024).

The regression equation to evaluate the effect of service innovation on service delivery within public universities in Western region is presented as follows:

Y= 1.980 +0.789 service innovation

Findings of this study concur with the findings of Maroa and Namusonge (2019), and Kisuya, Kihara and Macheru (2023) research studies. Maroa and Namusonge (2019) study found a positive relationship between service innovation and service delivery in public universities. Correspondingly, Kisuya, Kihara and Macheru (2023) concluded that service innovation had a positive and significant effect on service delivery and competitive advantage of insurance companies.

4.7.2.3 Effect of organizational innovation on service delivery

The study adopted simple regression analysis to test the null hypothesis that organizational innovation has no significant effect on service delivery within public universities in Western Region. Table 4.18 illustrates the results.

Table 4.18: Simple regression analysis results of organizational innovation and service delivery

Model Summary[a]

R	R Square	Adjusted R Square	Std. Error	Change Statistics				
				R Square Change	F Change	df1	df2	Sig. F Change
.563[a]	.317	.308	0.745	.317	24.10	1	116	0.00

c. Predictors: (Constant), organizational innovation

ANOVA[a]

Model		Sum of squares	Df	Mean Square	F	Sig
1	Regression	26.748	1	26.748	24.10	0.00
	Residual	40.734	116	.4029		
	Total	67.482	117			

c. Dependent variable: Service delivery

d. Predictors:(Constant), Organizational innovation

Coefficients[a]

Model		Unstandardized coefficients		Standardized coefficients	t	Sig.
		B	Std.Error	Beta		
	Constant	2.762	0.958		2.883	0.01
1.	Organizational innovation	.756	.154	.563	4.909	0.00

c. Dependent variable: Service delivery

Source: Field data (2024)

Tabled results above indicated an R coefficient of 0.563 which affirmed a moderate positive relationship between organizational innovation and service delivery. R squared

coefficient of 0.317 shows that organizational innovation accounted for 31.7% variation in service delivery(Field data, 2024).

“ANOVA table result, showed that the F test analysis attained an F value of 24.10. The model confirms that organizational innovation significantly influences service delivery. Unstandardized coefficient of 0.756 signifies that for each one unit change in organizational innovation there would be a 0.756 change in service delivery. Standardized coefficients (t = 4.909, P = 0.00) further illustrates that organizational innovation has a statistically significant effect on service delivery. As a result, this study rejected the null hypothesis that organizational innovation has no significant effect on service delivery in public universities in Western region”(Field data, 2024).

Hence, the simple regression equation to assess the influence of organizational innovation on service delivery is;

Y = 2.762 + 0.756 organizational innovation

The findings of this study are in tandem with the findings of Musyoka (2023), and Kuguru, Jaensson and Nganga (2022) studies. Musyoka (2023) study within public universities concluded that organizational innovation had a positive and significant influence on their performance. Further, Kuguru, Jaensson and Nganga (2022) study asserted that organizational innovation significantly influenced service delivery. Organizations that proactively adopted effective organizational and management practices were able to efficiently deliver goods and services to their customers and other stakeholders.

4.8 Multiple regression analysis results

Multiple regression analysis was adopted within this study to assess the collective influence of different innovation strategies on service delivery within public universities in Western region.

Table 4.19 : Multiple regression analysis results

Model summary[a]

R	R Squared	Adjusted R squared	Std Error of the Estimate	Change Statistics			
				R Square Change	F Change	dfl	Sig.
.701[a]	.491	.474	.0767	.491	27.352	3	0.00

ANOVA[a]

Model		Sum of squares	Df	Mean Square	F	Sig
1	Regression	33.381	3	8.345	27.352	0.00
	Residual	32.519	114	0.288		
	Total	65.90	117			

Coefficients[a]

		Unstandardized coefficients		Standardized coefficients	t	Sig.
Model	Constant	B	Std.Error	Beta		
		2.32	.97445		9.972	0.00
1.	Technological innovation	.395	.058	.470	6.89	0.02
2.	Service innovation	.440	.088	.488	4.972	0.03
3.	Organizational innovation	.418	.069	.433	6.029	0.02

Source: Field data (2024)

Model summary results shown in the table above, indicate that technological innovation, service innovation, organizational innovation account for "47.4 % variation in service delivery among public universities in Western region (adjusted R_2= 0.474, P = 0.00). The F statistic is 27.353 with a significance level of 0.00, show that the model is statistically

significant"(Field data, 2024). This means that the independent variables, as a set, significantly predict service delivery. The findings demonstrate that the final study model had notably improved its capability to reliably forecast how innovation strategy influenced service delivery in public universities located in Western Region.

The findings of this study align with findings of Maroa and Namusonge (2019) and Musyoka (2023) who agree that technological, service and organizational innovation have significant innovation on service delivery. Maroa and Namusonge (2019) study multiple regression analysis results affirmed that the combination of different innovation strategies such as service innovation and technological innovation positively impacted service delivery. On the other hand, Musyoka(2023) study concluded technological, service and organizational innovation strategies had a significant impact on service delivery and performance of public universities.

The multiple regression equation is presented as follows;

$Y = 2.32 + 0.395\ X_1 + 0.440\ X_2 + 0.418\ X_3$

Where Y is the dependent variable (service delivery),

X_1 is technological innovation

X_2 is service innovation

X_3 is organizational innovation

4.9 Hierarchical regression analysis results

The study sought to test the null hypothesis that stated management support has no significant moderating effect on the relationship between innovation strategy and service delivery in public universities in Western region. According to Tan (2022), hierarchical regression analysis was adopted to examine the relationship between service delivery (dependent variable) and technological innovation, service innovation and organization innovation (independent variables). The results are presented in the table below.

Table 4.20 : Hierarchical regression analysis results

Model Summary

Model	R	R Squared	Adjusted R Squared	Std Error	Change statistics		
					R square change	F change	Sig.F change
1	.701[a]	.491	.474	0.5609		27.352	0.00
2	.740[b]	.547	.498	0.5867	0.056	33.204	0.18
3	.861[c]	.741	.634	0.5762	0.194	8.580	0.03

ANOVA[a]

Model		Sum SQ	Df	Mean square	F	Sig
1	Regression	33.381	4	8.345	27.352	0.00
	Residual	32.519	113	0.288		
	Total	65.90	117			
2	Regression	36.801	5	7.3602	33.204	0.00
	Residual	30.24	112	0.27		
	Total	67.041	117			
3	Regression	34.543	6	5.757	41.784	0.00
	Residual	31.283	111	0.2818		
	Total	65.826	117			

Coefficients

1	(Constant)	2.32	.97445		9.972	.000
	Technological innovation	.395	.058	.470	6.89	.033
	Service innovation	.440	.088	.488	4.972	.003
	Organizational innovation	.418	.069	.443	6.029	.002
	(Constant)	1.811	.599		3.200	.000
	Technological innovation	.112	.122	.088	.917	.002
2	Service innovation	.191	.125	.137	1.510	.035
	Organizational innovation	.452	.129	.309	3.478	.001
	Management support	1.156	.177	.564	6.548	.002
	(Constant)	1.867	.610		3.224	.000
	Technological innovation	.179	.120	.093	.917	.032
	Service innovation	.289	.122	.139	1.510	.035
	Organizational innovation	.452	.130	.441	3.478	.001
3	Management support	.395	.510	.612	2.224	.002
	Technological innovation*management support	.087	.214	.251	1.721	.007
	Service innovation * management support	.440	.096	.219	.212	.033
	Organizational innovation *management support	.418	.069	443	6.029	.002

1.Predictors: (Constant), technological innovation, service innovation, organizational innovation

2. Predictors: (Constant), technological innovation, service innovation, organizational innovation, & management support

3. Predictors: (Constant), technological innovation *management support, service innovation* management support, organizational innovation * management support,

Source: Field data (2024)

The results from the table above determined the moderating effect of management support on innovation strategy and service delivery. Prior to moderation the adjusted R squared value in multiple regression was 0.474 and after moderation the value increased to 0. 634.The inclusion of management support within the model significantly and positively influenced variance in service delivery within public universities in Western region.

Model 1 adjusted r squared of 0.474 indicates that prior to moderation technological innovation, service innovation and organizational innovation attributed to 47.4% variance in service delivery (Field data, 2024). When management support is added on the three predictors in model 2, the adjusted r squared value increases from 0.474 to 0.498, indicating an improvement of 2.4% (Field data, 2024). When interaction terms are introduced in model 3, the adjusted R-squared significantly increases from 0.498 to 0.634, indicating that including interaction terms between management support and innovation strategy explains an additional 13.6% of the variance in service delivery(Field data, 2024). The ANOVA results indicated that all the three models were statistically significant in predicting service delivery since they retained p-values less than 0.05.

The analysis revealed that management support significantly and positively moderated the relationship between innovation strategy and service delivery. Therefore, the null hypothesis stating that management support had no significant moderating influence on this relationship was rejected.

The model to represent regression analysis results will be;

$$Y = 1.867 + 0.179 X_1 + 0.289 X_2 + 0.452 X_3 + 0.395 M + 0.087 X_1 M + 0.440$$

$X_2M + 0.418\ X_3M$

The model equation above indicates that all factors held constant, a unit change in interaction between management support and technological innovation, service innovation and organizational innovation leads to 0.087, 0.440 and 0.418 respectively increment in service delivery.

From the results above, the inclusion of management support enhances the relationship between innovation strategy and service delivery. The findings augur with those of Njenga, Kariuki and Wanjohi (2023),who assert that management commitment plays a key role in determining organization success in implementing policies and strategies. Correspondingly, Amudavi, Kimutai and Nyaboga (2023) study highlighted management support as a significant factor in enhancing the relationship between HRMIS and employee performance. However, some of the previous studies suggest that management support has no effect on service delivery (Kagoya & Mbamba, 2020),and direct organizational innovation efforts may be more critical to service delivery than managerial interventions.

Table 4.21 Hypotheses results

Inferential analysis techniques of Pearson correlation, simple regression and hierarchical regression were used to examine different hypotheses. Study findings and decisions are presented in table below.

Hypothesis	Findings	Decision
Ho_1: Technology innovation has no significant effect on service delivery in public universities in Western region	Technology innovation has a significant effect on service delivery in public universities in Western region	Reject
Ho_2: Service innovation has no significant effect on service delivery in public universities in Western Region.	Service innovation has significant effect on service delivery in public universities in Western region	Reject
Ho_3: Organizational innovation has no significant effect on service delivery within public universities in Western Region.	Organizational innovation has a significant effect on service delivery within public universities in Western region	Reject
Ho_4: Management support has no significant moderating effect on the relationship between innovation strategy and service delivery in public universities in Western Region.	Management support has no significant moderating effect on the relationship between innovation strategy and service delivery in public universities in Western Region.	Reject

Source: Field data (2024)

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter provides a comprehensive summary of the content discussed in the preceding chapters. Additionally, this section emphasizes the conclusions drawn from the study's findings, as well as the recommendations and suggestions for future research.

5.2 Summary of the findings

The main aim of this research study was to determine the effect of innovation strategy on service delivery in public universities in Western region. The specific objectives that guided the study were to determine the effect of technological innovation, service innovation, organizational innovation and the moderating effect of management support on service delivery in public universities in Western region. The summary of the study findings was presented as follows.

5.2.1 Effect of technological innovation on service delivery

The first objective of this study was to determine the effect of technological innovation on service delivery in public universities in Western region. Descriptive statistics indicated that most participants agreed that the integration of technological innovation tools and systems within public universities positively improved service delivery. For instance, most participants agreed that the digital systems of administration and access to e-learning materials have improved efficiency, accessibility and quality of service delivery. The Pearson correlation analysis indicated a statistically significant association between technological innovation and service delivery ($R = 0.715$, $P = 0.00$). The R squared value

of 0.511 implied that technological innovation explained 51.1% of the variance in service delivery. Additionally, simple regression analysis demonstrated that technological innovation significantly impacts service delivery ($\beta = 0.835$, $p = 0.00$). From these findings, there was sufficient evidence to reject the null hypothesis which postulated that technological innovation had no significant effect on service delivery in public universities in the Western region.

5.2.2 Effect of service innovation on service delivery

The second objective of the study was to assess the effect of service innovation on service delivery in public universities within Western region. Descriptive statistics revealed that universities had made efforts to introduce new service delivery methods, including online student support systems and improved curriculum structures which improved service delivery. Pearson correlation results postulated a positive relationship between service innovation and service delivery ($R = 0.506$, $P = 0.00$). R squared value of 0.256 indicated that service innovation influenced service delivery by 25.6%. Simple regression analysis results demonstrated that service innovation had a significant effect on service delivery ($\beta = 0.789$, $p = 0.03$). Hence, this current study invalidated the null hypothesis which stated that service innovation had no significant effect on service delivery in public universities in Western Region.

5.2.3 Effect of organizational innovation on service delivery

The third objective of the study was to assess the effect of organizational innovation on service delivery in public universities in Western region. Descriptive statistics revealed that universities implementing strategic management changes, periodical staff training and

enhancement of internal collaboration improved their service delivery. Pearson correlation results affirmed a positive correlation between organizational innovation and service delivery ($R = 0.563$, $P = 0.00$). R squared value of 0.317 suggested that 31.7% variation in service delivery was attributed to organizational innovation. Simple regression analysis results further affirmed that organizational innovation had a statistically significant effect on service delivery ($\beta = 0.756$, $P = 0.00$). Hence, this study rejected the null hypothesis that postulated that organizational innovation had no significant effect on service delivery within public universities in Western region.

5.2.4 Moderating effect of management support on the relationship between innovation strategy and service delivery

The fourth objective of the study was to examine the moderating effect of management support on the relationship between innovation strategy and service delivery. Respondents highlighted that strong management support played was crucial in supporting the implementation of innovation strategies. Employee empowerment and collaboration between employees and university management significantly improved the implementation of innovative initiatives. However, most respondents agreed that there was limited allocation of resources to support continuous innovations for improved service delivery. Hierarchical regression analysis results showcased an increment of adjusted r squared across the three models. This indicated that management support had a positive and significant moderating effect on the relationship between innovation strategy and service delivery. As a result, the null hypothesis that asserted that management support had no significant moderating effect on the relationship between innovation strategy and service delivery in public universities in Western Region was rejected.

5.3 Conclusions

Based on the first objective, technological innovation was found to have a positive and significant effect on service delivery within public universities in Western region. Implementation of virtual learning technologies, integration of digital student administration systems and tools, implementation of digital learning resources was found to enhance service delivery efficiency, access to services and customer satisfaction rates.

On the second objective, the study concluded that there exists a significant relationship between service innovation and service delivery in public universities in Western region. Implementation of service delivery systems, enactment of new academic programs and continuous curriculum development was found to positively enhance the efficiency and accessibility of services offered by public universities in Western region.

On the third objective, the study found that there is a significant relationship between organizational innovation and service delivery within public universities in Western region. Regular review of management structures and increased partnerships and networks, enhanced service delivery efficiency and access to services offered by public universities in Western region

Concerning the fourth objective, management support was found to have a significant moderating effect on the relationship between innovation strategy and service delivery in public universities in Western region. Effective allocation of resources and enactment of effective employee empowerment strategies improved the service delivery in public universities in Western region.

5.4 Recommendations

Regarding the first objective, the study recommended the improvement of digital infrastructure within the public universities. Institutions should invest in implementing and expanding virtual learning platforms and digital administration systems to streamline academic and administrative processes. There should be continuous updates and improvements in digital learning resources to meet evolving educational standards and student needs.

Regarding the second objective, regularly review and update service delivery systems to improve efficiency and accessibility for stakeholders particularly students. Also, new academic programs and curriculum introduced in public universities should be aligned with market trends to maintain relevance and competitiveness. For example, the study recommended the creation of short courses that are practical industry specific rather than traditional theoretical courses.

Regarding the third objective, public universities are encouraged to increase frequency of these training sessions and symposiums to match emerging organizational, technological and policy issues. Correspondingly, the public universities should embrace resource exchange partnerships and networks to improve the quality of services offered. Partnerships and networks may assist the universities increase their resources and capabilities, introduce innovative organizational methods and systems. Additionally, universities are encouraged to revolutionize their management structures and systems to embrace managerialism in the university administration. Managerialism will ensure that

universities run as corporate entities reducing bureaucratic bottlenecks and streamline decision making.

Regarding the fourth objective, the study recommended on improved resource allocation to support research and enactment of innovation strategies in public universities in Western region. For example, universities should ensure proper funding of SPIIC department to allow these departments to improve on their research and innovation projects that could be utilized in the university.

5.5 Suggestions of areas of further research

The study found that innovation strategies (technological innovation, service innovation and organizational innovation) contribute to 49.1% variation in service delivery in public universities in Western region. Correspondingly, management support moderated the relationship between innovation strategy and service delivery within the public universities as showcased by an increase in R^2 by 0.191. This implies that other factors apart from innovation strategy and management support levels affect service delivery within the universities.

Other research studies may incorporate other moderating variables to compare if the results would be the same or differ. Future studies can adopt leadership styles, resource availability and organizational culture as their moderating variables. Correspondingly, future studies may focus on other innovation strategies such as business model innovation and process innovation since this study focused on technological, service and organizational innovation strategies. Additionally, future studies should assess how

emerging technological innovations such as artificial intelligence and big data technologies have been implemented by public universities to improve on service delivery.

Additional studies may be done in other sectors such as banking and insurance as this study was done in public universities. Also, future studies may conduct comparative studies between public and private universities to evaluate differences in innovation strategies adoption and service delivery levels.

5.6 Contribution of the study

The theoretical contribution of this study was its great emphasis on the adoption of innovation strategy as tool in assisting public universities navigate the changing operational environment. The study expounded on the theoretical knowledge on the need of effective implementation of innovation in public universities to address operational challenges as well as enhance its operational efficiency and quality of academic services.

Practically, research findings affirm the positive link between innovation and service delivery in the current business environment. Stakeholders particularly, university management staff, faculty leaders and departmental heads have to prioritize on technological and service innovation strategies to enhance the efficiency and quality of academic services. Additionally, research findings highlight the pivotal role of management in the implementation of strategy. Effective implementation of any strategy, in particular innovation strategy, requires the ultimate support and collaboration of the management.

The recommendations of the study such as public universities capitalizing on short courses and entrepreneurial programs is key in promoting financial sustainability in universities.

As a result, if public universities effectively adopt the recommendations of their study, they will be able to effectively improve their operational efficiency and sustainability.

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APPENDICES

Appendix I: Introduction letter

Mandila Ruth,

Masinde Muliro University of Science and Technology,

P.O BOX 190-50100, Kakamega

Dear respondent,

REF: REQUEST TO PARTICIPATE IN MY RESEARCH WORK.

I am a student of Masinde Muliro University of Science and Technology taking an M.B.A course. In partial fulfillment of the requirements of the course requirement, I am conducting a research study on the **effect of innovation strategy on service delivery in public universities in Western region**. With regards, I request you to spare a few minutes to fill the questionnaire as diligently as possible. The information in the questionnaire will be highly confidential. The information will be strictly used for academic purposes for this research and not any other purpose. Your assistance in facilitating this research will be highly appreciated.

Kind regards.

Ruth Mandila.

MBA student, MMUST

Appendix II: Questionnaire

This questionnaire intends to collect data that will be used to establish how innovation affects service delivery within public universities in Western, Region.

(Please tick √ in the bracket () where it is applicable)

PART A: DEMOGRAPHIC INFORMATION

1. Indicate your gender. Male ( ) Female ( )

2. How long have you worked with the organization?

Less than 1 year ( ) 1-2 years ( ) 3-5 years ( ) Over 5years (specify)……..

3.What is your highest level of education

Diploma ( ) Undergraduate ( ) Masters ( ) PHD ( ) Other(specify)……

PART B: INNOVATION STRATEGY

SECTION ONE: TECHNOLOGICAL INNOVATION

This section contains statements relating to technological innovation. Kindly use the provided scale of 1-5 (**5- Strongly Agree, 4- Agree, 3-Fairly Agree, 2- Disagree and 1- Strongly Disagree**) to rate your agreement with the provided statements. Give more information where necessary.

Serial no	**Statements on technological innovation**	**5**	**4**	**3**	**2**	**1**
1	My organization has effectively implemented online and distance learning.					
2	In my organization, training or support has been provided to the academic staff to deliver online and distance learning.					
3	In my organization implementation of online and distance learning has improved service delivery.					

4	My organization has created efficient working digital systems for the administration of students' records and activities.					
5	In my organization implementation of digital systems of administration has improved the service delivery efficiency.					
6	In my organization learners are able to access e-learning materials and resources.					
7	In my organization access to e-learning materials and resources has improved the quality of learning.					
8	In my organization majority of the learners use e-learning resources and materials compared to traditional learning resources and materials.					

SECTION TWO: SERVICE INNOVATION

This section contains statements relating to service innovation. Kindly use the provided scale of 1-5 **(5- Strongly Agree, 4- Agree, 3-Fairly agree, 2- Disagree and 1- Strongly Disagree)** to rate your agreement with the provided statements. Give more information where necessary.

Serial no	**Statements on service innovation**	**5**	**4**	**3**	**2**	**1**
1.	My organization has implemented digital service delivery systems such HRMIS, financial management systems.					
2.	My organization conducts upgrades of existing service delivery systems regularly to improve efficiency.					
3.	My organization revises and improves the curriculum periodically to remain relevant and up to date with current industry standards and practices.					
4.	My organization conducts research and offers market driven courses.					
5.	My organization introduces new programs regularly which has attracted many students.					

SECTION THREE: ORGANIZATIONAL INNOVATION

This section contains statements relating to organizational innovation. Kindly use the provided scale of 1-5 **(5- Strongly Agree, 4- Agree, 3-Fairly Agree, 2- Disagree and 1- Strongly Disagree)** to rate your agreement with the provided statements. Give more information where necessary.

Serial no	**Statements on organizational innovation**	**5**	**4**	**3**	**2**	**1**
1.	My organization has a charter in which it conducts regular review of the management.					
2	In my organization all departments are flexible to management changes.					
3	In my organization there has been development and implementation of periodical training programs for staff.					
4	In my organization staff are encouraged to advance their education by provision of staff scholarship which is fair to all staff.					
5.	My organization has partnered with external partners across different industries locally and globally,					
6	University partnerships and networks have improved the quality of education offered within the universities.					

PART C: MANAGEMENT SUPPORT ON INNOVATION STRATEGY AND SERVICE DELIVERY

This section contains statements relating to management support on innovation strategy and service delivery. Kindly use the provided scale of 1-5 **(5- Strongly Agree, 4- Agree, 3-Fairly Agree, 2- Disagree and 1- Strongly Disagree)** to rate your agreement with the provided statements. Give more information where necessary.

Serial no	**Statements on management support**	**5**	**4**	**3**	**2**	**1**
1.	My organization allocates adequate financial resources to support continuous innovations for improved service delivery.					
2	My organization has allocated enough resources to improve its ICT capacity.					

3	The university ensures that employees are involved in decision making					
4	Employees are provided with timely information to perform their jobs effectively.					
5.	There is effective collaboration between the employees and the university management.					

PART D: SERVICE DELIVERY IN PUBLIC UNIVERSITIES IN WESTERN REGION

This section contains statements relating to service delivery in public universities in Western Region. Kindly use the provided scale of 1-5 5**- Strongly Agree, 4- Agree, 3-Neither Agree nor Disagree, 2- Disagree and 1- Strongly Disagree)** to rate your agreement with the provided statements. Give more information where necessary.

Serial no	**Statements on service delivery**	**5**	**4**	**3**	**2**	**1**
1.	Technological systems of my university function efficiently with minimal disruptions.					
2	My university's online platforms are easily accessible and user friendly.					
3	In my university staff handles student inquiries efficiently.					
4	My university' digital learning resources are accessible to all students					
5	In my university, the time taken to process academic services such as registration and releasing results is satisfactory					
6	The students and other stakeholders have expressed great satisfaction from the services offered by my university.					
7	Students and other stakeholders have recommended my university to others based on their experience with academic services dispensed.					

Thank you for your participation and time.

Appendix III: NACOSTI permit

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **369888**

Date of Issue: **13/September/2024**

RESEARCH LICENSE



This is to Certify that Miss.. Ruth Mandila of Masinde Muliro University of Science and Technology, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in on the topic: EFFECT OF INNOVATION STRATEGY ON SERVICE DELIVERY IN PUBLIC UNIVERSITIES IN WESTERN REGION, KENYA for the period ending : 13/September/2025.

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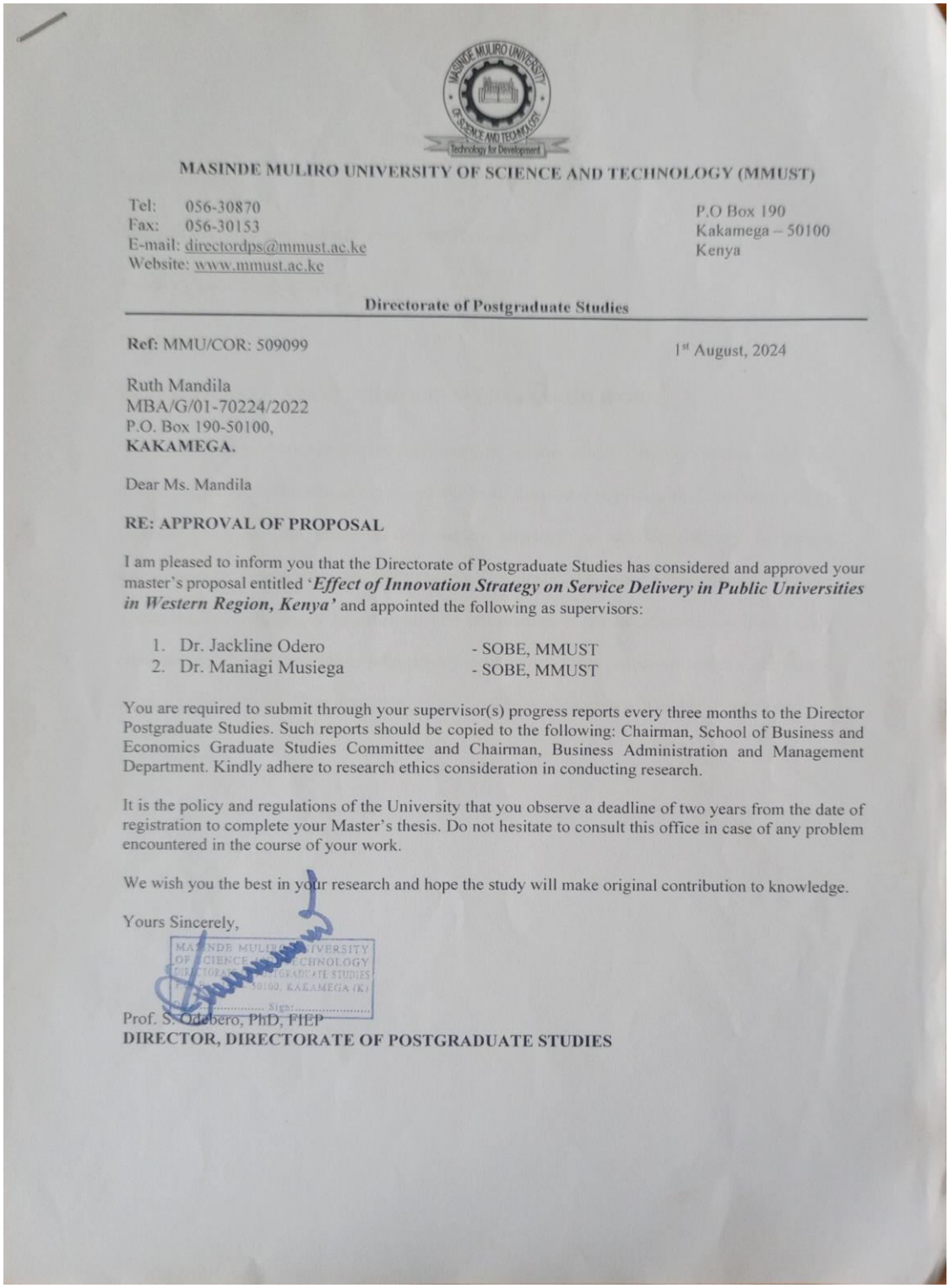
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See overleaf for conditions

Appendix IV: Proposal approval



MASINDE MULIRO UNIVERSITY OF SCIENCE AND TECHNOLOGY (MMUST)

Tel: 056-30870
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E-mail: directordps@mmust.ac.ke
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P.O Box 190
Kakamega – 50100
Kenya

Directorate of Postgraduate Studies

Ref: MMU/COR: 509099

1st August, 2024

Ruth Mandila
MBA/G/01-70224/2022
P.O. Box 190-50100,
KAKAMEGA.

Dear Ms. Mandila

RE: APPROVAL OF PROPOSAL

I am pleased to inform you that the Directorate of Postgraduate Studies has considered and approved your master's proposal entitled '***Effect of Innovation Strategy on Service Delivery in Public Universities in Western Region, Kenya'*** and appointed the following as supervisors:

1. Dr. Jackline Odero - SOBE, MMUST
2. Dr. Maniagi Musiega - SOBE, MMUST

You are required to submit through your supervisor(s) progress reports every three months to the Director Postgraduate Studies. Such reports should be copied to the following: Chairman, School of Business and Economics Graduate Studies Committee and Chairman, Business Administration and Management Department. Kindly adhere to research ethics consideration in conducting research.

It is the policy and regulations of the University that you observe a deadline of two years from the date of registration to complete your Master's thesis. Do not hesitate to consult this office in case of any problem encountered in the course of your work.

We wish you the best in your research and hope the study will make original contribution to knowledge.

Yours Sincerely,

Sign:.....

Prof. S. Odebero, PhD, FIEP
DIRECTOR, DIRECTORATE OF POSTGRADUATE STUDIES

Appendix V: Communalities

Table 4.5: Communalities

Communalities	Extraction.
Technological innovation	
My organization has effectively implemented online and distance learning.	.499
In my organization, training or support has been provided to the academic staff to deliver online and distance learning.	.407
In my organization implementation of online and distance learning has improved service delivery.	.593
My organization has created efficient working digital systems for the administration of students' records and activities.	.641
In my organization implementation of digital systems of administration has improved the service delivery efficiency.	.762
In my organization learners are able to access e-learning materials and resources.	.286
In my organization access to e-learning materials and resources has improved the quality of learning.	.755
In my organization majority of the learners use e-learning resources and materials compared to traditional learning resources and materials.	.154
Service innovation	
My organization has implemented digital service delivery systems such HRMIS, financial management systems.	.762
My organization conducts upgrades of existing service delivery systems regularly to improve efficiency.	.828
My organization revises and improves the curriculum periodically to remain relevant and up to date with current industry standards and practices.	.132
My organization conducts research and offers market driven courses.	.694
My organization introduces new programs regularly which has attracted many students.	.726
Organizational innovation	
My organization has a charter in which it conducts regular review of the management.	.843
In my organization all departments are flexible to management changes.	.752
In my organization there has been development and implementation of periodical training programs for staff	.852
In my organization staff are encouraged to advance their education by provision of staff scholarship which is fair to all staff.	.676
My organization has partnered with external partners across different industries locally and globally	.836
University partnerships and networks have improved the quality of education offered within the universities.	.825
Management support	
My organization allocates adequate financial resources to support continuous innovations for improved service delivery.	.270
My organization has allocated enough resources to improve its ICT capacity.	.540
All the employees are involved in the decision making of the university even during budgeting	
Employees are provided with enough resources and information to perform their jobs effectively.	.791
There is effective communication and collaboration between the employees and the university management.	.666
Service delivery	
Implementation of administrative systems and practices to improve service delivery efficiency.	.787
Technological tools and systems to improve its service delivery.	.742
My university has adequate resources to support efficient service delivery.	.251
My university has deployed effective service delivery systems to improve access to information and services.	.637
My university ensures access to information by its staff and other stakeholders in a timely and effective way.	.133
My university gathers and incorporates customer feedback from students and other stakeholders to improve it service delivery.	.768
The students and other stakeholders have expressed great satisfaction from the services offered by my university.	.916

Source: Field data (2024)

Appendix VI: Component matrix

Table 4.6: Component matrix

Component	Extraction.
Technological innovation	
My organization has effectively implemented online and distance learning.	.464
In my organization, training or support has been provided to the academic staff to deliver online and distance learning.	.502
In my organization implementation of online and distance learning has improved service delivery.	.660
My organization has created efficient working digital systems for the administration of students' records and activities.	.548
In my organization implementation of digital systems of administration has improved the service delivery efficiency.	.746
In my organization learners are able to access e-learning materials and resources.	.392
In my organization access to e-learning materials and resources has improved the quality of learning.	.755
In my organization majority of the learners use e-learning resources and materials compared to traditional learning resources and materials.	.208
Service innovation	
My organization has implemented digital service delivery systems such HRMIS, financial management systems.	.773
My organization conducts upgrades of existing service delivery systems regularly to improve efficiency.	.883
My organization revises and improves the curriculum periodically to remain relevant and up to date with current industry standards and practices.	.394
My organization conducts research and offers market driven courses.	.711
My organization introduces new programs regularly which has attracted many students.	.773
Organizational innovation	
My organization has a charter in which it conducts regular review of the management.	.680
In my organization all departments are flexible to management changes.	.512
In my organization there has been development and implementation of periodical training programs for staff	.718
In my organization staff are encouraged to advance their education by provision of staff scholarship which is fair to all staff.	.773
My organization has partnered with external partners across different industries locally and globally	.732
University partnerships and networks have improved the quality of education offered within the universities.	.776
Management support	
My organization allocates adequate financial resources to support continuous innovations for improved service delivery.	.344
My organization has allocated enough resources to improve its ICT capacity.	.644
All the employees are involved in the decision making of the university even during budgeting	.803
Employees are provided with enough resources and information to perform their jobs effectively.	.769
There is effective communication and collaboration between the employees and the university management.	.805
Service delivery	
Implementation of administrative systems and practices to improve service delivery efficiency.	.922
Technological tools and systems to improve its service delivery.	.894
My university has adequate resources to support efficient service delivery.	.369
My university has deployed effective service delivery systems to improve access to information and services.	.897
My university ensures access to information by its staff and other stakeholders in a timely and effective way.	.393
My university gathers and incorporates customer feedback from students and other stakeholders to improve it service delivery.	.542
The students and other stakeholders have expressed great satisfaction from the services offered by my university.	.913

Source: Field data (2024)