

**PROJECT MANAGEMENT PRACTICES AND PERFORMANCE OF
MANAGED EQUIPMENT SERVICE PROJECTS IN KENYA:
A CASE OF KAKAMEGA COUNTY REFERRAL HOSPITAL**

FANUEL ASEKA MAHERO



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DECLARATION AND APPROVAL

Declaration by student

This research project is entirely original and has not been submitted for the attainment of any academic degree at any other institution.

Signature.....

Date: 10/10/2024

Fanuel Aseka Mahero

MSCPM/2023/39962

Approval by supervisor

I confirm that the work reported in this thesis was carried out by the candidate under my supervision.

Supervisor's Signature.....

Date: 10/10/2024

Dr. Remmy Nalinya Simiyu

Mount Kenya University.

DEDICATION

To my parents for setting the foundation for my studies; my family, my lecturers and friends for unwavering guidance and support throughout this study.



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ABSTRACT

Managed Equipment Service (MES) projects in Kenya enhance healthcare infrastructure by providing essential medical equipment and maintenance services to public hospitals, addressing challenges of maintenance, availability, and quality. Through public-private partnership model, the government aims to improve healthcare delivery, particularly in underserved regions, contributing to enhanced patient outcomes and satisfaction. In Kenyan healthcare facilities, approximately 75% of medical equipment faces operational challenges due to being designed for high-income countries, coupled with poor procurement methods and inadequate maintenance. This research sought to investigate Project Management Practices and Performance of Managed Equipment Service (MES) Projects in Kenya, focusing on Kakamega County Referral Hospital. The study's objectives included evaluating the influence of project planning, stakeholder management, funding, and monitoring on the Performance of MES projects and the moderating influence of Government policies and regulations of the Project at the hospital. The study was anchored on the planning theory, supported by stakeholder and institutional theories. A descriptive research method was used in this study which targeted key stakeholders involved in Managed Equipment Service (MES) projects. The target population was 134 respondents drawn from 10 subgroups including Ministry of Health Implementation Committee members, project managers, field medical engineers, Association of Medical Engineers of Kenya (AMEK) members and County and hospital MES project implementation teams. 100 respondents were chosen using the Proportional Stratified Random Sampling Technique, and the sample size determined using the Krejcie and Morgan formula. Closed-ended surveys were utilized to gather respondents' opinions and thoughts. The Statistical Package for the Social Sciences, SPSS, was used for quantitative data analysis. Multiple regression analysis was used to examine the correlations between different variables, and conclusions and suggestions drawn from the study findings. The researcher carefully followed ethical guidelines during the whole research period. From the findings, project management practices strongly correlate with the performance of the Managed Equipment Service (MES) project at Kakamega County Referral Hospital. Project planning showed a substantial positive correlation ($r = 0.693$, $p < 0.001$). Stakeholder engagement demonstrated a strong positive correlation ($r = 0.712$, $p < 0.001$). Project funding had a strong positive association ($r = 0.677$, $p < 0.001$). Lastly, project monitoring showed a positive correlation ($r = 0.560$, $p < 0.001$), suggesting it moderately contributes to MES project performance. The results showed that although government laws, stakeholder participation, and project planning had beneficial effects, there are still major issues with finance and resource distribution. Respondents expressed satisfaction with adherence to timelines and requirements, yet budget management emerged as a critical concern. Additionally, effective stakeholder communication and collaboration were recognized as essential for enhancing project outcome. The study recommended that the Ministry of Health should foster better communication and involve stakeholders in decision-making to boost collaboration and feedback implementation and the county treasury should secure adequate and timely funding to address budget concerns and enhance the financial management of MES projects. Future research should examine how targeted training programs for healthcare professionals and stakeholders can enhance communication and collaborative decision-making processes in Managed Equipment Service projects.

TABLE OF CONTENTS

DECLARATION	ii
DEDICATION.....	iv
ACKNOWLEDGEMENT	v
ABSTRACT	vi
TABLE OF CONTENTS	vii
LIST OF TABLES.....	x
LIST OF FIGURES	xi
ABBREVIATIONS AND ACRONYMS.....	xii
CHAPTER ONE.....	1
INTRODUCTION	1
1.0 Background of the Study	1
1.0.1 Managed Equipment Service Projects in Kenya.....	3
1.0.2 Project Management Practices and Performance of Managed Equipment Service Projects in Kenya.....	4
1.0.2.2 Project Stakeholder Management and Performance Managed Equipment service Projects.....	6
1.0.2.3 Project Monitoring and Performance of Managed Equipment Service Projects in Kenya.....	6
1.0.2.4 Project Funding and Performance of Managed Equipment Service Projects in Kenya	7
1.0.3 Kakamega County Referral Hospital	8
1.1 Research Problem	9
1.2 Research Objectives.....	11
1.2.1 General Objective	11
1.2.2 Specific Objectives	11
1.3 Research Questions	11
1.4 Significance of the Study	11
1.5 Scope of the study	12
1.6 Limitations of the Study.....	13
1.7 Delimitations of the Study	13
1.8 Study Assumptions	13
1.9 Operational Definition of Key Terms.....	14

CHAPTER TWO LITERATURE REVIEW	15
2.1 Introduction.....	15
2.2 Theoretical Framework.....	15
2.2.1 Theory of Planning	15
2.2.2 Stakeholder Theory.....	16
2.2.3 Institutional Theory.....	16
2.3 Empirical Studies	17
2.3.1 Project Planning and Performance of projects.....	17
2.3.2 Project Stakeholder Management and Performance of Projects.....	18
2.3.3 Project Funding and Performance of Projects	20
2.3.4 Project Monitoring and Performance of Projects.....	21
3.3.5 Government Policies and Regulations and Performance of Projects	22
2.4 Conceptual Framework	23
2.5 Summary of the Literature Review and Research Gaps	24
CHAPTER THREE RESEARCH METHODOLOGY	26
3.1 Introduction	26
3.2 Research Design	26
3.4 Target Population	27
3.5 Sampling Procedures and Techniques	28
3.6 Sample size	28
3.7 Construction of Research Instruments.....	30
3.8 Testing for Validity and Reliability.....	30
3.8.1 Piloting.....	30
3.8.2 Validity of Research Instruments.....	30
3.8.3 Reliability of research instruments	31
3.9 Data Collection Methods and Procedure	31
3.10 Data Analysis Techniques.....	32
3.11 Diagnostic Tests.....	32
3.11.2 Heteroscedasticity	32
3.11.3 Multi-collinearity	33
3.12 Ethical Issues	33

CHAPTER FOUR	34
RESEARCH FINDINGS, ANALYSIS AND PRESENTATION	34
4.1 Introduction.....	34
4.2 Reliability Test.....	34
4.3 Response Rate	35
4.4 Demographic Attributes of Respondents	35
4.4.1 Percentage Response by Gender	35
4.4.2 Age Distribution.....	36
4.4.3 Highest Level of Education	37
4.5 Performance of MES project at Kakamega County Referral Hospital	38
4.6 Project planning and Performance of MES project at Kakamega County Referral Hospital	40
4.7 Project Stakeholder Engagement and Performance of MES Project at Kakamega County Referral Hospital	42
4.8 Project Funding and Performance of MES Project at Kakamega County Referral Hospital	44
4.9 Project Monitoring and Performance of MES Project at Kakamega County Referral Hospital	46
4.10 Moderating Influence of Government Policies and Regulations on the Performance of MES Project at Kakamega County Referral Hospital	48
4.11 Inferential Analysis	49
4.11.2 Heteroscedasticity test.....	49
4.11.3 Multicollinearity.....	50
CHAPTER FIVE	56
SUMMARY OF THE FINDINGS, CONCLUSIONS AND RECOMMENDATIONS.....	56
5.1 Introduction.....	56
5.2 Summary of Findings.....	56
5.2.1 Performance of MES Project at Kakamega County Referral Hospital.....	56
5.2.2 Project Planning and Performance of MES project at Kakamega County Referral Hospital	56
5.2.3 Project Stakeholder Engagement and Performance of MES project at Kakamega County Referral Hospital	57

5.2.4 Influence of Project Funding and Performance of MES project at Kakamega County Referral Hospital	57
5.2.5 Project Monitoring and Performance of MES Project at Kakamega County Referral Hospital	57
5.2.6 Moderating Influence of Government Policies and Regulations on the Performance of MES Project.....	58
5.3 CONCLUSION.....	58
5.4 Recommendations.....	58
5.5 Recommendations for Further Research.....	59
REFERENCES	60
APPENDIX I: RESEARCH TOOLS	65
APPENDIX II: ETHICS REVIEW COMMITTEE CERTIFICATE.....	70
APPENDIX III: UNIVERSITY INTRODUCTION LETTER	70
APPENDIX IV: NACOSTI RESEARCH PERMIT	71
APPENDIX V: AUTHORIZATION FOR DATA COLLECTION.....	72
APPENDIX VI: CONSENT LETTER.....	74
APPENDIX VII: CONSENT FORM MOUNT KENYA UNIVERSITY	74
APPENDIX VIII: SIMILARITY REPORT	76

LIST OF TABLES

Table 1: Target population	28
Table 2: Sample Size determination	30
Table 3: Reliability Test	35
Table 4: Response rate	36
Table 5: Gender	37
Table 6: Age	38
Table 7: Level of academic qualifications	39

Table 8: Responses on performance of MES project at Kakamega County Referral Hospital	40
Table 9: Responses on Project planning and Performance of MES project	42
Table 10: Responses for Project Stakeholder Engagement	43
Table 11: Responses for Project Funding and Performance of MES project	45
Table 12: Responses for Project Monitoring and Performance of MES project	46
Table 13: Moderating Influence of Government Policies on Performance of MES projects	48
Table 14: Test for Autocorrelation.....	50
Table 15: Heteroscedasticity test.	50
Table 16: Multicollinearity test	51
Table 17: Correlation results	52
Table 18: Regression model	53
Table 19: Analysis of Variance	53
Table 20: Regression coefficients	54
LIST OF FIGURES	
Figure 1: Conceptual Framework.....	24

ABBREVIATIONS AND ACRONYMS

AMEK:	Association of Medical Engineers of Kenya
CDA:	Coast Development Authority
CDF:	Constituency Development Fund
CoG:	Council of Governors
ECG:	Electrocardiogram
GPD:	Gross Domestic Product
ICU:	Intensive Care Unit
IEA:	Institute of Economic Affairs
KCRH:	Kakamega County Referral Hospital
KEMSA:	Kenya Medical Supplies Authority
KPA:	Kenya Ports Authority
LED:	Light Emitting Diode
LFA:	Logical Framework Approach
M&E:	Monitoring and Evaluation
MES:	Managed Equipment Service
MoH:	Ministry of Health
NSE:	National Stock Exchange
OAG:	Office of the Auditor General
OPG:	Orthopantomogram
PPP:	Public Private Partnership
SME:	Small and Micro Enterprises
SOPs:	Standard Operating Procedures

CHAPTER ONE

INTRODUCTION

The first chapter presents the research on project management techniques and how they affect MES project performance, with a particular emphasis on Kakamega County Referral Hospital. It describes the significance, goals, and background of the research.

1.0 Background of the Study

When healthcare equipment is used appropriately, patient care quality improves and costs are reduced since fewer staff members are needed for daily operations, which boosts facility productivity and improves patient satisfaction overall (Gathungu, 2018). Medical device manufacturers allocate a substantial portion of their budget to research, development, and marketing in order to produce high-quality, innovative products for the market. The successful adoption of medical equipment is a crucial factor in the sustained improvement of the standard and caliber of healthcare provided by healthcare organizations to their patients worldwide (Varadarajan, 2010).

Globally, the effective management of hospital equipment is crucial in healthcare systems, where it plays a significant role in enhancing service delivery and patient outcomes. Effective equipment management improves efficiency, reduces costs, and ensures timely maintenance, thereby extending equipment lifespans (World Health Organization [WHO], 2023). However, equipment malfunctions and inefficiencies in inventory control remain challenges worldwide, impacting healthcare service quality and patient safety. Many developed countries have adopted technology-driven solutions for equipment management, including automated inventory systems and predictive maintenance (Singh et al., 2023).

On the African continent, challenges in managing hospital equipment are particularly pronounced due to resource limitations, inadequate maintenance practices, and dependency on donated equipment. Studies from Ghana, for instance, reveal that poor equipment management results in frequent breakdowns, reducing the reliability of healthcare services (Obeng, 2022). Ghana has implemented initiatives to train healthcare personnel in basic equipment management to address these challenges, but high operational costs and technical skill shortages persist. Similarly, many other African countries are exploring strategies to adopt better practices, emphasizing the importance of sustainable equipment management to improve healthcare systems continentally (Agyemang & Boateng, 2022).

In East Africa, countries like Ethiopia face comparable issues, where a shortage of trained personnel and limited maintenance budgets lead to equipment inefficiency and longer downtime. According to Mesfin et al. (2023), Ethiopian hospitals frequently experience delays in healthcare services due to unreliable equipment, which often requires specialized, costly repairs. Recent efforts in Ethiopia have focused on capacity building, with donor agencies and non-governmental organizations helping train technical staff in routine maintenance and repair.

Tanzania has also grappled with hospital equipment management challenges, where many facilities lack structured systems for tracking and maintaining medical equipment. A recent study highlights that equipment downtime in Tanzanian hospitals often disrupts patient services, especially in rural and semi-urban areas (Mwanukuzi & Dotto, 2023). The Tanzanian government has recognized this gap and is piloting initiatives to establish centralized maintenance departments and digital tracking systems to optimize equipment usage and reduce downtime.

Hospitals in developing nations find it difficult to properly use medical equipment in providing services since health ministries have difficulties in obtaining the equipment. This is according to Diaconu et al. (2017). The competent labor required for the maintenance of the medical equipment is also lacking. Dubois, Lefouili, and Straub (2019) state that shortages of medical equipment are frequently observed in these countries that are developing. The majority of medical equipment is imported, with local manufacturers concentrated on personal protective equipment and basic consumables. Western companies use effective innovation methods to create medical equipment with an emphasis on their own markets. Thus, a disproportionately large amount of imported medical equipment frequently stops working in low-resource environments (Chakravarty, 2021).

The accessibility, cost, and effective use of necessary medical equipment are critical in ensuring the provision of quality health care in all sectors. Frugal medical equipment is frequently intended to handle difficulties in the poor countries, where a big percentage of the population depends on public health (Chakravarty, 2021). Abiodun, Olayemi, and Joseph (2016) discovered that a shortage of safe, trustworthy, and efficient medical equipment in public hospitals hinders health care delivery, can lead to poor patient outcomes, and poses major hazards to the health system. In East Africa, one observation of relevance is that there has been a problem surrounding the method in which procurement, worker training, and maintenance of medical equipment are carried out. According to research, buying medical equipment occasionally happens without a budget for consumables, maintenance and service support, or

quality control (Chegugu & Yusuf, 2017). Patient demands are not being addressed, medical equipment are not being used to their full potential or are decommissioned when a spare part is not prepared for in case of a failure or when maintenance staff lacks the necessary skills to restore the device. This has grown to be a serious issue.

Ayah (2020) reports that in developing countries, as much as 70% of medical equipment is broken, which has an impact on patient outcomes and service delivery. The high prevalence of malfunctions and non-repair in Kenyan healthcare institutions is partly caused by the usage of medical equipment that is not suited for the country's climate. The issue is made worse by the lack of skilled biomedical professionals, which results in subpar patient outcomes and inadequate treatment. Managed Equipment Service (MES) programs have become an important strategy in Kenya in response to the difficulties encountered by the healthcare industry. These initiatives supply contemporary medical equipment to institutions and outsource its operation to specialized service providers in response to the growing demand for high-quality healthcare services.

1.0.1 Managed Equipment Service Projects in Kenya

A public-private collaboration between the Kenyan government and private enterprises, the Managed Equipment Service (MES) programs sought to supply medical equipment to 98 public hospitals around the nation. Through this collaboration, the government was able to purchase the equipment in time-based installments determined by important performance metrics. During the contractual time, which was initially set for seven years with the possibility to extend for an additional three years, private sector partners were in charge of equipment repair, setup, upkeep, and procurement. Oversight teams comprised ministry and county representatives, tasked with monitoring project performance, ensuring timely remuneration, and addressing urgent healthcare needs in areas such as dialysis, emergency, maternal health, surgery, critical care, and imaging services. The MES project, which was initiated in 2015 as a component of the Medium-Term Plan II (2013-2017), sought to improve geographic equity in access to specialized diagnostic medical equipment. This was in response to concerns raised by the Ministry of Health's 2014 needs assessment regarding outdated equipment and the need for improved service delivery in public health facilities (Republic of Kenya, 2013).

Two hospitals from each of the 47 counties, along with four referral hospitals, were designated to receive specialized medical equipment, totaling 98 hospitals. The selection of

beneficiary health facilities was the responsibility of individual county governments (IEA Kenya, 2020). The Managed Equipment Services (MES) project, which expired in December 2022, sparked discussions on whether to extend it. Media reports outlined three options for the government: extending the project by three years, purchasing the equipment at the contractors' acquisition rate, or withdrawing the equipment from the facilities. Despite mixed signals, with reports suggesting project cancellation, there are indications of an agreement between county and national governments for a three-year extension (Daily Nation, 2022). Health infrastructure development through the MES project is highlighted in the Medium-Term Plan III as a flagship project receiving special attention and priority from the government between the financial year 2022/23-FY and 2024/25 period. Recent clarifications refute the notion of project cancellation, asserting a temporary suspension pending findings and advice from a task force addressing contentious issues, including the servicing turnaround time (IEA Kenya, 2020; Daily Nation, 2022).

Efforts were focused on the timely delivery of medical equipment, organized into seven different lots, to counties according to the project schedule. However, as of 2020/21, a year before the end of the MES project contract, some equipment remained undelivered, despite adjustments to the target quantities during project implementation. Minor cases of duplication indicated gaps in the comprehensiveness of the initial needs assessment, and the project lacked provisions for redistributing equipment in the event of duplication. Notably, the MES contract did not account for the cost of consumables and reagents necessary for the operation of equipment, such as renal, critical care, radiology, and theatre equipment, leading to an unexpected financial burden on counties. Audit findings highlighted that the MES equipment was restricted to specific, expensive consumables and reagents not readily available in the market, prompting KEMSA to engage with counties as an alternative supplier after successful price negotiations (OAG, 2022).

1.0.2 Project Management Practices and Performance of Managed Equipment Service Projects in Kenya

Recent studies highlight the critical role of project management practices in the performance of Managed Equipment Service (MES) projects in Kenya. According to Mahlala (2024), effective project planning, stakeholder engagement, and continuous monitoring are essential for overcoming challenges in MES implementation. The research emphasizes the need for robust project management frameworks to ensure efficient procurement, installation, and

maintenance of medical equipment, enhancing healthcare delivery across Kenyan hospitals (Mahlala, 2024).

Ambatsa and Mutwiri (2023) underscore the significance of structured project management approaches in Kenya's healthcare sector. Their study on tuberculosis control programs identifies that clear project goals, regular monitoring, and adaptive management strategies are crucial for optimizing resource allocation and program effectiveness. The findings advocate for integrating advanced project management techniques to enhance the sustainability and impact of health interventions in the country (Ambatsa & Mutwiri, 2023). Furthermore, research by Ovcina and Arslanagic-Kalajdzic (2023) provides insights into project management practices in developing contexts like Kenya. Their study on non-profit projects emphasizes the role of monitoring and evaluation (M&E) frameworks in improving project performance and sustainability. By implementing rigorous M&E systems, organizations can better manage resources, mitigate risks, and achieve long-term project goals, highlighting the transformative potential of effective project management practices in development projects (Ovcina & Arslanagic-Kalajdzic, 2023).

1.0.2.1 Project Planning and Performance of Managed Equipment Service Projects

Effective project planning significantly influences the Performance of Managed Equipment Service projects. A well-structured plan provides a roadmap for procurement, installation, and maintenance, ensuring that timelines are met and resources are allocated efficiently (Kerzner, 2020). Inadequate planning may lead to delays, cost overruns, and disruptions in service delivery, impacting the overall success of MES projects.

According to Banzi and Tumuti (2023), thorough project planning is essential for outlining project objectives, defining scopes, and allocating resources effectively. Their study on health construction projects in Kenya stresses the importance of detailed planning in ensuring the timely and cost-effective implementation of MES initiatives, ultimately improving healthcare infrastructure and service delivery (Banzi & Tumuti, 2023).

Macías and Borges (2023) contribute insights into project planning strategies using business intelligence approaches in diverse organizational contexts. Their research highlights the application of data-driven planning methodologies to optimize resource allocation, monitor project progress, and forecast outcomes in healthcare settings. By leveraging advanced planning techniques, organizations can enhance the effectiveness of MES projects, improve decision-making processes, and ensure alignment with strategic healthcare goals (Macías & Borges, 2023).

1.0.2.2 Project Stakeholder Management and Performance Managed Equipment service Projects

Performance of Managed Equipment Service projects is closely tied to proficient project stakeholder management. Engaging with diverse stakeholders, including healthcare professionals, administrators, and local communities, ensures collaboration, effective communication, and a shared vision. A positive stakeholder relationship fosters support, minimizes resistance, and enhances overall project acceptance, crucial for the seamless integration of new equipment into the hospital's operations (Chakravarty, 2021). Stakeholder collaboration and community engagement are critical factors in the management of MES projects in Kenya. Building partnerships with government agencies, healthcare providers, vendors and community organizations facilitates project planning, implementation and sustainability efforts. Community involvement ensures that MES projects are tailored to local needs and preferences, ultimately enhancing their impact on healthcare delivery and outcomes (Ndung'u et al., 2019).

Kiroro, Twahir, Kiura, Kamuyu, and Wanyoike (2023) highlighted the significance of stakeholder engagement in hospital quality monitoring systems in Kenya. Their research emphasizes the role of stakeholders such as healthcare professionals, administrators, and regulatory bodies in ensuring the success of MES projects. Effective stakeholder management strategies, including clear communication and stakeholder involvement in decision-making processes, contribute to project alignment with healthcare goals and enhance overall project outcomes in Kenyan hospitals (Kiroro et al., 2023).

1.0.2.3 Project Monitoring and Performance of Managed Equipment Service Projects in Kenya

Managed Equipment Service projects is greatly influenced by effective project monitoring. Regular assessment of project milestones, resource utilization, and adherence to timelines helps identify potential issues early on. Proactive monitoring allows for prompt corrective actions, ensuring that the project stays on course and meets the desired objectives (Muchelule, 2018). A study by Klynveld Peat Marwick Goerdeler, KPMG (2017) on MES projects in Kenya highlights the importance of robust monitoring mechanisms in ensuring the success and sustainability of such initiatives. The report emphasizes the need for comprehensive data collection and analysis to assess the impact of the equipment on healthcare delivery, identify operational inefficiencies, and inform strategic decision making. Furthermore, a research

article by Okeyo et al. (2019) underscores the role of project monitoring in enhancing transparency and accountability in MES projects in Kenya. By providing stakeholders with access to relevant project data and performance metrics, monitoring mechanisms can foster trust and collaboration among government agencies, private partners, and the public, ultimately contributing to the overall success of the initiative. Project monitoring significantly influences the implementation of MES projects in Kenya by facilitating proactive problem solving, promoting transparency and ensuring accountability. By leveraging monitoring tools and methodologies, project managers can mitigate risks, optimize resource allocation and drive continuous improvement in healthcare service delivery.

1.0.2.4 Project Funding and Performance of Managed Equipment Service Projects in Kenya

Adequate project funding is paramount for the performance of MES projects. Insufficient financial resources can lead to project delays, compromise the quality of equipment acquired, and hinder proper maintenance. Conversely, a well-managed budget and secure funding sources enable timely procurement, installation, and ongoing support, contributing to the sustainable functionality of medical equipment (Gathungu, 2018). Budgetary constraints and funding mechanisms influence the feasibility and scope of MES projects in Kenya. Limited financial resources may necessitate prioritization of equipment procurement and service delivery, as well as innovative financing models such as public private partnerships (Wamae et al., 2020).

Several studies underscore the critical influence of project funding on project performance outcomes. For instance, a study by Oduor and Mutua (2023) examined the impact of funding on infrastructure projects in Kenya, highlighting that adequate and timely funding significantly enhances project progress and completion within set timelines. Their research emphasized the importance of aligning funding disbursement with project milestones to mitigate delays and budget overruns, thereby ensuring successful project implementation and delivery of intended outcomes (Oduor & Mutua, 2023).

Kiptoo and Rotich (2023) focused on the role of funding in education projects in developing countries like Kenya. Their study found that sufficient funding allocation directly correlates with improved project execution, including the provision of necessary resources, personnel, and infrastructure. Effective management of project funds, coupled with transparent financial reporting and accountability mechanisms, was identified as crucial for optimizing project

outcomes and achieving educational objectives in challenging socio-economic environments (Kiptoo & Rotich, 2023).

1.1.2.5 Government Policies and Performance of Managed Equipment service Projects

in Kenya

Government policies and regulations, including healthcare financing mechanisms and procurement guidelines, shape the landscape for MES projects. Compliance with regulatory requirements and adherence to procurement procedures are essential considerations for both service providers and healthcare institutions (Republic of Kenya 2017). External factors such as political stability, economic conditions, and technological advancements shape the management of MES programs in Kenya. Political stability fosters an enabling environment for investment and project performance, while economic conditions may influence funding availability and resource allocation. (Ngugi & Mutai, 2020).

1.0.3 Kakamega County Referral Hospital

Kakamega County Referral Hospital, strategically located in Western Kenya, spans an area of approximately 3050 square kilometers, with geographical coordinates at 0°17'3.19"N, 34°45'8.24"E (County Government of Kakamega, 2021). Serving both rural and urban residents, the hospital's influence extends to neighboring counties, including Nandi, Busia, Siaya, Bungoma, and Vihiga. With a catchment population estimated between 3 and 5 million, it ranks among Kenya's largest healthcare institutions. Established as a referral center, the hospital has grown over the years to meet the diverse healthcare needs of the region. Boasting of modern facilities and advanced medical technologies, Kakamega County Referral Hospital ensures the provision of high-quality healthcare services to its patients. Beyond patient care, the hospital functions as a hub for specialized medical services, receiving referrals from lowerlevel health facilities. Emphasizing a commitment to medical education and research, the institution contributes to the ongoing enhancement of healthcare practices in the region.

Kakamega County Referral Hospital and Malava Level Four Hospital received Managed Equipment Services (MES) support in Kakamega County, encompassing a diverse range of medical equipment. Mobile X-ray machines were among the equipment that helped the radiology unit. machines, C-arm technology, digital X-ray machines, 3D dental X-rays (OPG), mammograms, and ultrasound devices. The renal unit was furnished with heart rate monitors,

oxygen concentrating systems, suction machines, dialysis beds and chairs, a water purification plant, and patient monitors. Equipment such as ventilators, ECG machines, instrument carts, neonatal resuscitators, baby ventilatory devices, oxygenation plants, blood refrigerators, infusion pumps, and mattresses ICU beds were available in the intensive care unit (ICU). A variety of surgical tools, anaesthetic equipment, operating tables with LED surgical lights, bed monitors, autoclaves for central sterilization, patient stretchers, theatre fixtures, electrosurgical units, and baby warmers were delivered to the theatre. (Referral Health Records, Kakamega County, 2024). Kakamega County Referral Hospital grapples with operational challenges in utilizing medical equipment, potentially compromising healthcare delivery. Issues include procurement of equipment unsuitable for the local context, insufficient training for personnel to operate the machinery effectively, and infrastructure limitations hindering optimal usage. These difficulties reflect broader concerns about healthcare infrastructure and management practices in Kenya.

1.1 Research Problem

Approximately 75% of medical equipment in developing nations is not operating at its best in its new environment since it was made primarily for use in high-income countries. Technology created specifically for the African market is so lacking in the market. Poor procurement methods, lack of human resource support for health, and inadequate maintenance of medical devices in Kenyan healthcare facilities are all potential causes of difficulties, according to Diaconu et al. (2017). According to Bitkina, Kim, and Park (2020), there has been a problem with the way that medical equipment is purchased and used, which has an impact on healthcare facilities. Medical equipment is sometimes purchased without taking into account whether a budget has been set up for the device's maintenance or whether a qualified user is available to operate and maintain it (Bahreini, Doshmangir, & Imani, 2019). One example is the situation in which the government purchased a Computerized tomography scanner for Nyandarua County without taking into account whether or not the county's employees were sufficiently trained to use it, preventing staff members from using it for nine months after delivery. This has grown to be a significant problem as ineffective usage of the medical devices fails to meet the demands of the county's patients. A portion of the medical equipment that the National Government leased to certain hospitals via the Managed Equipment Service (MES) programme run by the Ministry of Health has not yet been utilized (Wahome, 2019).

Audit findings exposed that some of the delivered MES equipment remained unused in different facilities, potentially compromising county health services as the effectiveness of these machines is integral to service delivery. The underutilization of equipment was primarily attributed to the lack of qualified personnel and inadequate infrastructure, including insufficient power and water, echoing concerns from a prior IEA report. For instance, Homa Bay County invested Ksh 5 Million in training a radiologist for five years, but upon graduation, the professional declined the job offer. The Council of Governors (CoG) highlighted that training provided during MES equipment installation lacked refresher courses, and specialist training was limited, primarily focusing on nurses overseeing ICU and renal machines (Republic of Kenya, 2021).

The Managed Equipment Services (MES) project operates within the National Referral and Specialized Services Programme under the Ministry of Health (MoH), focusing on expanding specialized healthcare services. Aligned with the health infrastructure and equipment sub-programme, the MES project is seen as a key avenue for collaborative investment in expanding healthcare infrastructure. While overseen by the MoH, the actual implementation of the MES project is the responsibility of county governments. Despite concerns about transparency and accountability, there is a lack of publicly available comprehensive assessment and evaluation reports on the project's performance since its inception (Mutia, Kihiu & Maranga, 2022).

The performance of Managed Equipment Service (MES) at Kakamega County Referral Hospital faces significant challenges due to inadequate maintenance, frequent equipment breakdowns, and limited skilled personnel to operate and troubleshoot advanced medical machines. Additionally, delays in timely equipment delivery and lack of sufficient training for hospital staff further hinder the hospital's capacity to provide consistent and effective healthcare services (Kakamega County, 2022). Existing information is fragmented, primarily sourced from government reports, such as those by the National Treasury Health Sector, and media articles, with occasional insights found in the Council of Governors' Annual State of Devolution Address report without clear attribution to the MES project (The Senate, 2020). It is on this basis that there was a pressing need to investigate project management practices and Performance of Managed Equipment Service projects, particularly in the context of Kakamega County Referral Hospital in Kenya. The study sought to address gaps in understanding the challenges faced by healthcare administrators and policymakers in the performance of MES projects, considering the unique dynamics of the Kenyan healthcare system.

1.2 Research Objectives

1.2.1 General Objective

The primary aim of this study was to investigate Project Management Practices and Performance of Managed Equipment Service projects in Kenya, focusing on the specific case of Kakamega County Referral Hospital.

1.2.2 Specific Objectives

In the light of the general objective, this study sought to accomplish five specific objectives.

- i. To assess how project planning affects Performance of Managed Equipment Service projects at Kakamega County Referral Hospital.
- ii. To establish the effect of project stakeholder management on the performance of Managed Equipment Service projects at Kakamega County Referral Hospital.
- iii. To determine how project funding affects performance of Managed Equipment Service projects at Kakamega County Referral Hospital.
- iv. To establish how project monitoring affects the performance of Managed Equipment Service projects at Kakamega County Referral Hospital.
- v. To evaluate the moderating influence of government policies and regulations on performance of Managed Equipment Service projects at Kakamega County Referral Hospital.

1.3 Research Questions

- i. How does project planning influence the performance of Managed Equipment Service projects at Kakamega County Referral Hospital?
- ii. How does project stakeholder management affect the performance of Managed Equipment Service projects at Kakamega County Referral Hospital?
- iii. How does project financing affect the effectiveness of Kakamega County Referral Hospital's Managed Equipment Service projects?
- iv. How does monitoring affect Kakamega County Referral Hospital's Managed Equipment Service projects' performance?

1.4 Significance of the Study

Many stakeholders would find great value in the study on the variables impacting the performance of Managed Equipment Service (MES) projects at Kakamega County Referral Hospital. The study's findings hold paramount importance for Kakamega County Referral Hospital, offering the institution valuable insights into the challenges and opportunities in managing Managed Equipment Service (MES) projects. It enables the hospital's management

to make informed decisions, streamline operations, and optimize the utilization of medical equipment, ultimately improving healthcare delivery and patient outcomes.

The Kakamega County government stands to benefit significantly from the study as it provides a comprehensive understanding various Project Management Practices and their impact on the performance on MES project. This knowledge is crucial for the county government in making informed policy decisions, optimizing resource allocation, and addressing specific challenges to enhance the overall efficiency and effectiveness of healthcare services within the region.

For the individuals responsible for operating the MES at Kakamega County Referral Hospital, the study serves as a guide to better navigate the complexities of equipment management. The insights gained can improve their day-to-day operations, inform training programs, and help address any barriers hindering the optimal utilization of medical equipment, thereby contributing to improved healthcare service delivery.

At the national level, the Ministry of Health benefits from the study by gaining a comprehensive understanding of MES project management dynamics in a specific healthcare setting. This insight is vital for assessing the effectiveness of the Public-Private Partnership (PPP) model, guiding future policy decisions, and determining whether to continue, modify, or terminate similar agreements in other regions of the country.

The study's findings are valuable for equipment suppliers in Kenya, offering them a deeper understanding of the challenges faced by healthcare facilities in performance of MES projects. This knowledge can assist suppliers in tailoring their services, providing targeted support, and ensuring the successful implementation and maintenance of medical equipment, thereby strengthening their partnerships with healthcare institutions.

The study contributes to the academic community by providing a rich source of information and insights for future scholars and researchers interested in healthcare management, Public-Private Partnerships, and the dynamics of MES projects in Kenya. It establishes a foundation for further research, enabling scholars to build on the findings and explore additional dimensions of healthcare infrastructure and service delivery in the country.

1.5 Scope of the study

This study concentrated on examining the management of five Managed Equipment Service (MES) projects at Kakamega County Referral Hospital. The research involved an extensive review of literature related to these projects and gathered insights from multiple stakeholders engaged in

their management. Key areas of assessment included project planning, funding, stakeholder management, monitoring, and the impact of government policies. Data collection involved quantitative methods of data collection by utilizing questionnaires. The study was completed within a three-month timeframe.

1.6 Limitations of the Study

MES project being a national government major project, the study faced challenge accessing confidential information. Additionally, reluctance among potential respondents arose. To address this, a research permit was obtained, which clearly communicated the research's purpose, and ensured respondent confidentiality.

The study's findings were influenced by specific temporal factors, such as changes in government policies, economic conditions, or healthcare infrastructure, this could impact the management of MES projects over time.

1.7 Delimitations of the Study

Research analyzed five specific Managed Equipment Service (MES) projects exclusively within Kakamega County Referral Hospital. This deliberate choice ensured a detailed investigation into the dynamics and challenges unique to this hospital setting. The study also was delimited to key stakeholders directly involved in MES projects, such as Ministry of Health Implementation Committee members, procurement staff, accounts staff, project managers, medical engineers, and hospital staff. This strategic selection allowed for a comprehensive exploration of diverse perspectives essential for a holistic analysis.

1.8 Study Assumptions

Researchers assumed that the hospital administration, staff, and other stakeholders were to cooperate and provide necessary information for the study. This assumption was crucial for the successful implementation of the research project. Researcher also assumed that the data that was collected during the study accurately represented the reality of MES project management. Furthermore, throughout the study procedure, the researcher expected that ethical standards and rules would be adhered to. This involved getting participants' informed consent, protecting their privacy and identity, and following moral guidelines for gathering, analyzing, and reporting data.

1.9 Operational Definition of Key Terms

Bureaucracy: A system of administration characterized by hierarchical authority, standardized procedures, and a strict adherence to rules and regulations.

Financial Risk Mitigation: Strategies and actions taken to reduce or manage the potential negative impact of financial risks on an organizations' finances, investments or operations.

Government regulations and policies: Refers to rules, laws and guidelines established by government entities at different levels.

Managed Equipment Service project: A term given to a contractual agreement between the government of Kenya and external service providers/vendors for the procurement, installation, maintenance, and management of medical equipment within healthcare facilities.

Patient Outcomes: Refers to the results or effects of medical treatment, intervention, or care on the health status and well-being of patients.

Project Funding: Refers to the financial resources allocated or secured to support the implementation of a project.

Project implementation: Also known as project Execution. Refers to the process of completing tasks initially described in the project plan to deliver a project successfully.

Project Management Practices: Refer to Project management tools and techniques help teams plan, execute, and complete projects on time, within budget, and to specified quality standards.

Project Management: Refers to the process of executing planned activities, tasks, and strategies to achieve project objectives and deliver desired outcomes

Project Monitoring: Involves systematically tracking and assessing project progress, performance, and outcomes against established objectives, timelines, and benchmarks.

Project Performance: Refers to how effectively and efficiently a project is achieving its objectives and delivering its intended outcomes.

Project Planning: is the methodical process of setting timeframes, identifying activities and resources needed, defining project objectives, and creating plans to accomplish project goals effectively and efficiently.

Project Stakeholder Management: Refers to the process of identifying, engaging, and communicating with individuals or groups who have a vested interest or are affected by a project.

CHAPTER TWO LITERATURE REVIEW

2.1 Introduction

This chapter provides the empirical studies on the independent variables. It also highlights the theories that will guide the study and the conceptual framework.

2.2 Theoretical Framework

Finding a collection of claims or tenets that explain facts or occurrences that have been repeatedly stated or are generally acknowledged is known as a theoretical review (Kisavi, 2019). The three theories listed below served as the foundation for this investigation;

2.2.1 Theory of Planning

The planning theory, which was put forth by Andreas Faludi in 1973, describes planning as the application of scientific ideas to the creation of policy. There is a difference between the two methods: theory in planning (procedural theory), which helps planners understand themselves and their operational procedures, and theory in planning (substantive theory), which helps planners understand the topic of their concern. It should also be emphasized that effective planning requires both planning theory and theory in planning (Mukhopadhyay & Faludi, 2015). The theory of planning is divided into three main phases: When there is a project component or consequence, the management portion of the conceptualization has the primary duty for planning. Implementing the resulting plan is the main duty of the effector section. The second category is principles, from which a plan can be deduced. These comprise the current situation, the ideal situation, and the permissible state modifications that could result from a series of actions. The organization's effector component makes the plan a reality. Internal planning for a task depends on the person assigned to it, and plan execution is a straight forward process that may be finished by following instructions.

The theory highlights that planning involves the formulation of policies based on scientific principles. For MES projects, efficient planning is essential to identify objectives, deliverables, resources, and activities. It stresses the importance of substantive theory, which aids in comprehending the subject of concern. In this case, substantive theory involved a deep understanding of the healthcare environment, technological requirements, and the specific needs of Kakamega County Referral Hospital.

2.2.2 Stakeholder Theory

According to Freeman's (1984) stakeholder theory, each individual or group involved in an endeavor would always look out for their own interests. Stakeholder management in relation to the project and its outcomes is the main focus of the theory. This concept looks into individualized preferences and makes an effort to satisfy as many of them as is practical. People or organizations with an interest in the project being undertaken are called stakeholders (Nasr et al, 2020). This theory is further backed by Joseph and Tranos (2018).

The theory states that for a project to be successful in the long run, project managers need to ensure that stakeholder relationships and interests are sufficiently taken care of, and that all parties involved are satisfied with the way the project is being executed. Project managers are responsible for creating and implementing processes that meet the needs of all parties participating in the project, not just their own (Kirsi, 2010). This concept further states that project managers should create and apply project methodologies that are advantageous to all parties participating in the project, not just some of them. Over time, this concept has been challenged for being imprecise and perplexing on how organization's function. Opponents claim that because of the issue of diversity among pressure groups and stakeholders, a system where diverse interests and duties arise leads to a decline in responsibility. This sets up a situation where any decision made by management may be supported by mentioning a stakeholder. Furthermore, the organization's interactions with major and secondary stakeholders establish its interests; hence, any adjustments to these relationships will likewise affect the organization's interests Maharaj (2018). The independent goal that demonstrated how project stakeholder management affected MES project performance was connected to the theory.

2.2.3 Institutional Theory

The theory was developed in 1970 by John Meyer and Brian Rowan. Every public domain begins with an institution, and the process of establishing an institution is fundamentally the same as that of developing a plan for our daily lives. An organization's performance can be improved or enabled by a collection of well-defined procedures and supporting systems. It makes it possible for the visually appealing arrangement of exercises to be identified as frequently as anticipated, and it is emphasized that these activities are successful when used as guidelines (Van Wijk et al., 2019). People no longer take action because it is the standard rather than because decisions must be made (Schneiberg & Soule, 2005).

Institutions are described as social regular programs by Willmott (2019). It is made up of unique ideas that influence organizational design. It is thought that organizations that follow the institution's rules are more productive and efficient. Organizations construct a set of strategies, guidelines, and standards to help them achieve their objectives. To survive, organizations may adapt to both internal and external events. This is a step in the institutionalization process that supports the continuation and success of many initiatives that have been started.

Institutional theory was applied to analyze how the hospital's monitoring mechanisms are influenced by institutional pressures. It can explore how the hospital conforms to or deviates from industry standards or regulatory expectations in terms of project monitoring. The theory can help understand the institutionalized practices that shape the hospital's approach to monitoring MES projects.

2.3 Empirical Studies

2.3.1 Project Planning and Performance of projects

Developing a procedure that will be used in project management is known as project planning. The project's goals, deliverables, planning, activities, schedule, communication, and funding sources are a few examples of these processes. Project planning is a crucial stage in making sure a project is successful. It is a continuous process that takes place throughout the project's delivery rather than just happening at the start (Kerzner, 2020). While the majority of academics have discussed variables that affect a project's outcome, project planning management has generally been mentioned as a crucial component of project success. In many different industries, project performance and success are largely dependent on project planning. Determining objectives, scope, deadlines, resources, and possible dangers are all necessary for efficient project planning. Beratan's (2020) research highlights the importance of meticulous project planning in accomplishing project goals and reducing unpredictability. Project performance is directly impacted by effective project planning, which lays the groundwork for effective execution, resource allocation, and risk management. The research conducted by Mustafa and Yaakub (2018) examined the factors that influence innovation and technology adoption in Malaysian SMEs. Using questionnaires completed by SME owners, directors, or managers with sufficient industry knowledge, the study gathered data from 153 SMEs in the Malaysian manufacturing firm sector. From the findings, the allocation of resources during the planning phase significantly influences project performance. Properly planned resource allocation ensures that the necessary personnel, finances, and

materials are available at the right time, reducing bottlenecks and enhancing overall project efficiency.

A study on the management strategies for community-managed water projects in Ethiopia and their maintenance was carried out by Senbeta and Shu (2019). The study compared the sustainability of each water project and concentrated on 102 water access locations that were overseen by local governments, non-governmental organizations, and communities. The study results revealed that a well-developed project plan establishes clear communication channels, defines roles and responsibilities, and sets realistic expectations. When stakeholders are actively engaged during the planning phase, the project is more likely to meet their expectations, leading to enhanced project performance and stakeholder satisfaction.

Macharia (2020) investigated the effects of technological innovation and entrepreneur inventiveness on business performance. The study comprised a sample of 240 Kenyan businesses, which also served as the responder list for the data collection. Findings showed that project planning is crucial for detecting potential risks and uncertainties that could have an impact on a company's performance. According to the study, a well-structured project plan allows project managers to anticipate challenges and establish strategies to mitigate risks promptly. This proactive approach contributes to improved project resilience and positively impacts overall performance of the program.

2.3.2 Project Stakeholder Management and Performance of Projects

Heravi, Trigunaryah, and Coffey (2020) studied the extent of stakeholder participation in the Project Planning Management processes of construction projects. To gather data, a survey questionnaire was created and sent to almost 200 Australian companies engaged in the residential building industry. Two sampling techniques were used to determine the necessary number of responses: stratified sampling and random sampling. The analysis's findings show the degree of participation of the four stakeholders.

Alkhlaifat, Magassouba, Tambi, and Abdullah (2019) investigated the impact of stakeholder participation on Guinean development project performance. The results of the study show that include stakeholders in the selection, planning, execution, and oversight of projects improves their chances of success and is an effective tactic for accomplishing organizational goals.

Osiemo, Wagude, and Ogombe (2019) evaluated the impact of stakeholder participation for monitoring and evaluation on the completion of CDF health projects in Kenya's Busia County. The research findings indicated that stakeholder participation in M&E significantly influences the implementation of Community Development Fund (CDF) wellbeing construction projects.

However, the study specifically examined project execution between 2014 and 2018. The implications of M&E practices on the long-term durability of donor-supported water projects for communities in Kismayu, Somalia, were examined by Mohamud and Nyandoro (2024). The study addressed problems with water project sustainability that were made worse by regional socioeconomic and climate-related problems. They employed a descriptive research approach, collecting data from 132 participants in 250 water projects via questionnaires. They then used SPSS software to analyze the data quantitatively and qualitatively through content analysis. The results made clear that timely completion of M&E tasks, sufficient funding for M&E, and good stakeholder participation were essential to the viability of the project. The inclusion of stakeholders enhanced oversight and decision-making, and adequate funds for monitoring and early issue resolution were made possible by M&E. In order to increase project effect and sustainability, the study underlined that solid M&E practices are essential for the long-term success of donor-funded water projects. It also advocated increasing stakeholder participation, ensuring appropriate M&E financing, and adhering to scheduled activities.

Kimote and Muchai (2024) explored strategies to enhance M&E in donor-funded projects in Machakos County. Data were collected through surveys and interviews with project staff and stakeholders. The target population included 150 respondents from various donor-funded projects in Machakos County. The study highlighted the critical need for involving all stakeholders in M&E processes to improve project outcomes. Results revealed that active stakeholder participation significantly contributes to more effective M&E and project success.

Amin, Scheepers, and Malik (2023) examined how international development (ID) programs can improve stakeholder relationships and the impact on the community by implementing monitoring and evaluation (M&E). The study used qualitative data from in-depth interviews with stakeholders, such as donors, implementation partners, and steering members of the committee, and applied agency theory to the data. The results showed that M&E operations make it easier to gather information on inputs, outputs, outcomes, and impacts—all of which are essential for making decisions based on facts. The study made clear that by including stakeholders at different project stages, attending to community needs, and demonstrating positive outcomes, effective M&E enhances stakeholder relationships. But obstacles like knowledge asymmetry, risk-sharing, and goal incongruence also affect these connections.

2.3.3 Project Funding and Performance of Projects

Chukwuma and Uchenna (2020) carried research to determine the amount of funding required in Umuchu, Nigeria, for a project to be implemented successfully. It determined the required amount of funding, identified the funding sources, and examined the challenges related to project implementation financing. The findings showed that substantial cash was required for the project's effective completion. Lack of money, inadequate government assistance, and financial mismanagement were other obstacles to project execution financing (Chukwuma & Uchenna, 2020).

Kumar (2020) investigated the relationship between project execution success and budget level in India. It was shown using a combination of techniques that insufficient funding can lead to project failure or implementation delays. The study also highlighted variables that impact project finance and implementation, including project complexity, team capability, and external environment. To maximize the project's execution, tactics including adequate preparation, adequate finance, and clear communication were suggested.

A study on attracting project finance was conducted in Kenya by Muthoki (2019). The study was on techniques of program financing and the creation of shareholder value of listed firms, excluding those in the financial industry. The explanatory design of the study was non-experimental. Just forty businesses were included in the finance sector during the inquiry period, which is why the census design was used. The NSE handbooks and CMA publications provided the income statements, annual financial statements, and accompanying commentary. It was investigated how different financing model factors affected the quality of earnings using Ordinary Least Square regression analysis. Using regression technique, the moderating effect of GDP growth rate was examined. The results showed that capital structure, dividend financing, debt financing, and operational capital raising all significantly increased return on invested capital. The study then examined industry-specific differences in companies listed on the NSE. The results showed that, across a range of industries, investment decisions had a large relative impact on the creation of shareholder value.

Mobegi (2019) found that a study on the macroeconomic impact on the success of health sector projects supported by development partners in the nation was beneficial in gaining insights into additional organizational variables that influence project financing. The study examined over seventy development partners that provided funding for healthcare initiatives between 2008 and 2018. The results showed that the political, socioeconomic, and social- cultural contexts all had an impact on the sponsor-financed companies' success. According to the analysis, the relationship between global factors and development partners financed healthcare project

achievement was impacted by the support of senior leadership. The research then recommended that Kenya's government put policies and procedures in place to minimize the negative consequences of the current market conditions while optimizing the positive effects with regard to socio-political aspects that influence the effectiveness of the medical programs funded by charitable donations.

2.3.4 Project Monitoring and Performance of Projects

Mohamed (2018) studied how the monitoring and evaluation function contributed to Malaysian projects being completed successfully. M&E raises a project's chances of success, yet despite its widespread application, the research revealed that some Malaysian ventures failed. For this examination, an empirical case study methodology was applied. According to the research, projects performed better when monitoring and evaluation were in place than when no funding was allocated for this kind of work. The research recommended that local governments increase their expenditures on monitoring and assessment in order to ensure the success of the projects. Malaysia was used as the research site rather than Kenya.

Otieno and Muchelule (2024) investigated how M&E practices affected the efficiency of irrigation schemes in the county of Siaya, Kenya. Data was collected from 448 project members from sixteen irrigation projects; stratified random selection was used to choose 211 of these persons. Questionnaires were used to obtain primary data. With performance gains of 0.365 and 0.367 coming from rises in M&E preparation and instruction units, respectively, the results showed a strong positive correlation between M&E practices and project success. The study found that improving M&E planning and training greatly improves project performance, and it suggested that irrigation projects in Kenya use all-encompassing approaches to successfully use these techniques.

Njoroge and Muchelule (2024) investigated the effects of team management strategies on the performance of water projects in Kiambu County, Kenya. The study's dependent variable was the performance of the water project, whereas the independent variables were team management skills and team monitoring. The study targeted 103 water initiatives and surveyed 321 people involved in these projects, ultimately selecting a sample of 187 respondents. It did this by using both descriptive and explanatory research techniques. Project performance was found to be highly influenced by both team management abilities ($\beta = 0.222$) and team monitoring ($\beta = 0.441$), with team monitoring having the most impact ($\beta = 0.497$) according to regression analysis. According to the study, improving team management techniques and

making sure M&E personnel are qualified can boost the effectiveness of water projects in the area.

Muchelule (2018) found in another study that monitoring procedures had a major impact on project performance. A descriptive approach was employed, with 65 state institutions serving as the sample and 187 state institutions as the goal. Multiple regression analysis and the product moment correlation coefficient were used to analyze the primary and secondary data. The analysis, however, was not project-specific; rather, it was based on state companies. As a result, it's possible that the findings cannot be applied to the MES project as a whole.

The purpose of the study conducted by Gatimu, Gakuu, and Nderitu (2021) was to ascertain whether the effectiveness of Kenya's county maternal health programs was correlated with the methods used for monitoring and assessment. The integrated approach to monitoring and evaluation included planning for M&E, involving stakeholders, developing M&E capability, and utilizing M&E data. For this inquiry, a descriptive survey method was employed. By employing a stratified random sample technique, we managed to gather information from 282 participants. Based on the findings, the authors propose that when M&E monitoring and evaluation procedures are planned and executed in tandem, county maternal health programs perform better. The results show that raising the prominence of M&E activities and having management develop an effective strategy are critical to the project's success.

3.3.5 Government Policies and Regulations and Performance of Projects

A study by Smith and Doe (2020) highlighted how government policies significantly influence the adoption and diffusion of digital health technologies. The researchers utilized mixed methods approach, combining quantitative data analysis of digital health technology adoption rates with qualitative interviews of policymakers and healthcare providers. The research discovered that supportive policies, including funding and infrastructure support, enhance the deployment of digital health solutions, while restrictive regulations hinder innovation. In another study by Johnson et al. (2019), an analysis of various health projects across different countries was conducted. The study utilized a comparative case study approach that analyzed health project data from six countries with varying levels of regulatory stringency. The data was collected through project reports and interviews with project

managers. The findings suggested that stringent government regulations can either positively or negatively impact health project outcomes depending on the context. In highly regulated environments, projects often face delays and increased costs, but they also exhibit higher standards of safety and effectiveness. Williams and Taylor (2018) explored the impact of government health policies on community health programs in developing countries. This study employed a cross-sectional survey design, collecting data from 150 community health programs across 10 developing countries. The data was analyzed using statistical methods to identify correlations between policy types and program outcomes. The research indicated that proactive government policies, such as subsidies and public health campaigns, significantly improve the reach and effectiveness of community health programs. The role of government intervention in health projects was investigated in a study by Brown et al. (2021). Data was collected through project documentation, regulatory filings, and stakeholder interviews. Their study found out that while regulatory frameworks are essential for ensuring quality and safety, excessive intervention can stifle innovation and slow down project implementation. Another study by Garcia and Martinez (2022) evaluated how government policies moderate the success of public health initiatives. A quasi-experimental design was used, comparing public health initiatives in regions with differing policy environments. Research concluded that flexible and adaptive policies tend to foster better outcomes in public health initiatives compared to rigid and inflexible regulations. There exist contextual gaps in these studies and therefore need to study the moderating influence of government policies and regulations specifically in the context of Managed

Equipment service projects in Kakamega County Referral Hospital.

2.4 Conceptual Framework

Independent Variables

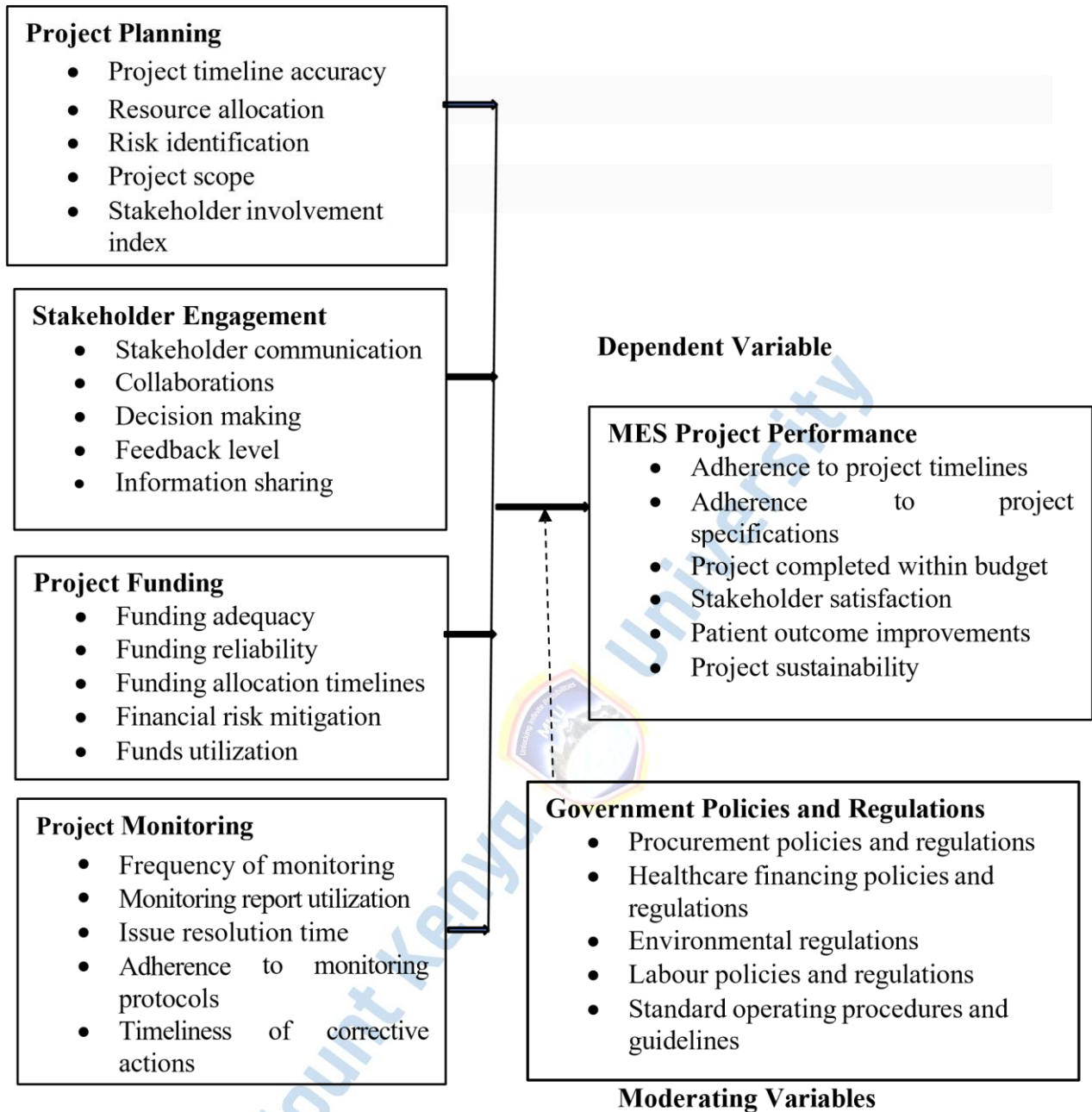


Figure 1: Conceptual Framework

Source: Researcher, 2024

2.5 Summary of the Literature Review and Research Gaps

This chapter serves as a comprehensive exploration of empirical studies, theories, and the conceptual framework relevant to the independent variables of the research. The theoretical foundation includes three key theories: Faludi's Theory of Planning, Freeman's Stakeholder Theory, and Institutional Theory by Meyer and Rowan. The Theory of Planning emphasizes the importance of both substantive and procedural aspects in efficient planning, focusing on principles, existing states, and the effector component's role in putting plans into practice. Stakeholder Theory asserts that individuals or groups involved in a project safeguard their

interests, necessitating effective management of stakeholders throughout the project. Institutional Theory, developed by Meyer and Rowan, posits that institutions, defined as social routine programs, shape organizational behavior and performance.

Effective planning ensures that project objectives, timelines, and resources are aligned, creating a roadmap that minimizes uncertainties (Kerzner, 2020). Studies, such as that by Beratan (2020), underscore that successful planning not only facilitates smooth project execution but also supports optimal resource utilization and efficient task scheduling. However, much of this research is centered on general project settings, with limited emphasis on healthcare-specific projects, especially those involving critical equipment like in Managed Equipment Service (MES) projects. This contextual gap left a critical need for examining how tailored planning processes impact healthcare equipment projects, which face unique challenges in service delivery and quality maintenance.

Moreover, research suggests that project planning should actively involve stakeholders to improve project satisfaction and performance outcomes. Senbeta and Shu (2019) showed in their study on water projects in Ethiopia that incorporating stakeholder feedback into project planning establishes clear roles, expectations, and communication channels, which lead to higher satisfaction and sustainability. Such stakeholder-centric planning is particularly valuable in community-focused projects but has been less explored in hospital-based equipment service projects, where engaging medical staff, patients, and administrators might significantly impact project outcomes. This geographical gap highlighted the need to investigate how stakeholder-driven planning can enhance MES project performance specifically within the healthcare context of Kakamega County, providing insights into effective stakeholder engagement for healthcare project success.

Chukwuma and Uchenna (2020) conducted a study in Umuchu, Nigeria, to determine the amount of funding needed for successful project implementation, as well as to identify funding sources and the financial challenges impacting projects. While their study provided insight into funding challenges, it focused on general financial constraints without delving deeply into industry-specific challenges, revealing a contextual gap in understanding how funding issues impact healthcare infrastructure projects. Similarly, Kumar (2020) explored the relationship between project funding levels and project success in India, noting that inadequate funding often leads to project delays or outright failure. This study also identified factors like project complexity, team capability, and external conditions as critical variables influencing project financing needs and implementation

success. However, Kumar's research emphasized general project funding challenges and did not address the unique funding dynamics faced by Managed Equipment Service (MES) projects in healthcare, indicating a methodological gap in funding analysis specific to high-stakes medical projects.

Mohamed (2018) studied the role of Monitoring and Evaluation (M&E) in enhancing project success in Malaysia, finding that M&E practices improved project outcomes significantly compared to projects without adequate M&E investments. While this research emphasized the effectiveness of M&E, it revealed that even projects with M&E frameworks could face failures, indicating the need for robust, context-specific M&E practices. However, Mohamed's research was limited to Malaysia, creating a geographical gap in understanding the influence of M&E practices on project success within Kenya's healthcare landscape, particularly for MES projects. Otieno and Muchelule (2024) investigated the effect of M&E practices on irrigation project efficiency in Siaya County. Their findings showed a positive correlation between M&E activities—specifically, planning and training—and project success. By using primary data and stratified sampling from 448 project members, the study underscored the importance of comprehensive M&E practices. However, the research focused on irrigation projects rather than healthcare-specific projects, leaving a contextual gap in understanding how M&E practices could enhance the performance of MES projects within Kenyan hospitals, where continuous monitoring and stakeholder engagement are particularly critical.

CHAPTER THREE RESEARCH METHODOLOGY

3.1 Introduction

This demonstrates the methods that were employed to achieve the objectives of the study. This covers the research subjects as well as the methods used to gather and examine the data.

3.2 Research Design

A descriptive research method was used in this study. The descriptive research method was used because it addressed questions such as what, who, where, when, and how they connect to the problems. Kasomo (2006) proposed that a descriptive research approach is one in which one plans to observe, investigate, describe, compare, or analyze the characteristics or aspects of a certain topic or scenario.

3.3 Location of the Study

The study was conducted at Kakamega County Referral Hospital, located in Kakamega County, Kenya. This facility serves as a key healthcare provider in the region, catering to a diverse patient population.

3.4 Target Population

The target population is the section of the population in whom an investigator is interested, has access to, or is more likely to obtain the requisite data (Mugenda & Mugenda, 2003). The study employed 134 key stakeholders directly engaged in Managed Equipment Service (MES) projects. This included 6 members from the Ministry of Health Implementation Committee and 5 project managers from MES service providers, offering national and industry-specific insights. Additionally, perspectives will be gathered from 20 field medical engineers and 20 members of the Association of Medical Engineers of Kenya (AMEK), providing technical expertise. Locally, 6 members each from the Kakamega County MES Project Implementation Committee and Kakamega County Referral Hospital MES Project Implementation Committee will participate, alongside 5 procurement officers, 4 accounts officers, 12 hospital engineering officers, and 50 MES equipment operators representing various healthcare roles.

Table 1: Target population

<u>Target Population</u>	<u>Population</u>
Managed Equipment Service Implementation Committee (MESIC)	6
Project Managers	5
Field Medical Engineers	20
Association of Medical Engineers of Kenya (AMEK)	20
Kakamega County MES Project implementation committee (MESPIC).	6
Kakamega county referral hospital MES project implementation committee (HMESPIC).	6
Hospital Medical Engineering officers.	12
MES equipment operators/users.	50

Procurement officers	5
Accounting officers	4
Total	134

Source: Kakamega County Referral Hospital (2024)

3.5 Sampling Procedures and Techniques

Techniques for selecting a subset of people or things from a wider population in order to conduct research or gather data are referred to as sampling techniques (Thompson, 2012). These techniques allow researchers to extrapolate findings or generalizations about the population from the sample's characteristics by guaranteeing that the sample selected is reflective of the population (Cochran, 1977). Ten distinct categories were chosen as respondents for this study using the proportional stratified random sampling technique. By separating the population into discrete subgroups or strata according to pertinent features, proportional stratified random sampling is used (Cochran, 1977). The percentage of the general population that each stratum reflects is then determined (Lohr, 2021). Within each stratum, random sampling is carried out independently once the proportions have been determined (Kish, 1965).

Each stratum's size in the total population determines the size of the sample taken from that stratum (Cochran, 1977). This eliminates bias and produces a more accurate picture of the whole population by guaranteeing that bigger subgroups are more represented in the sample than smaller ones. The final sample for analysis is created by combining the samples from all strata when sampling within each stratum is finished (Lohr, 2021). Researchers may draw valid findings and make trustworthy inferences about the population as a whole since the final sample accurately reflects the full population in terms of the characteristics under study.

3.6 Sample size

The number of people or things included in a study or survey is referred to as the sample size (Sullivan, 2011). The Krejcie & Morgan formula was used to determine the study's sample size. For investigations with finite populations, the sample size (n) required is calculated using the Krejcie & Morgan formula (Krejcie & Morgan, 1970). This formula, which estimates

population proportion, is derived from the sampling formula. It makes the assumptions of a 95 percent confidence level and a P value of 0.5.

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

n = Sample size, N = Population size and e = Margin of error expressed as a proportion

In this study, the total population was 134;-

Using Krecjie and Morgan formula; Sample size= $\frac{N}{1 + N(e^2)}$

$$= \frac{134}{1 + 134(0.05^2)}$$

$$= 100 \text{ Respondents.}$$

This method ensured that each subgroup within the population was represented proportionally in the sample, which led to more precise estimates and better representation of the populations' diversity. The technique was chosen by the researcher because it ensured that every member of the population had an equal chance of being selected, hence supporting the findings' generalizability.

Table 2: Sample Size determination

Target Population	Target Population	Sample Size
Managed Equipment Service Implementation Committee (MESIC)	6	4
Project Managers	5	4
Field Medical Engineers	20	15
Association of Medical Engineers of Kenya (AMEK)	20	15
Kakamega County MES Project implementation committee (MESPIC).	6	4
Kakamega county referral hospital MES project implementation committee (HMESPIC).	6	4
Hospital Medical Engineering officers.	12	9
MES equipment operators/users.	50	37
Procurement officers	5	4

Accounting officers	4	4
Total	134	100

Source: Kakamega County Referral Hospital (2024)

Therefore, in a population size of 134, the study sampled a total of 100 respondents as computed in the above table.

3.7 Construction of Research Instruments

The study used closed-ended questionnaires to gather primary data. There were two parts to the closed-ended instrument. The second portion of the survey asked about the respondents' demographic characteristics as well as the four independent factors and the moderating factor in connection to the dependent variable. In addition to saving time and money, questionnaires facilitate data processing (Oyolla 2019). Interval measures on a five-point Likert scale were used to measure the variables associated with the main goals of the study.

3.8 Testing for Validity and Reliability

3.8.1 Piloting

A pilot study is a small-scale preliminary investigation conducted before the main research to test the feasibility, methodology, and instruments that was used in the larger study (Polit & Beck, 2017). It helps researchers identify and address potential issues or flaws in the research design, data collection methods, and analysis techniques (Creswell & Creswell, 2017). Pilot studies are valuable for refining the research approach and ensuring the successful implementation of the main study (Bryman, 2016). Piloting involved selecting 12 respondents from Bungoma County Referral Hospital, a similar institution to Kakamega County Referral Hospital. These respondents completed the same questionnaire planned for the main study. Hertzog (2008) observes that a sample size of 12 to 30 respondents is often adequate and sufficiently informative for pilot studies, allowing for exploration of feasibility and initial estimates of variability without the need for stringent statistical power calculation. The pilot helps refine the data collection instruments and ensures clarity and reliability before full-scale implementation.

3.8.2 Validity of Research Instruments

Validity, according to Sekaran and Bougie (2019), pertains to the extent that sampling test structures accurately represent the intended measure. It reflects how well a study accurately

captures what it aims to assess. Content validity, an essential aspect in crafting a new instrument, offers evidence regarding its validity by evaluating how well the instrument aligns with its intended purpose, as noted by Almanasreh et al. (2019). To ensure content validity, experts in project management and healthcare reviewed the survey and interview questions to confirm that they comprehensively covered all relevant aspects of project management practices and MES project implementation. Feedback was used to refine and adjust the instruments accordingly. Face validity was assessed by having a small group of stakeholders, similar to the study participants, review the instruments to ensure that the questions appeared to measure what they were intended to at face value. Their feedback helped identify any ambiguous or unclear questions, further refining the instruments for clarity and appropriateness.

3.8.3 Reliability of research instruments

Privitera and Ahlgrim-Delzell (2018) state that consistency is implied by instrument dependability, meaning that surveys would collect the same data if they were conducted again. In order to verify that every item on a scale accurately measures the same construct, Cronbach's alpha was utilized in this study to assess the internal consistency of the survey instruments. An alpha of 0.7 or above was considered acceptable. This was essential to ensure that the research tools continuously measured the things they were supposed to assess.

3.9 Data Collection Methods and Procedure

To collect data for the study, the process began by obtaining an introductory letter from Mount Kenya University (MKU). This letter served to formally introduce the research, outline its objectives, and establish its academic credibility. Following this, an application was submitted to the National Commission for Science, Technology and Innovation (NACOSTI) to secure the necessary research clearance. This approval was crucial to ensure that the study adhered to national research guidelines and ethical standards.

Once NACOSTI approval was obtained, the next step was seeking permission from the administration of Kakamega County Referral Hospital and other offices that were relevant to this study. This involved presenting the introductory letter and NACOSTI clearance to the management to gain their consent to conduct the study within their facility. After receiving the clearance, the researcher approached the selected respondents, which included project managers, hospital staff, and other key stakeholders involved in the Managed Equipment Service projects.

3.10 Data Analysis Techniques

In the data analysis phase of this research study, emphasis is placed on generating meaningful findings from the collected data. Following data collection, quantitative data obtained through the questionnaire was organized, categorized, and coded. The analysis heavily relied on descriptive statistics implemented through SPSS, facilitating the examination of data frequencies, central tendencies such as mean and standard deviations, and inferences like correlations.

To explore relationships between different variables, particularly considering various project management practices on the management of Managed Equipment Service projects, the study employed multiple linear regression analysis.

The following multiple regression model was used in this study; -

$$Y = \beta_0 + \beta_1 * X_1 + \beta_2 * X_2 + \beta_3 * X_3 + \beta_4 * X_4 + e$$

Where: Y = Performance of Managed Equipment Service projects

X1 = Project Planning

X2 = Stakeholder Management

X3 = Project Funding

X4 = Project Monitoring e

= Error term

β_0 = Represents the constant

$\beta = 1, 2, 3$ are regression coefficients

3.11 Diagnostic Tests

3.11.1 Test for Autocorrelation

The Durbin-Watson statistic was used to determine the relationship between residuals in regression analysis in order to assess the autocorrelation of residuals.

3.11.2 Heteroscedasticity

The Breusch-Pagan test, which examines how the residual variance depends on independent factors, was used to test for heteroscedasticity.

3.11.3 Multi-collinearity

To determine the degree of correlation between each predictor variable and the multicollinearity issue, the Variance Inflation Factor (VIF) test was employed. More than ten points on the VIF indicates high multicollinearity, which might cause issues for the regression model.

3.12 Ethical Issues

When gathering information from the participants, the researcher gave those surveyed the assurance that the information would only be utilized for scholarly purposes. When required, the respondent's informed permission was acquired to protect their privacy. Respondents freely chose to participate in the study, and this was done to shield them from social, psychological, and physical abuse. Since their identify was concealed from the researcher, they complied with the anonymity principle. The information that research participants submitted was kept private. To get information from the subjects, the researcher didn't use any dishonest tactics or lures. The responders were handled with respect and honesty by the researcher.



Mount Kenya University

CHAPTER FOUR RESEARCH FINDINGS, ANALYSIS AND PRESENTATION

4.1 Introduction

Using tables to graphically represent the findings, this chapter offered a thorough investigation of the relationship between managed equipment services projects in Kenya and project management approaches. The study's goals were described, and the survey's validity was assessed by reviewing the demographic data and response rate. The chapter included temporal conclusions with a thorough explanation and interpretation of the data collected, as well as descriptive and inferential analyses, such as correlation and multiple regression analysis results.

4.2 Reliability Test

The degree to which a research tool yields consistent and reliable results is known as reliability. Using Cronbach's Alpha, the study instrument's dependability was evaluated. A criterion of 0.7 or higher is established by Saunders et al. (2015) as a standard for assessing a scale's dependability.

Table 3: Reliability Test

	No. of Items	Cronbach Alpha
		Coefficient
Project Planning	5	.852
Stakeholder engagement	5	.871
Project Funding	5	.801
Project Monitoring	5	.822
Government Policies	5	.761
Performance of MES Project	6	.798

The reliability results from the study showed that all sections of the questionnaire had good to excellent consistency. Each section scored a Cronbach Alpha value above 0.7, which means that the questions used were reliable for measuring what they were supposed to. For example, stakeholder engagement had the highest score at 0.871, showing very strong reliability, while project planning and project monitoring also had strong scores of 0.852 and 0.822, respectively. Even the lowest score, for government policies, was still acceptable at 0.761. Overall, the results

confirm that the questionnaire was dependable for the study. These findings align with recent research by Nunnally and Bernstein (2023), which emphasizes the importance of achieving high reliability in survey instruments to ensure accurate and consistent results. High Cronbach Alpha values in this study affirm the reliability of the measures used, supporting the validity of the study's outcomes.

4.3 Response Rate

One hundred surveys were given out by the researcher to the medical staff at Kakamega Referral Hospital. 13% were not returned, whilst 87 were filled out and sent back, indicating an 87% response rate. This high response rate indicates strong engagement from the participants, which provided reliable data for analyzing the performance of MES projects. The few unreturned questionnaires likely had minimal impact on the overall findings.

Table 4: Response rate

	Frequency	Percentage
Completed and returned	87	87
Not returned	13	13
Total	100	100

4.4 Demographic Attributes of Respondents

This section lists the participants' gender, age, and greatest level of education, among other characteristics. Understanding the characteristics of the respondents who participated in the survey is crucial. For example, their educational background aids in determining whether the responses are more trustworthy.

4.4.1 Percentage Response by Gender

This table highlights the numbers of the different genders that took part in the study.

Table 5: Distribution by Gender

Gender	Frequency	Percentage (%)
Female	34	39%
Male	53	61%
Total	87	100.0%

The gender distribution of participants in the study shows a clear imbalance, with a higher number of male respondents compared to female respondents. Out of the 87 participants who took part in the study, 53 were male, representing 61% of the total, while 34 were female, making up 39%. This indicates a male dominance in the roles related to Managed Equipment Service (MES) projects. The participants, who included key stakeholders such as members from the Ministry of Health Implementation Committee, project managers, field medical engineers, and MES equipment operators, reflected this gender disparity in the positions they hold within these projects. This could suggest a gender gap in leadership and technical roles in MES-related healthcare services in Kakamega County.

4.4.2 Age Distribution

A broad age range was covered by the survey, ranging from 25 to 60 years of age. A well-rounded perspective of viewpoints from various life stages is ensured by this portrayal of ages. The distribution of replies by age group is shown in Table 6.

Table 6: Respondents by Age

Age	Frequency	Percent %
25-35	14	16%
36-45	23	26%
46-55	36	41%
56-59	11	12%
Above 60	3	3%

The age distribution of respondents in the survey reveals a diverse range of participants, offering a broad perspective from various life stages. The largest age group was between 46-55 years, making up 41% of the respondents, followed by the 36-45 age group at 26%. The younger age group (25-35) accounted for 16%, while those nearing retirement age (56-59) represented 12%. Only 3% of the respondents were over 60 years. This variety ensures a balanced representation of viewpoints, with a strong presence of middle-aged professionals who may have significant experience in Managed Equipment Service (MES) projects. The smaller percentage of younger and older participants might indicate fewer individuals in these age groups are involved in key MES roles. Overall, the distribution suggests a mature workforce driving the MES projects.

The range in age also supports a mix of generational insights, combining both seasoned professionals and newer entrants, which could offer varied perspectives on project performance and challenges.

4.4.3 Highest Level of Education

The survey participants' varied levels of formal education are reflected in this section's exploration of their educational backgrounds. Knowing the greatest degree of education attained gives information about the credentials and experience of participants.

Table 7: Respondents as per academic qualifications

Category	Frequency	Percent %
Certificate	6	7%
Diploma	27	31%
Degree	38	43%
Masters	12	14%
PhD	4	5%
Total	87	100%

The educational background of the survey respondents shows a broad range of qualifications, reflecting a well-educated group. The majority, 43%, hold a degree, which indicates that many participants have a solid academic foundation. Diplomas follow closely, with 31% of respondents having achieved this level, showing a significant portion with practical, technical skills. Master's degree holders account for 14%, representing those with advanced expertise. Only 7% of the respondents have a certificate as their highest qualification, while a small but notable 5% hold a PhD, highlighting the presence of highly specialized professionals. Overall, the distribution suggests that the participants in the study are well-qualified, which could enhance the quality and depth of insights regarding the performance of Managed Equipment Service (MES) projects.

4.5 Performance of MES project at Kakamega County Referral Hospital

This section examines the responses on a 5-point Likert scale; - 1 strongly disagree, 2 disagree, 3 Neutral, 4 Agree and 5 strongly agree regarding the performance of Managed Equipment Service project at Kakamega County Referral Hospital. The percentages were rounded off to the nearest whole numbers. The results reflect respondents' opinions on various aspects of performance of MES projects. Table 8 provides a detailed summary of these responses.

Table 8: Responses on performance of MES project at Kakamega County Referral Hospital

STATEMENTS	1 %	2 %	3 %	4 %	5 %	Mean	SD
The Managed Equipment Service Project adhere to the planned timelines	10	12	16	40	22	3.99	0.704
The Managed Equipment Service projects adhere to the specified requirements and standards.	4	8	14	46	28	4.38	0.591
The Managed Equipment Service project was completed within the allocated budget.	28	42	18	7	5	2.36	0.913

Stakeholders (e.g, hospital staff, management, vendors) are satisfied with the overall management of the Managed Equipment Service project.	12	18	13	39	18	3.62	0.724
The Managed Equipment Service project result in improvement in patient outcomes (e.g. treatment quality, patient satisfaction).	4	7	10	49	30	4.61	0.538
The Managed Equipment Service project is sustainable	21	33	11	21	14	3.23	0.788
Composite mean and composite SD						3.70	0.710
N=87							

The performance of the Managed Equipment Service (MES) project at Kakamega County Referral Hospital received a range of feedback from respondents, reflecting different aspects of its effectiveness. With a mean of 3.99, many participants expressed satisfaction with the project's adherence to scheduled timetables, indicating that they typically think it did not deviate from them. With a higher mean of 4.38, respondents were also satisfied with how well the project fulfilled its standards and requirements. This implies that the project successfully adhered to the relevant standards and directives.

But not all of the comments were favorable. The project's low mean score of 2.36, which indicates severe discontent among stakeholders about financial management, indicates that it struggled to keep within its assigned budget. With an exceptional mean score of 4.61, there was a strong sense that the project had a good impact on patient outcomes, even though many stakeholders were only moderately satisfied with its overall management (mean = 3.62). This demonstrates how the project improved patient happiness and care quality, according to respondents.

Despite these successes, concerns remained about the sustainability of the MES project, with a mean score of 3.23 suggesting that not everyone felt confident about its long-term viability.

Overall, the composite mean score of 3.70 indicates a generally positive view of the project's performance, but the mixed results show there are areas that need attention, especially regarding budget management and sustainability for the future.

4.6 Project planning and Performance of MES project at Kakamega County Referral Hospital

The project planning descriptive data and their impact on the Kakamega County Referral Hospital's managed equipment service project performance are shown in this part. On a 5-point Likert scale.

Table 9: Responses on Project planning and Performance of MES project

STATEMENTS	1 %	2 %	3 %	4 %	5 %	Mean	SD
The projected timeline reflects the duration of the Managed Equipment Service project.	20	36	19	15	10	2.91	0.971
Resources (e.g., funding, Equipment, personnel) are adequately allocated for the Managed Equipment Service project.	29	41	12	11	7	2.28	0.986
Potential risks associated with the Managed Equipment Service project were identified and documented during the planning phase.	6	12	8	43	31	4.31	0.613
The scope of the Managed Equipment Service project is defined and understood by all stakeholders.	7	11	10	4	28	4.24	0.624
Stakeholders (e.g., hospital	30	44	10	11	5	2.11	0.998

Staff, management, service providers) participated in the planning phase.

Composite mean and composite SD

3.17 0.838

The results from the table above on planning on the performance of managed equipment service project at Kakamega County referral hospital revealed indicated mixed feelings on whether projected timeline accurately reflected the duration of the project, responses resulted in a mean score of 2.91. This suggests that many respondents were uncertain, with a significant portion disagreeing, which raises concerns about the clarity and feasibility of the project timeline. Furthermore, the allocation of resources, including funding, equipment, and personnel, was viewed less favorably, achieving a mean score of 2.28. This indicates that a considerable number of participants felt that resources were not adequately distributed for the MES project, highlighting a critical area that may hinder effective implementation and performance.

On a more positive note, respondents expressed confidence in the identification of potential risks during the planning phase, with a mean score of 4.31. This indicates that most stakeholders believed risks were adequately recognized and documented, which is essential for effective project management. Additionally, the clarity of the project scope was also affirmed, as reflected by a mean score of 4.24, suggesting that most stakeholders understood what the project entailed and its objectives. However, the involvement of stakeholders in the planning phase raised concerns, as evidenced by a mean score of 2.11. This low score indicates that many felt excluded from the planning process, which could negatively impact buy-in and cooperation during project execution. The overall composite mean score of 3.17 suggests a moderately positive view of project planning; however, the mixed feedback highlights the need for improvements, particularly in resource allocation and stakeholder engagement, to enhance the performance of the Managed Equipment Service project moving forward.

These findings agree with a number of recent studies which have emphasized the critical role of project planning in ensuring successful project outcomes. According to Kinyua et al. (2022), effective project planning is one of the key drivers of project success, particularly in the health sector, where resources, timelines, and stakeholder engagement must be carefully coordinated.

Their research found that projects with comprehensive planning, including risk assessment, clear timelines, and proper resource allocation, were more likely to be completed on time and within budget. Similarly, a study by Achieng and Mutuku (2023) on public infrastructure projects in Kenya confirmed that detailed project planning enhances performance by minimizing uncertainties and aligning project objectives with stakeholder expectations. These studies demonstrate how crucial sound planning frameworks are to attaining favorable project outcomes.

4.7 Project Stakeholder Engagement and Performance of MES Project at Kakamega County Referral Hospital

This section examines the impact of project stakeholder engagement on the performance of managed equipment service project at Kakamega County referral hospital. Table 13 highlights the findings.

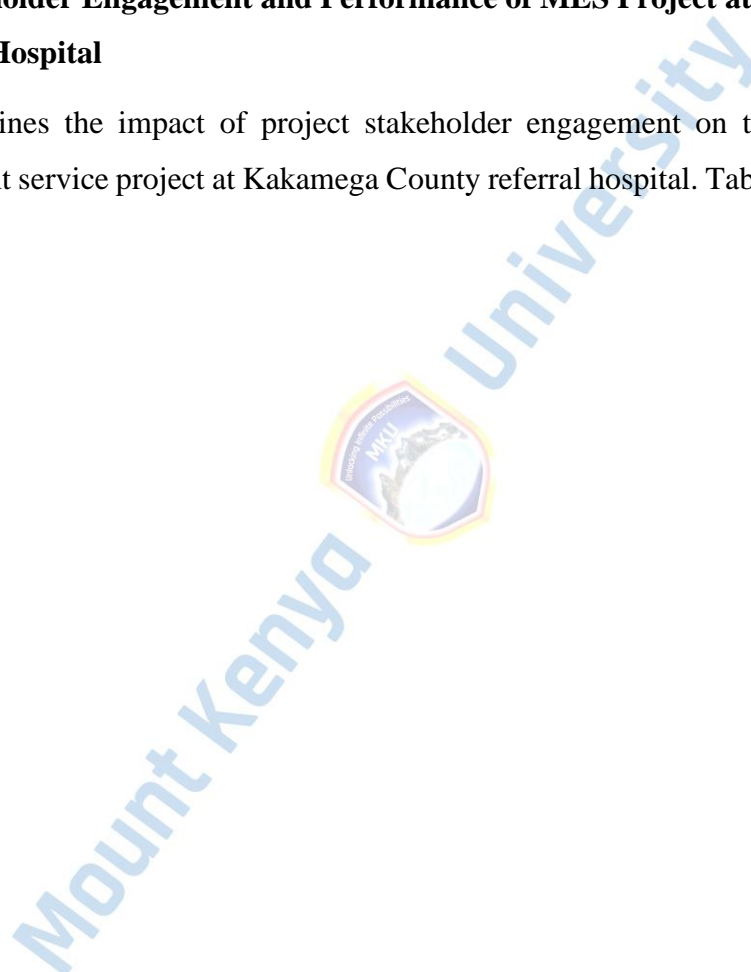


Table 10: Responses for Project Stakeholder Engagement

STATEMENTS	1	2	3	4	5	Mean	SD
	%	%	%	%	%		
Communication between stakeholders regarding the Managed Equipment Service project is effective.	4	9	11	36	40	4.66	0.471
Collaborative efforts among stakeholders contribute positively to the performance of the Managed Equipment Service project.	9	11	12	41	27	4.28	0.616
Stakeholders are involved in the decision-making processes related to the performance Managed Equipment Service project.	29	44	12	10	5	2.07	1.093
Feedback provided by stakeholders is considered and implemented during the Managed Equipment Service project.	27	41	10	13	9	2.04	1.099
Information regarding the Managed Equipment Service project is shared among stakeholders.	10	14	10	39	27	3.98	0.798
Composite mean and composite SD						3.41	0.815

N=87

This section evaluates how the project stakeholder engagement impacts the performance of managed equipment service project at Kakamega County referral hospital. According to Table 10, the highest mean score of 4.66 indicates that the majority of respondents agreed that communication between stakeholders is highly effective, suggesting a strong flow of information among key players. Similarly,

a mean score of 4.28 highlights that collaborative efforts among stakeholders significantly contribute to the success of the MES project, indicating a positive impact from teamwork.

However, the study also reveals areas of concern, particularly regarding decision-making and feedback implementation. With a low mean score of 2.07, many respondents felt that stakeholders were not adequately involved in the decision-making processes related to the project. Similarly, a mean score of 2.04 shows dissatisfaction with how feedback from stakeholders is considered and applied. These findings suggest that while communication and collaboration are strong, the involvement of stakeholders in decision-making and feedback implementation requires improvement. Overall, the composite mean of 3.41 reflects a moderate level of stakeholder engagement, but with clear areas for improvement.

Recent studies reinforce these findings. For instance, Ahmed et al. (2023) found that effective stakeholder communication and engagement significantly enhance project outcomes, particularly in healthcare settings, where stakeholder input can lead to better resource allocation and project alignment with community needs. Similarly, Chinyio and Olomolaiye (2022) demonstrated that collaborative stakeholder involvement not only enhances project delivery but also fosters a sense of ownership and long-term sustainability, which is vital for projects like MES that rely on continued operation and maintenance. These studies align with the current findings, emphasizing that effective stakeholder engagement leads to better project performance, especially when stakeholders are part of the decision-making and feedback processes.

4.8 Project Funding and Performance of MES Project at Kakamega County Referral Hospital

This section examines the impact of project funding on the performance of managed equipment service project at Kakamega County referral hospital.

Table 11: Responses for Project Funding and Performance of MES project

STATEMENTS	1	2	3	4	5	Mean	SD
	%	%	%	%	%		
funding allocated for the Managed Equipment Service project is adequate to meet its objectives.	44	3	14	9	0	1.66	0.901
The sources of funding for the Managed Equipment Service	42	30	16	12	0	1.58	0.916

project is reliable and secure.							
Funding for the Managed Equipment Service project is allocated in a timely manner according to the project's needs	28	45	13	10	4	2.08	1.083
Adequate measures are in place to mitigate financial risks Managed	26%	42	10	13	9	2.02	1.098
						associated with the Equipment Service project.	
The funds allocated for the Managed Equipment Service project is utilized efficiently and effectively.	10	1	12	37	27	3.95	0.789
Composite mean and composite SD						2.26	0.957

N=87

The analysis of project funding for the Managed Equipment Service (MES) project at Kakamega County Referral Hospital reveals significant concerns regarding the adequacy, reliability, and timeliness of funding. The statement about the adequacy of funding received the lowest mean score of 1.66, indicating that most respondents strongly disagreed or disagreed that the funding was sufficient to meet the project's objectives. This suggests a perceived shortfall in the resources necessary for project success.

Similarly, the reliability and security of funding received a low mean of 1.58, with 42% of respondents strongly disagreeing. This highlights doubts about the consistency and dependability of the project's financial backing. The timeliness of fund allocation was also rated poorly, with a mean score of 2.08, suggesting delays in providing necessary financial resources when needed.

On the other hand, respondents showed some agreement about the efficient use of funds, with a mean score of 3.95. This indicates that despite funding challenges, the project team made efforts to utilize the available resources effectively. However, the overall composite mean of 2.26 suggests that funding issues had a generally negative impact on the MES project's performance, reflecting the need for better financial planning and risk mitigation.

This finding agrees with a number of studies. For instance, Ahmed and Zhang (2022), stated that adequate and timely allocation of financial resources significantly influences the quality, efficiency, and timely completion of healthcare projects. Their research in African public hospitals revealed that insufficient funding often leads to delays, reduced quality, and compromised project performance. Similarly, a study by Adebayo and Nwachukwu (2021) showed that unreliable funding sources increase

financial risks, which can negatively affect project outcomes, including the ability to meet healthcare objectives.

Additionally, the importance of financial planning and risk mitigation strategies has been supported by recent findings. Munyoki et al. (2023) highlighted that financial oversight, efficient utilization of funds, and risk mitigation are crucial to ensure project sustainability and performance. Their study on healthcare infrastructure in Kenya concluded that projects with secure and well-monitored funding sources performed better in terms of delivering healthcare services and meeting project objectives.

4.9 Project Monitoring and Performance of MES Project at Kakamega County Referral Hospital

The project monitoring descriptive data for the MES project at Kakamega County Referral Hospital are shown in this section.

Table 12: Responses for Project Monitoring and Performance of MES project

STATEMENTS	1 %	2 %	3 %	4 %	5 %	Mean	SD
	4	10	14	33	39		
Monitoring for the Managed Equipment Service project is conducted at appropriate intervals.						4.48	0.492
Monitoring reports generated for the Managed Equipment Service project are effectively utilized by project stakeholders.	9	12	16	37	26	4.11	0.650
Issues identified during Managed Equipment Service project monitoring are resolved in a timely manner.	27	37	16	13	7	2.17	1.103
Stakeholders involved in Managed Equipment Service project monitoring adhere to established protocols and guidelines	7	11	10	43	29	4.21	0.639
Corrective actions resulting	10	20	10	33	27	3.68	0.898

from monitoring findings for Managed Equipment Service are implemented promptly.

Composite mean and composite SD

3.73 0.756

N=87

This section evaluates how project monitoring affects the performance of managed equipment service project at Kakamega County referral hospital.

The analysis of project monitoring for the Managed Equipment Service (MES) project at Kakamega County Referral Hospital presents several key insights into how monitoring influences project performance. Respondents rated the regularity of monitoring intervals positively, with a mean score of 4.48, suggesting that most stakeholders agreed that the monitoring was conducted at appropriate times. This reflects a strong commitment to ensuring that the project was consistently tracked. Monitoring reports also received favorable feedback, with a mean score of 4.11, indicating that project stakeholders believed the reports were effectively utilized. This suggests that the information generated from monitoring efforts was valuable and acted upon during the course of the project.

However, when it came to resolving issues identified during monitoring, the responses were less encouraging, reflected by a mean score of 2.17. This low score shows that many respondents felt that issues were not addressed promptly, signaling a gap in responsiveness to monitoring findings. Adherence to protocols and guidelines by stakeholders was rated more positively, with a mean score of 4.21, indicating that most stakeholders followed the established processes for project monitoring.

Finally, respondents were moderately satisfied with the implementation of corrective actions based on monitoring results, as shown by a mean score of 3.68. This reflects a reasonable but not exceptional confidence in how effectively corrective measures were carried out. The overall composite mean of 3.73 suggests a generally positive perception of project monitoring, though areas such as timely issue resolution need attention to further enhance project performance.

4.10 Moderating Influence of Government Policies and Regulations on the Performance of MES Project at Kakamega County Referral Hospital

This section presents the descriptive statistics for the moderating influence of government policies and regulations on the performance of managed equipment service project at Kakamega County referral hospital.

Table 13: Moderating Influence of Government Policies on Performance of MES projects

STATEMENTS	1	2	3	4	5	Mean	SD
	%	%	%	%	%		
	8	13	14	30	35		
procurement process is efficient and timely	4.31	0.522					
Healthcare financing policies of Managed Equipment Service projects.	9	12	15	38	26	4.18	0.660
Environmental regulations are the planning of Managed Equipment Service projects.	7	17	16	33	27	3.94	0.803
Standard Operating Procedures (SOPs) regarding Managed Equipment Service Projects are compliant	7%	11	10	43	29	4.21	0.639
Composite mean and composite SD			4.16	0.656			

N=87

Descriptive statistics about the moderating effect of laws and rules on the Managed Equipment Service (MES) project's performance at Kakamega County Referral Hospital are displayed in this table. With a mean score of 4.31, respondents gave the procurement process good marks for timeliness and efficiency, suggesting that a sizable majority thought the processes were efficient and helpful for project success. With a mean score of 4.18, healthcare financing policies also received positive feedback from participants, indicating that they believe these policies help MES projects be implemented successfully. Although there may be space for improvement in their implementation, the average score for integrating environmental rules into project planning was 3.94, indicating a moderate level of consensus on the significance of these requirements. Additionally, with a mean score of 4.21, the Standard Operating Procedures (SOPs) compliance was evaluated favorably, demonstrating a high degree of adherence to set rules among stakeholders. The overall composite mean score of 4.16 indicates a generally favorable opinion of the impact of laws and rules, highlighting their vital role in improving the hospital's MES project performance.

4.11 Inferential Analysis

Inferential analysis, a statistical method for making inferences about a population from a sample of data, was applied in this study. By examining sample data, inferential analysis seeks to draw conclusions or predictions about a broader group. This entails using a variety of statistical methods, including regression analysis and correlation, to evaluate relationships between variables, test hypotheses, and estimate population parameters. Researchers and analysts can make well-informed decisions and offer insights that go beyond the current data by interpreting the findings of inferential analysis.

4.11.1 Test for Autocorrelation

A regression model's residuals can be tested for autocorrelation to see if they defy the premise of independence by becoming correlated with time. Autocorrelation detection is essential since it can compromise the precision of statistical conclusions.

Table 14: Test for Autocorrelation

lags (p)	chi2	Df	Prob > chi2
1	2.331	1	0.261

The test for autocorrelation assessed whether the residuals from the regression model examining the performance of Managed Equipment Service (MES) projects at Kakamega County Referral Hospital were correlated over time, which would indicate a violation of the independence assumption. The results in Table 14 showed a chi-square statistic of 2.331 with one degree of freedom and a probability value of 0.261. Since this probability exceeds the common significance level of 0.05, it indicates no significant autocorrelation exists in the model. Thus, the residuals are likely independent, enhancing the reliability of the conclusions drawn about the performance of MES projects.

4.11.2 Heteroscedasticity test

Heteroscedasticity was identified using the Breusch-Pagan test, which evaluated whether the residuals' variance was constant throughout the model. Since heteroscedasticity can impact the precision of regression estimates and statistical inferences, identifying it is crucial.

Table 15: Heteroscedasticity test

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity		
chi2(1)	=	2.26
Prob > chi2	=	0.3612

The regression model used to analyze the performance of Managed Equipment Service (MES) projects at Kakamega County Referral Hospital was examined for heteroscedasticity using the Breusch-Pagan test. Based on the findings shown in Table 15, the probability value was 0.223 and the chi-square value was 2.26. This probability indicates that there is no substantial heteroscedasticity in the model because it is higher than the 0.05 significance threshold. Therefore, the assumption of constant variance is likely satisfied, enhancing the reliability of the regression results regarding MES project performance.

4.11.3 Multicollinearity

Tolerance tests and the Variance Inflation Factor (VIF) were used to verify the multicollinearity. These tests assess the degree of linearity between a predictor set and the criterion, which may affect the accuracy of the model and the dependability of coefficient estimations.

Table 16: Multicollinearity test

Collinearity Statistics		
Variables	Tolerance	VIF
Performance of MES	0.835	1.612
Project Planning	0.831	1.835
Stakeholder Management	0.794	1.621
Project Funding	0.887	1.542
Project Monitoring	0.821	1.786

The results presented in Table 16 indicate that all predictors had tolerance values above 0.1 and VIF values below 5, which suggests that multicollinearity is not a concern for this model. Specifically, the performance of MES had a tolerance of 0.835 and a VIF of 1.612, while project planning, stakeholder management, project funding, and project monitoring also showed similar results. These findings imply that the predictor variables can be considered sufficiently independent, allowing for reliable estimation of their effects on MES performance.

4.12 Correlation Results

Table 17 presents the correlation analysis results, which play a crucial role in exploring the relationships among key variables affecting performance of MES project at Kakamega County Referral hospital.

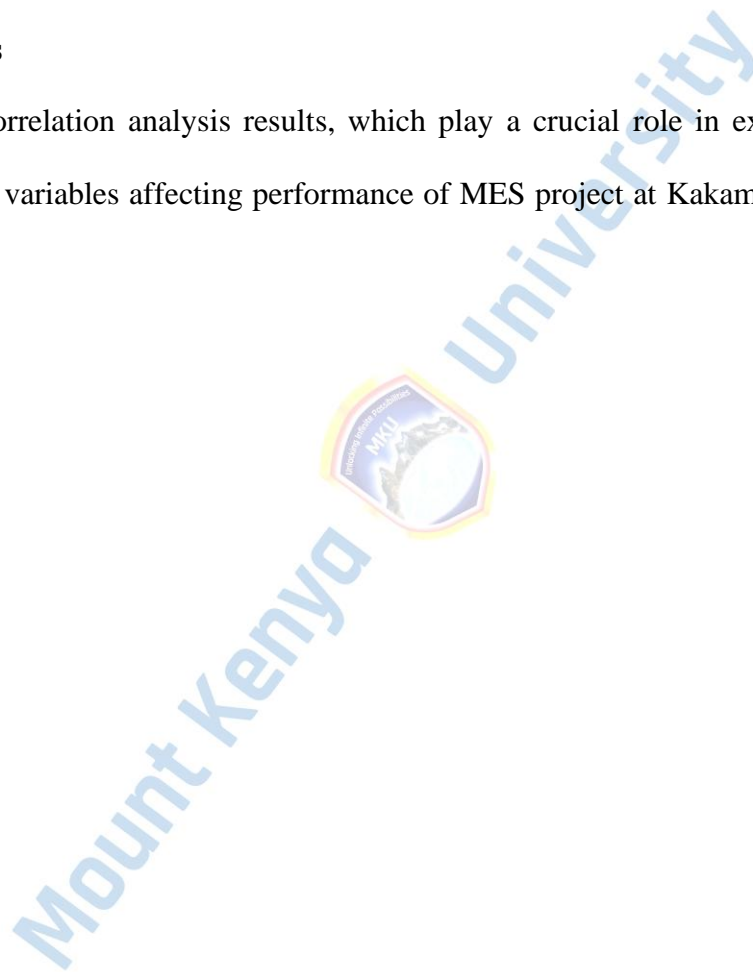


Table 17: Correlation Results

		Project Performance	Project Planning	Stakeholder engagement	Project Funding	Project Monitoring
Project Performance	Pearson Correlation	1				
	Sig. (2-tailed)					
Project Planning	Pearson Correlation	.693**	1			
	Sig. (2-tailed)	.015				
Stakeholder engagement	Pearson Correlation	.712**	.072	1		
	Sig. (2-tailed)	.000	.300			
Project Funding	Pearson Correlation	.677**	.044	.315	1	
	Sig. (2-tailed)	.000	.330	.096		
	Sig. (2-tailed)	.000	.118	.018	.487	1
Project Monitoring	Pearson Correlation	.560**	.072	0.233	.344	.211

*. Correlation is significant at the 0.05 level (2-tailed).
 **. Correlation is significant at the 0.01 level (2-tailed).
 c. Listwise N=87

Source: Author (2024)

Table 17 presents the correlation results for various factors influencing project performance, revealing significant relationships among project performance, planning, stakeholder engagement, funding, and monitoring. The data shows a strong positive correlation between project performance and project planning ($r = 0.693$, $p < 0.01$), indicating that effective planning is crucial for enhancing project outcomes. Similarly, project performance demonstrates a robust association with stakeholder engagement ($r = 0.712$, $p < 0.01$), suggesting that active involvement of stakeholders significantly contributes to successful project execution. Project funding also correlates positively with project performance ($r = 0.677$, $p < 0.01$), highlighting the importance of adequate financial resources for achieving project goals. Moreover, project monitoring has a

moderate correlation with project performance ($r = 0.560$, $p < 0.01$), indicating that ongoing oversight plays a role in improving project results.

4.13 Regression Results

This section explores the regression analysis to assess the relationship between independent variables and dependent variables in the context of Performance of Managed Equipment Service projects.

Table 18: Regression Model

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.643 ^a	.504	.411	.54431

a. Predictors: (Constant), Project planning, stakeholder engagement, project funding, project monitoring

The results of the regression model, which assess the link between the dependent variable the success of Managed Equipment Service (MES) projects and the independent variables—project planning, stakeholder involvement, project finance, and project monitoring—are shown in Table 18. A moderate to strong association between the predictors and project performance is indicated by the R value of 0.643. With a R Square value of 0.504, these independent variables may account for roughly 50.4% of the variance in project performance, indicating a significant degree of predictive power. Despite some unexplained variation, the model appears to be quite effective, as indicated by the Adjusted R Square value of 0.411, which indicates that around 41.1% of the variability in project performance is still explained after taking into account the number of predictors in the model.

This regression analysis highlights the importance of project planning, stakeholder engagement, project funding, and project monitoring as critical factors influencing the performance of MES projects. The findings imply that enhancing these areas could significantly improve project outcomes, making it imperative for stakeholders to prioritize these aspects in their strategic planning and implementation efforts.

Furthermore, the relevance of the independent variables as a measure of the performance of the Managed Equipment Service (MES) project at Kakamega County Referral Hospital was assessed using an ANOVA test.

Table 19: Analysis of Variance

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	95.428	1	95.428	101.421	.000 ^b
	Residual	72.212	86			
	Total	167.640	87	.610		

a. Dependent Variable: Performance of MES

b. Predictors: (Constant), Project planning, stakeholder engagement, project funding, project monitoring

One important statistic that shows the ratio of explained variation to unexplained variance is the Fvalue, which is 101.421. When compared to a model without predictors, a high F-value indicates that the model greatly enhances our capacity to forecast project performance. A statistically significant association between the independent and dependent variables is indicated by a significance value (Sig.) of.000, which means that the likelihood that the observed relationship is the result of chance is extremely low. This bolsters the finding that the performance of MES initiatives is significantly impacted by project planning, stakeholder involvement, project funding, and project monitoring taken together, highlighting the significance of concentrating on these areas to improve project outcomes.

Table 20: Regression Coefficients

Un-standardized Coefficients	Standardized Coefficients	t	Sig.
Model	B	Std. Error	Beta
(Constant)	.634	.081	
Project planning	.623	.088	.411
Stakeholder engagement	.711	.094	.393
Project funding	.641	.806	.376
Project monitoring	.484	.616	.386

a. Dependent variable: Performance of MES Projects

The coefficient of regression model was as below; Y

$$= 0.634 + 0.623X_1 + 0.711X_2 + 0.641X_3 + 0.484X_4$$

Where:

Y = Performance of MES Projects; X1 = Project planning; X2 = Stakeholder engagement; X3 = Project funding X4 = Project monitoring

The regression coefficients presented indicate the influence of various independent variables—project planning, stakeholder engagement, project funding, and project monitoring—on the performance of Managed Equipment Service (MES) projects. The constant term ($B = 0.634$) suggests that when all independent variables are at zero, the baseline performance of MES projects is 0.634. Each of the unstandardized coefficients represents the change in the performance of MES projects for a one-unit increase in the respective predictor, holding all other predictors constant. For example, the coefficient for project planning is 0.623, indicating that for every unit increase in project planning, the performance of MES projects is expected to increase by 0.623 units. Similarly, stakeholder engagement has a coefficient of 0.711, signifying a significant positive impact on project performance, with a significance level (Sig.) of 0.001, demonstrating a strong relationship between stakeholder engagement and project success.

Project funding also shows a positive coefficient of 0.641, suggesting that effective funding is crucial for enhancing the performance of MES projects, with a significance level of 0.000. Project monitoring, with a coefficient of 0.484, further underscores its importance in improving project performance, evidenced by its significance level of 0.000 as well.

CHAPTER FIVE

SUMMARY OF THE FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter summarizes the study's findings, conclusions made and the research recommendations based on the study findings.

5.2 Summary of Findings

With a particular focus on Kakamega County Referral Hospital, the study sought to examine project management practices and the performance of managed equipment service projects in Kenya. In order to accomplish this, the study established five distinct goals: first, to evaluate how project planning affects Managed Equipment Service project performance; second, to determine the impact of project stakeholder management; third, to ascertain the impact of project funding; fourth, to assess the contribution of project monitoring to performance; and fifth, to investigate the moderating role of government policies and regulations on project performance. These goals are intended to give a thorough grasp of the elements that either improve or impair Managed Equipment Service initiatives' efficacy in the healthcare industry.

5.2.1 Performance of MES Project at Kakamega County Referral Hospital

The performance of the Managed Equipment Service (MES) project at Kakamega County Referral Hospital received varied feedback. Many respondents felt positive about the project's adherence to timelines, scoring a mean of 3.99, and its ability to meet specified requirements, which had a mean score of 4.38. However, budget management was a significant concern, with a low mean score of 2.36 reflecting dissatisfaction. Stakeholders were somewhat satisfied with overall management, scoring 3.62, while they strongly believed in its positive impact on patient outcomes, evidenced by a mean score of 4.61. With a mean rating of 3.23, sustainability concerns were identified. Although it shows areas that want work, the overall composite mean of 3.70 suggests a generally favorable outlook.

5.2.2 Project Planning and Performance of MES project at Kakamega County Referral Hospital

This section evaluated the impact of project planning on the performance of the Managed Equipment Service (MES) project. Most respondents had mixed feelings regarding the accuracy of the projected timeline, with a mean score of 2.91. Resource allocation was viewed even less favorably, achieving a mean of 2.28, suggesting inadequate distribution of funds, equipment, and personnel. However, stakeholders felt confident about identifying potential risks

during planning, scoring a mean of 4.31, and they also understood the project scope, which had a mean of 4.24. Concerns arose over stakeholder involvement, reflected by a low mean score of 2.11. The overall composite mean of 3.17 indicates a moderately positive view of project planning, yet highlights the need for improvements in resource allocation and stakeholder engagement to enhance performance. Pearson's correlation analysis revealed a strong positive relationship ($r = 0.693$, $p = 0.000$) between project planning and performance of MES projects at Kakamega County Referral Hospital.

5.2.3 Project Stakeholder Engagement and Performance of MES project at Kakamega County Referral Hospital

This section assessed the impact of project stakeholder engagement on the performance of the Managed Equipment Service (MES) project at Kakamega County Referral Hospital. High mean scores indicated effective communication (4.66) and positive collaborative efforts (4.28), while decision-making (2.07) and feedback implementation (2.04) revealed significant areas for improvement. Correlation analysis showed a strong positive relationship ($r = 0.712$) between stakeholder engagement and project performance, confirmed by statistical significance ($p < 0.001$).

5.2.4 Influence of Project Funding and Performance of MES project at Kakamega County Referral Hospital

This section evaluated the impact of project funding on the performance of the Managed Equipment Service (MES) project at Kakamega County Referral Hospital. Survey results indicated significant concerns regarding funding adequacy (mean score of 1.66), reliability (1.58), and timeliness (2.08). Despite these issues, respondents acknowledged efficient fund utilization (mean score of 3.95), suggesting efforts to manage limited resources effectively. Correlation analysis revealed a strong positive relationship ($r = 0.677$, $p < 0.001$) between project funding and performance.

5.2.5 Project Monitoring and Performance of MES Project at Kakamega County Referral Hospital

The analysis of project monitoring for the Managed Equipment Service (MES) project at Kakamega County Referral Hospital revealed key insights into its impact on performance. Stakeholders positively rated the regularity of monitoring intervals (mean = 4.48) and the effective utilization of monitoring reports (mean = 4.11). However, the resolution of issues identified during monitoring received a low score (mean = 2.17), indicating a need for improved responsiveness. Adherence to established protocols was rated positively (mean = 4.21), while the implementation of corrective actions received moderate satisfaction (mean = 3.68). Correlation

analysis showed a significant positive relationship ($r = 0.560$) between project monitoring and performance.

5.2.6 Moderating Influence of Government Policies and Regulations on the Performance of MES Project

In this section, respondents rated the efficiency and timeliness of the procurement process highly, with a mean score of 4.31, indicating effective procedures. Healthcare financing policies also received a favorable mean score of 4.18, reflecting support for MES project implementation. Environmental regulations integrated into project planning garnered a moderate score of 3.94, suggesting potential for improvement. Compliance with Standard Operating Procedures (SOPs) was positively rated (mean = 4.21), showing adherence among stakeholders. The overall composite mean of 4.16 highlighted a generally positive perception of government influence, underscoring its critical role in enhancing MES project performance.

5.3 CONCLUSION

In conclusion, the findings revealed that while project planning, stakeholder engagement, and government regulations showed positive impacts, significant challenges in funding and resource allocation persist. Respondents expressed satisfaction with adherence to timelines and requirements, yet budget management emerged as a critical concern. Additionally, effective stakeholder communication and collaboration were recognized as essential for enhancing project outcomes. Overall, this study underscores the need for improved financial planning and stakeholder involvement to ensure the sustainability and success of MES projects, ultimately benefiting healthcare delivery in the region. Enhanced responsiveness to monitoring feedback is also crucial for addressing identified issues effectively.

5.4 Recommendations

Based on the findings, the study recommends that The Kakamega County Referral Hospital management should allocate resources more effectively and ensure accurate timelines to improve Managed Equipment Service project outcomes.

The study also recommends that The Ministry of Health should strengthen stakeholders' participation in Managed Equipment Service project by fostering better communication and involve stakeholders in decision-making to boost collaboration and feedback implementation.

The study further recommends that The County Treasury should secure adequate and timely funding to address budget concerns and enhance the financial management of Managed Equipment Service project.

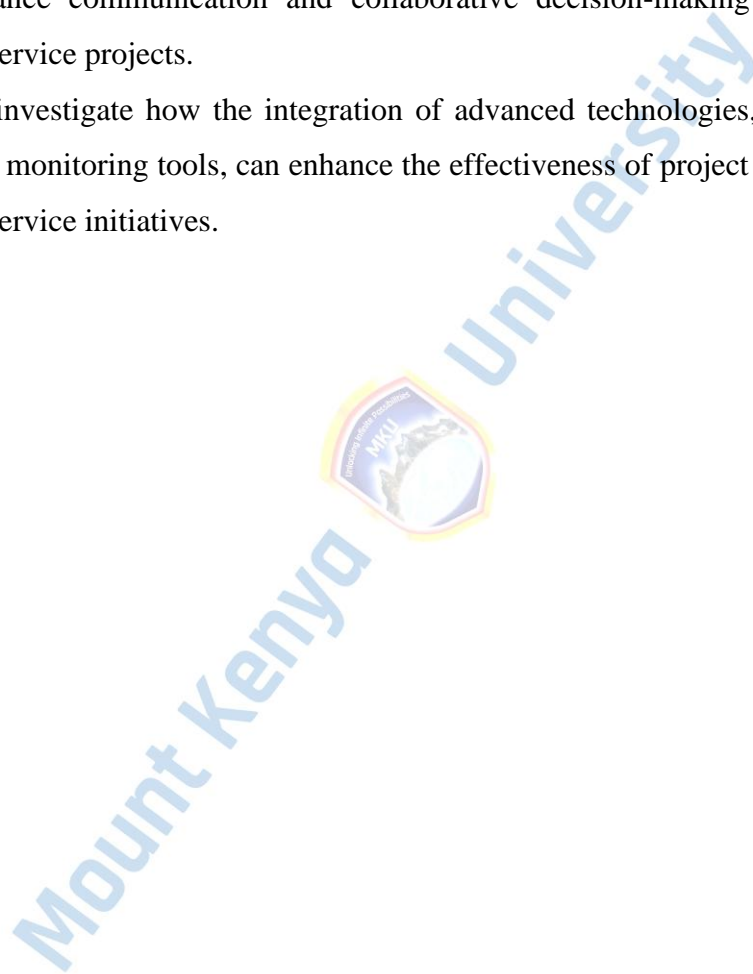
The hospital's project management team should establish a clear process for addressing issues identified during monitoring to ensure timely corrective actions are taken.

To enhance compliance and sustainability efforts for the MES projects, the study recommends that The National Environmental Management Authority should increase the focus on integrating environmental regulations into project planning.

5.5 Recommendations for Further Research

Future research should examine how targeted training programs for healthcare professionals and stakeholders can enhance communication and collaborative decision-making processes in Managed Equipment Service projects.

Research should also investigate how the integration of advanced technologies, such as data analytics and real-time monitoring tools, can enhance the effectiveness of project monitoring in Managed Equipment Service initiatives.



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APPENDIX I: RESEARCH TOOLS

This is a research questionnaire on **Project Management Practices and Performance of Managed Equipment Service Projects in Kenya: A Case of Kakamega County Referral Hospital** prepared by Fanuel Mahero, a student pursuing Master of Science in Project Planning and Management at Mount Kenya University. The information collected from you is for research project as part of the academic requirements only and will be completely anonymous and therefore the information collected will be treated with utmost confidentiality. The researcher would be very grateful if you could honestly answer the following questions to provide him with the required information.

Contact: +254 724 81 62 40

Email: fanblest2012@gmail.com

Date

SECTION A: Background information

Gender

Male Female Others

Age

Below 24 25-35 36-45 46-55 56-59 Above 60

Level of education

No education Primary Secondary Certificate Diploma Undergraduate

Masters PHD

SECTION B: Performance of Managed Equipment Service Project

Thank you for taking your time to participate in this study. Please indicate your level of agreement with the following statements on a scale of 1 to 5.

Scale: Strongly Disagree represented by 1: Disagree represented by 2: Neutral represented by 3: Agree represented by 4: Strongly Agree represented by 5.

Statement	1	2	3	4	5
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(a)	The Managed Equipment Service Project adhere to the planned timelines					
(b)	The Managed Equipment Service project adhere to the specified requirements and standards.					
(c)	The Managed Equipment Service project was completed within the allocated budget.					
(d)	Stakeholders (e.g., hospital staff, management, vendors) are satisfied with the overall management of the Managed Equipment Service project.					
(e)	The Managed Equipment Service project result in improvement in patient outcomes (e.g. treatment quality, patient satisfaction).					
(f)	The Managed Equipment Service project is sustainable					

SECTION C: Project Planning

Thank you for participating in this study. Your responses will provide valuable insights into the planning aspects for the Performance of Managed Equipment Service (MES) projects. Please indicate your level of agreement with the following statements on a scale of 1 to 5.

	Statement	5	4	3	2	1
(a)	The projected timeline reflects the duration of the Managed Equipment Service project.					
(b)	Resources (e.g., funding, equipment, personnel) are adequately allocated for the Managed Equipment Service project.					
(c)	Potential risks associated with the Managed Equipment Service project were identified and documented during the planning phase.					
(e)	The scope of the Managed Equipment Service project is defined and understood by all stakeholders					
(f)	Stakeholders (e.g., hospital staff, management, service providers) were involved in the planning phase of the Managed Equipment Service Project.					

SECTION D: Stakeholder Engagement

Thank you for your valuable participation in this study. Your responses will help us understand the stakeholder engagement dynamics in Performance of Managed Equipment Services (MES) projects. Please indicate your level of agreement with the following statements on a scale of 1 to 5

	Statement	5	4	3	2	1
(a)	Communication between stakeholders regarding the Managed Equipment Service project is effective.					
(b)	Collaborative efforts among stakeholders contributes positively to the performance of the Managed Equipment Service project.					

(c)	Stakeholders are involved in the decision-making processes related to the performance Managed Equipment Service project.					
(d)	Feedback provided by stakeholders is considered and implemented during the Managed Equipment Service project.					
(e)	Information regarding the Managed Equipment Service project is shared among stakeholders.					

SECTION E: Project Funding

Thank you for your participation in this study. Your responses will contribute to our understanding of the funding aspects of Managed Equipment Services (MES) project. Please indicate your level of agreement with the following statements on a scale of 1 to 5

	Statement	5	4	3	2	1
(a)	The funding allocated for the Managed Equipment Service project is adequate to meet its objectives.					
(b)	The sources of funding for the Managed Equipment Service project is reliable and secure.					
(c)	Funding for the Managed Equipment Service project is allocated in a timely manner according to the project's needs.					
(d)	Adequate measures are in place to mitigate financial risks associated with the Managed Equipment Service project.					
(e)	The funds allocated for the Managed Equipment Service project is utilized efficiently and effectively.					

SECTION F: Project Monitoring

Thanks for taking the time to participate in this study. Your responses will help us understand the monitoring aspects of Managed Equipment Services (MES) projects. Please indicate your level of agreement with the following statements on a scale of 1 to 5

	Statement	5	4	3	2	1
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(a)	Monitoring for the Managed Equipment Service project is conducted at appropriate intervals.					
(b).	Monitoring reports generated for the Managed Equipment Service project is effectively utilized by project stakeholders.					
(c)	Issues identified during Managed Equipment Service project monitoring are resolved in a timely manner.					
(d)	Stakeholders involved in Managed Equipment Service project monitoring adhere to established protocols and guidelines.					
(e)	Corrective actions resulting from monitoring findings for Managed Equipment Service are implemented promptly.					

SECTION G: Government Policies and Regulations

Thank you for taking your time to participate in this study. Your responses will help us understand the Government policies and regulation aspect on Performance of Managed Equipment Services (MES) project. Please indicate your level of agreement with the following statements on a scale of 1 to 5

	Statement	5	4	3	2	1
(a)	The procurement process is efficient and timely					
(b)	Healthcare financing policies are supportive of Managed Equipment Service projects.					
(c)	Environmental regulations are integrated into the planning of Managed Equipment Service projects.					
(e)	Standard Operating Procedures (SOPs) regarding Managed Equipment Service Projects are compliant.					

Thank you for your Participation

APPENDIX II: ETHICS REVIEW COMMITTEE CERTIFICATE



Mount Kenya University

REF: MKU/ISERC/4153 Date: 10 August 2024
TO: FANUEL ASEKA MAHERO REG: MSCPM/2023/39962

Dear Sir/Madam,

RE: PROJECT MANAGEMENT PRACTICES AND PERFORMANCE OF MANAGED EQUIPMENT SERVICE PROJECTS IN KENYA: A CASE OF KAKAMEGA COUNTY REFERRAL HOSPITAL

This is to inform you that **Mount Kenya University** has reviewed and approved your above research proposal. Your application approval number is **2989**. The approval period is **10/08/2024 - 09/08/2025**.

This approval is subject to compliance with the following requirements;

- i. Only approved documents including informed consents, study instruments, MIA will be used
- ii. All changes including amendments, deviations and violations are submitted for review and approval by **Mount Kenya University**
- iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to **Mount Kenya University** within 72 hours of notification
- iv. Any changes, anticipated or otherwise that may increase the risks or affect the safety or welfare of study participants and others or affect the integrity of the research must be reported to **Mount Kenya University** within 72 hours
- v. Clearance for export of biological specimens must be obtained from relevant institutions
- vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal
- vii. Submission of an executive summary report within 90 days upon completion of the study to **Mount Kenya University**

Prior to commencing your study, you will be expected to obtain a research license from National Commission for Science, Technology and Innovation (NACOSTI) <https://research-portal.nacosti.go.ke> and also obtain other clearances needed.

Yours sincerely,

Dr. Alfred Owino, PhD
Chairman, Mount Kenya University ISERC

MOUNT KENYA UNIVERSITY
ETHICS REVIEW COMMITTEE
P. O. Box 342 - 01000,
THIKA

Main Campus, General Kago Road, P.O. Box 342-01000 Thika,
Cell: +254 709 153 000 | +254 709 153 200
Email: info@mku.ac.ke Web: www.mku.ac.ke

APPENDIX III: UNIVERSITY INTRODUCTION LETTER

DIRECTORATE OF GRADUATE STUDIES

MSCPM/2023/39962

14th August, 2024

National Commission for Science Technology & Innovation (NACOSTI)
Off/ Waiyaki Way, Upper Kabete,
P.O Box 30623- 00100
NAIROBI, KENYA

Dear Sir/ Madam,


RE: FANUEL ASEKA MAHERO- REGISTRATION NO. MSCPM/2023/39962

The purpose of this letter is to introduce the above named student who is pursuing **Master of Science in Project Management** in the **Department of Management** in the school of **Business and Economics**.

The title of the research is "**Project Management Practices and Performance of Managed Equipment Service Projects in Kenya: A Case of Kakamega County Referral Hospital.**" It has been cleared by the University's Ethics Review Committee (Certificate attached) and now has to proceed to the field to collect data between **August, 2024 and October, 2024**.

Any assistance accorded to the student will be highly appreciated.

Thank you.


Dr. Samuel M. Kamenge, Ph.D
Director, Graduate Studies
Enc.

Mount Kenya University
P.O. Box 342 - 01000, THIKA
Office of the Director
Graduate Studies



REPUBLIC OF KENYA

Ref No: 666540



NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

Date of Issue: 22/August/2024

RESEARCH LICENSE



This is to Certify that Mr., FANUEL MAHERO ASEKA of Mount Kenya University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Kakamega on the topic: PROJECT MANAGEMENT PRACTICES AND PERFORMANCE OF MANAGED EQUIPMENT SERVICE PROJECTS IN KENYA: A CASE OF KAKAMEGA COUNTY REFERRAL HOSPITAL for the period ending : 22/August/2025.

License No: NACOSTI/P/24/39367

666540

Applicant Identification Number

Walter M...

Director General NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION

Verification QR Code



NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

See overleaf for conditions

APPENDIX V: AUTHORIZATION FOR DATA COLLECTION

REPUBLIC OF KENYA

E-mail: wpg15@yahoo.com
Telephone: Kakamega 0702930346
When replying, please quote:

REF: CGH/KAK/ERC/VOL.1/280



COUNTY GENERAL HOSPITAL
P.O. Box 15-G.P. O-50100
KAKAMEGA

DATE: 28th August, 2024

COUNTY GOVERNMENT OF KAKAMEGA
MINISTRY OF HEALTH SERVICES

MR. FANUEL MAHERO ASEKA,
REF: NACOSTI/P/24/3.9367.

RE: AUTHORIZATION FOR DATA COLLECTION – NO. ERC/266/08/2024

This is to inform you that Kakamega County General Hospital Ethics Review Committee (KCGH ERC) acting on behalf of the Kakamega County Department of Health has reviewed and authorized your data collection for the protocol titled: ***“PROJECT MANAGEMENT PRACTICES AND PERFORMANCE OF MANAGED EQUIPMENT SERVICE PROJECTS IN KENYA: A CASE OF KAKAMEGA COUNTY REFERRAL HOSPITAL.”*** The approval period shall expire on **22/August/2025**.

This authorization is subject to compliance with the following requirements:

- i. Only approved documents including informed consent, study instruments, will be used.
- ii. All changes including amendments, deviations and violations are submitted for review and approval by the **KCGH ERC**.
- iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to **KCGH ERC** within 24 hours of notification.
- iv. Any changes, anticipated or otherwise that may increase the risks or affected safety of welfare of the study participants and others or affect the integrity of the research must be reported to **KCGH ERC** within 24 hours.
- v. Clearance for export of biological specimens must be obtained from relevant institutions.
- vi. Submission of a request for renewal of approval at least 60 days prior to expiry of the approval period. Attach a comprehensive progress report to support the renewal.
- vii. Submission of an executive summary report within 90 days upon completion of the study to **KCGH ERC**.
- viii. Submission of quarterly progress report to the **KCGH ERC** and dissemination of preliminary findings at the end of the study is expected from the researcher

This authorization should be attached to your research license from National Commission for Science, Technology and Innovation (NACOSTI) and also other necessary clearances. Preliminary dissemination of your study findings to **KCGH ERC** is mandatory prior to publications



DR. AJEVI AUSTINE
CHAIRMAN, ETHICS AND RESEARCH COMMITTEE
CGH – KAKAMEGA

Copy to: Director, Health Services

APPENDIX VI: CONSENT LETTER

Fanuel Aseka Mahero

MSCPM/2023/39962

Dear Sir / Madam

RE: ACADEMIC RESEARCH PROJECT

I am a student studying Master of Science in Project Planning and Management at the Mount Kenya University. I would like to conduct a study on Project Management Practices and Performance of Managed Equipment Service Project in Kenya, a case of Kakamega County Referral Hospital.

I'm writing to request your consent to gather data regarding the aforementioned research topic. I promise to follow ethical confidentiality guidelines and to disclose the study's findings and reports after they are completed.

Your assistance will be highly appreciated.

Yours faithfully,

Fanuel Aseka Mahero

APPENDIX VII: CONSENT FORM MOUNT KENYA UNIVERSITY

Informed Consent (Sample)

My name is **Fanuel Aseka Mahero**, a student from Mount Kenya University pursuing Masters of Science in Project Planning and Management.

Voluntarism

Your participation in this study is entirely voluntary. You have the right to decide whether or not to participate.

Procedures

If you agree to participate, you will be asked to complete a questionnaire that includes questions about your experiences and opinions regarding the research.

Discomforts and Risks

Some of the questions may be of a sensitive nature and could make you feel uncomfortable or embarrassed. You have the right to refuse to answer any question that makes you feel uncomfortable.

Confidentiality

All information collected in this study will be kept confidential.

Participant's statement

I have been given an explanation of the purpose, procedures, risks, and benefits of the study. I have had the opportunity to ask questions and received satisfactory answers. I voluntarily agree to participate in this study.

Name of Participant:

Signature or Thumbprint

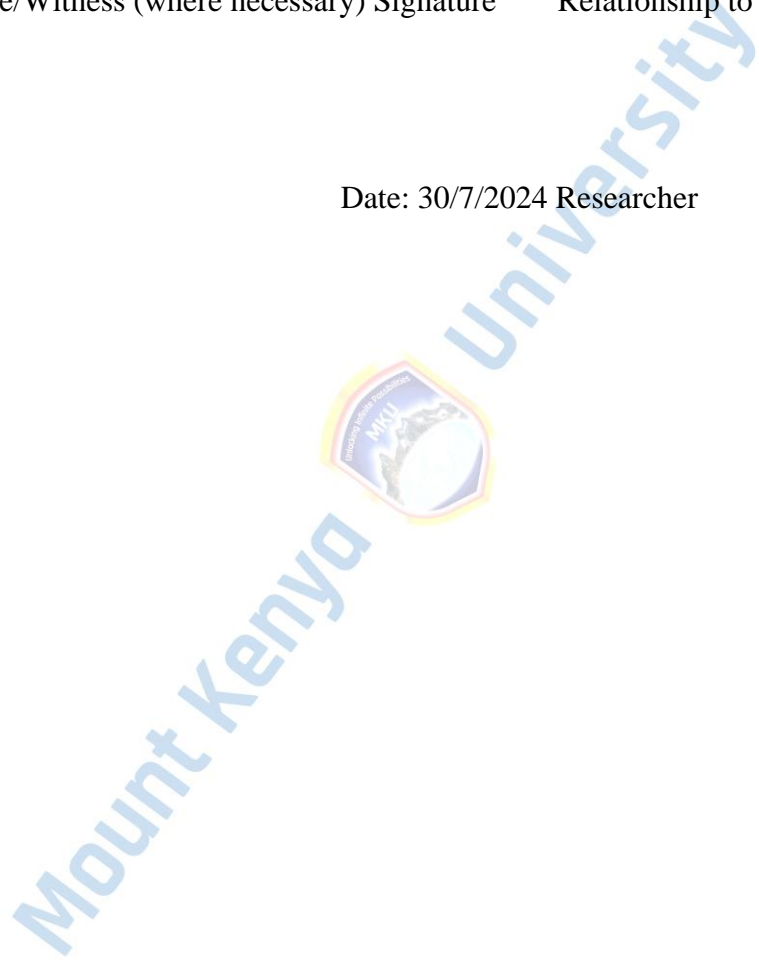
Date:

Name of Representative/Witness (where necessary) Signature or Thumbprint

Relationship to Subject



Date: 30/7/2024 Researcher



APPENDIX VIII: SIMILARITY REPORT

FANUEL ASEKA MAHERO
THESIS.docx
by Turnitin LLC

Submission date: 05-Nov-2024 12:35AM (UTC-0800)
Submission ID: 2509116816
File name: FANUEL_ASEKA_MAHERO_THESIS.docx (1.25M)
Word count: 21576
Character count: 131132

SIMILARITY REPORT

FANUEL ASEKA MAHERO THESIS.docx

ORIGINALITY REPORT

19%

SIMILARITY INDEX

17%

INTERNET SOURCES

6%

PUBLICATIONS

10%

STUDENT PAPERS

PRIMARY SOURCES

1	Submitted to Mount Kenya University Student Paper	2%
2	erepository.uonbi.ac.ke Internet Source	1%
3	ir-library.ku.ac.ke Internet Source	1%
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7	ir.mu.ac.ke:8080 Internet Source	1%
8	Submitted to KCA University Student Paper	<1%
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