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**Perceived Attributes Influencing Stakeholder Attitudes towards the Adoption of
Artificial Intelligence in Project Management**

**A Dissertation presented in Partial Fulfillment for requirement of the Program
Master of Science in Project Management (MSc PM)**

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DECLARATION

I, Encyla Chisha, hereby declare that this dissertation is my original work and has been conducted in accordance with the academic writing rules, copyright regulations, and research ethics of the University of Lusaka. I affirm that all sources of information, data, and references used in this work have been duly acknowledged and cited appropriately in line with academic integrity standards.

Furthermore, I confirm that this research adheres to the ethical guidelines and policies set forth by the university, ensuring the protection of participants' rights, confidentiality, and integrity. The study was conducted with full compliance with ethical approval processes and with respect for all individuals and organizations involved.

I take full responsibility for any errors or omissions in this dissertation and confirm that it has not been submitted in part or whole to any other institution for any academic award.

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DEDICATION

This dissertation is dedicated to the loving memory of my late father, whose wisdom, hard work, and unwavering belief in me continue to inspire my journey. Your legacy of strength and determination has been my guiding light, and I strive each day to make you proud.

I also dedicate this work to my dear mother, whose endless love, support, and sacrifices have been the cornerstone of my success. Your unwavering encouragement and belief in my abilities have given me the strength to pursue my dreams.

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TABLE OF CONTENTS

CHAPTER ONE	1
1.0 INTRODUCTION	1
1.1 BACKGROUND OF THE STUDY	1
1.2 STATEMENT OF THE PROBLEM	3
1.3 RESEARCH OBJECTIVES	4
1.5 RESEARCH QUESTIONS	4
1.6 SIGNIFICANCE OF THE STUDY	4
1.7 SCOPE OF THE STUDY	5
1.8 DELIMITATIONS	5
1.9 LIMITATIONS	6
1.10 STRUCTURE OF THE DISSERTATION	7
1.11 CONCLUSION	8
CHAPTER TWO	9
2.0 INTRODUCTION	9
2.1 EMPIRICAL REVIEW	9
2.1.1 Artificial intelligence Adoption in Project Management processes	9
2.1.2 Benefits of Artificial intelligence Adoption in Project management	10
2.1.3 Barriers to Artificial Intelligence Adoption in Project Management	11
2.1.4 Strategies to increase the uptake of AI Adoption in project management	12
2.1.5 Attitudes towards Adoption of Artificial Intelligence Technologies	13
2.1.6 Factors Influencing Attitudes towards AI Adoption	14
2.2 THEORETICAL LITERATURE	14
2.2.1 Technology Acceptance Model	14
2.2.2 Unified Theory of acceptance and Use of Technology	15
2.2.3 Diffusion of Innovations Theory (DOI)	17
2.2.4 Gaps in Theoretical Literature	18
2.3 CONCEPTUAL FRAMEWORK	19
2.3.1 Definition of variables	20
2.4 CONCLUSION	21
CHAPTER THREE	22

3.0 INTRODUCTION	22
3.1 RESEARCH APPROACH	22
3.2 RESEARCH DESIGN	23
3.3 STUDY POPULATION	23
3.4 SAMPLE SIZE	24
3.5 SAMPLING TECHNIQUE	25
3.6 DATA COLLECTION INSTRUMENTS	25
3.7 RESEARCH ANALYSIS	26
3.8 ETHICAL CONSIDERATIONS	26
3.9 CONCLUSION	26
CHAPTER FOUR.....	28
4.0 INTRODUCTION	28
4.1 Objective: To assess the availability of AI in healthcare project management.....	28
4.1.1 Urban vs. Rural Disparities	29
4.1.2 Perceived Benefits of AI Adoption	29
4.1.3 Barriers to AI Adoption.....	30
4.2 Objective two: To understand the attitude of project stakeholders towards AI adoption in healthcare project management.....	31
4.2.1 Relative Advantage.....	32
4.2.2 Trialability.....	33
4.2.3 Complexity	35
4.2.4 Observability	36
4.2.5 Compatibility	37
4.3 Objective 3: To assess the availability of AI in healthcare project management.	39
4.3.1 Current Applications of AI in Healthcare Projects	40
4.3.2 AI Readiness and Future Potential.....	40
4.4 CONCLUSION	41
CHAPTER FIVE	42
5.0 INTRODUCTION	42
5.1 Objective 1: To Assess the Availability of AI in Healthcare Project Management.	42
5.2 Objective 2: To Understand the Attitude of Project Stakeholders Towards AI Adoption.	44
5.3 Objective 3: To Assess the Availability of AI in Healthcare Project Management.	49
5.4 CONCLUSION	50

CHAPTER SIX	52
6.1 CONCLUSION	52
6.2 RECOMMENDATIONS	53
6.3 AREAS FOR FUTURE RESEARCH	55
REFERENCES	57

LIST OF TABLES

Table 2.1 Definition of Variables

Table 3.1 List of respondents

Table 4.1 Summary of themes

Table 4.2 Perceived attributes and their influence on stakeholder attitudes

Table 4.3 Summary of themes

Table 5.1 Perceived Attributes influence on attitudes and impact on AI Adoption

LIST ACRONYMS

NLP	Natural Language Processing
RPA	Robotic Process Automation
CIDRZ	Centre for Infectious Disease Research in Zambia
AI	Artificial Intelligence
UNICEF	United Nations International Children's Emergency Fund
DOI	Diffusion of Innovations (Theory)
IDT	Innovation Diffusion Theory
UTAUT	Unified Theory of Acceptance and Use of Technology
TAM	Technology Acceptance Model
BI	Behavioral Intention
PU	Perceived Usefulness
PEOU	Perceived Ease of Use
ATT	Attitude Toward Technology
IT	Information Technology
IS	Information Systems
ICT	Information and Communication Technology
SI	Social Influence
PE	Performance Expectancy
FC	Facilitating Conditions
UB	Use Behavior

LIST OF DEFINITION OF TERMS

Attitudes	Feelings, Beliefs and reactions of an individual towards an event, phenomenon, object or person.
Artificial intelligence	The science and engineering of making intelligent machines that think like humans and perform certain human tasks.
Project Management	The application of knowledge, skills, tools, and techniques to project activities to meet the project requirements.
AI Adoption	Acceptance of AI Technologies.
Theory of Perceived Attributes	An innovation's adoption being contingent upon perceived attributes.

ABSTRACT

The integration of artificial intelligence (AI) in project management is transforming various industries, including healthcare, by enhancing efficiency, optimizing resource allocation, and improving decision-making. While AI adoption is growing globally, its implementation in healthcare project management remains limited, particularly in Africa. In Zambia, research on AI adoption has primarily focused on finance, education, and agriculture, leaving a gap in understanding its role in healthcare project management. Existing studies suggest that attitudes toward AI significantly influence adoption decisions, yet little is known about these perceptions within Zambia's healthcare sector.

This study explores the perceived attributes influencing stakeholder attitudes toward AI adoption in healthcare project management, guided by Rogers' Diffusion of Innovations (DOI) Theory. Specifically, it examines five key factors: relative advantage, compatibility, complexity, trialability, and observability. The research aims to provide insights into facilitators and barriers to AI adoption in Zambia's healthcare industry. A qualitative research approach was adopted, utilizing purposive sampling and Key Informant Interviews (KIIs) to gain in-depth insights into stakeholder perceptions, experiences, and behaviors regarding AI adoption. The findings highlight significant urban-rural disparities, with urban areas benefiting from better infrastructure and AI integration, while rural regions struggle with resource limitations and reliance on manual processes. The study reveals that relative advantage drives AI adoption through efficiency and accuracy, trialability facilitates acceptance through pilot programs, and observability promotes uptake by showcasing real-world benefits. However, complexity poses challenges such as fears of job displacement, technical difficulties, and workflow disruptions, while compatibility determines AI adoption based on alignment with existing systems and organizational goals.

Key policy implications emphasize the need for strategic investments in AI infrastructure, capacity-building, and regulatory frameworks. Recommendations include financial support through subsidies and funding to facilitate AI adoption, policy development on data privacy and security, targeted training programs to equip healthcare professionals with AI-related skills, and pilot projects to demonstrate AI's practical benefits.

Strengthening internet connectivity and IT systems, fostering collaborations with technology firms, and promoting knowledge dissemination and advocacy are also crucial for sustainable AI integration. Continuous monitoring and evaluation will be essential to ensure AI's effectiveness while balancing its integration with traditional healthcare approaches. By addressing these challenges and leveraging AI's potential, Zambia's healthcare sector can enhance project management efficiency and improve overall healthcare delivery

Key words: *Artificial Intelligence (AI), Healthcare Project Management, AI Adoption, Diffusion of Innovations (DOI) Theory, Perceived Attributes, Stakeholder attitudes.*

CHAPTER ONE INTRODUCTION

1.0 INTRODUCTION

This chapter introduces the research study, which explores the factors influencing stakeholders' attitudes towards the adoption of artificial intelligence (AI) in healthcare project management, with a focus on Zambia. The chapter begins by outlining the background of AI's growing role in project management across various industries, emphasizing its potential to enhance efficiency, decision-making, and outcomes in healthcare. It then presents the research problem, highlighting the limited AI adoption in project management and the critical role that user attitudes and perceived attributes play in this process. The research objectives and questions are outlined, seeking to assess AI availability, understand stakeholder attitudes, and explore perceived benefits and challenges, with the aim of providing practical recommendations. The chapter also delineates the scope, delimitations, and limitations of the study, and concludes by presenting the structure of the dissertation, which includes an examination of relevant literature, research methodology, findings, and analysis.

1.1 BACKGROUND OF THE STUDY

The integration of artificial intelligence (AI) technologies is rapidly transforming project management due to its potential to enhance efficiency (Sahadevan, 2023), improve decision-making, and optimize resource allocation (Mohit, et al., 2023). Recent studies highlight that the adoption of AI in project management is projected to grow by 80% within the next two years, signaling the increasing importance of AI-driven tools in this field (Gartner, 2022). A global survey conducted by PwC and IPMA revealed that companies and professionals are increasingly recognizing the benefits of AI adoption, in the survey, 80% of participants were based in Europe, followed by 16% from Asia and the Middle East, 4% from America, and less than 1% from Australia or Africa, of these respondents, over 67% worked in technology and business services, while others came from industries such as engineering, healthcare, and government (Bodea et.al, 2020). According to a Deloitte report (2020), 64% of organizations surveyed had already implemented AI technologies and an additional 23% were planning to do so soon. This surge in adoption

is driven by a desire to improve project outcomes, mitigate risks, and maximize operational efficiency (Deloitte, 2020). AI-powered platforms offer capabilities such as automated scheduling, real-time performance tracking, and predictive analytics, all of which provide valuable insights into project progress and risk assessment (Savio & Ali, 2023; Karamthulla et al., 2024).

The Adoption of artificial intelligence (AI) technologies is rapidly transforming various sectors such as manufacturing, education, finance, and healthcare. In the health sector, successful project management plays a critical role in improving patient outcomes, enhancing productivity, ensuring operational efficiency, and complying with evolving regulatory demands. With the ongoing digital revolution driven by AI, big data, and machine learning, the health sector stands to benefit significantly from AI adoption in project management (Cristina et al., 2024). AI technologies can help healthcare practitioners achieve more with fewer resources by automating routine medical operations and improving decision-making processes. These advancements underline the potential of AI in revolutionizing project workflows and improve project outcomes (Smith & Jones, 2023; Adegbite, 2023).

Despite the promising potential of AI in project management, its adoption is not without challenges, one recurring hurdle highlighted in the literature is the attitude of adopters towards AI technologies (Karamthulla et al., 2024). Adopters' attitudes can significantly impact the decision to embrace or reject new innovations, and these attitudes may range from favorable to negative or apprehensive (Okonkwo et al., 2019). Research shows that attitudes are a key predictive factor influencing the adoption of new products or technologies, underscoring the importance of understanding these attitudes in a well-defined manner (Wang et al., 2008). This study aims to explore stakeholder attitudes toward AI adoption in project management specifically in the health sector of Zambia, using the Theory of Perceived Attributes as a guiding framework. According to Rogers (1962), this theory suggests that individuals' attitudes towards adopting new technologies are influenced by five core factors: relative advantage, compatibility, complexity, trialability, and observability. By applying this theoretical lens, this research sought to

uncover how these perceived attributes influence stakeholder attitudes towards the adoption of AI in healthcare project management.

1.2 STATEMENT OF THE PROBLEM

Artificial intelligence (AI) has immense potential to revolutionize healthcare project management by optimizing resource allocation, improving efficiency, and enhancing patient care outcomes (Hallock, 2024; Attri, 2024). By automating routine medical operations, AI allows healthcare practitioners to accomplish more with fewer resources (Pefela et al., 2024). In resource-constrained regions like sub-Saharan Africa, AI offers valuable opportunities to address critical healthcare challenges. The Delft Institute's CAD4TB project in Zambia, for instance, illustrates how AI is helping detect pulmonary tuberculosis through computer-aided analysis of chest radiographs, contributing to improved healthcare delivery in the region (Pefela et al., 2024).

However, AI adoption in healthcare project management remains limited in many parts of the world, particularly in Africa, where financial projections for AI development stand at \$1.2 trillion compared to \$7.0 trillion in China and \$3.7 trillion in North America (Eke et al., 2023). Globally, 36% of organizations have not yet developed or adopted any AI strategies, reflecting the slow uptake of AI (Khanfar et al., 2024). Various challenges impede AI adoption, including resource shortages, budget constraints, and regulatory compliance (Oladipo et al., 2024; Attri, 2024). A key barrier is user attitudes, as potential adopters' perceptions play a significant role in the success or failure of AI implementation (Okonkwo et al., 2019). Research by Chatterjee and Bhattacharjee (2020) on AI adoption in higher education showed that attitudes directly influence behavioral intentions to adopt AI, a finding that can be applied to healthcare. Bennani and Oumlil (2014) also emphasized that doctors' and physicians' perceptions are critical to AI adoption in healthcare, while Alhashmi (2019) highlight that negative attitudes can delay or even prevent the adoption process, making it crucial to foster positive perceptions to accelerate AI integration.

Understanding the factors that facilitate AI adoption across various sectors is crucial, as it can help increase the adoption rate among individual users (Radhakrishnan & Chattopadhyay, 2020). Evidence suggests that there is limited literature exploring the

facilitators of AI adoption, especially within the context of healthcare project management (Kirsty Morrisson, 2021; Bodea, 2020). In Zambia, much of the research on AI adoption has focused on sectors like finance (Mutumba, 2018), education (Lubungu & Siame, 2023; Alam et al., 2024) and agriculture (Kunda & Phiri, 2023; Wezi et al., 2024), while little attention has been given to the healthcare sector. This research sought to address this gap by exploring the perceived attributes influencing stakeholders' attitudes towards the adoption of AI in healthcare project management in Zambia.

1.3 RESEARCH OBJECTIVES

Overall Objective

The main objective of this research was to explore the perceived attributes influencing stakeholders' attitudes towards the adoption of artificial intelligence (AI) in healthcare project management.

Specific Objectives

- To assess the availability of AI in healthcare project management.
- To understand the attitude of project stakeholders towards AI adoption in healthcare project management.
- To explore the utilization of AI in healthcare project management.

1.5 RESEARCH QUESTIONS

1. To what extent is AI available in healthcare project management?
2. How do project stakeholders perceive AI adoption in healthcare project management?
3. To what extent is AI utilized in healthcare project management?

1.6 SIGNIFICANCE OF THE STUDY

AI adoption in management, particularly in project management, remains underexplored (Bodea, 2020). Understanding the factors that facilitate AI adoption across various domains is beneficial for both researchers and practitioners (Radhakrishnan & Chattopadhyay, 2020). This study seeks to address this gap by exploring attitudes toward AI adoption in healthcare project management. By identifying the key factors shaping these attitudes, this research provides practical insights for project managers and

healthcare administrators to develop strategies that encourage AI adoption. Moreover, these findings will support policymakers in formulating informed guidelines that facilitate seamless AI integration while addressing concerns such as data security and ethical considerations.

Beyond its practical implications, this study also contributes to the growing knowledge base on AI adoption in project management by offering empirical evidence on the perceived attributes that influence AI acceptance. Existing research has largely focused on AI in general management or healthcare operations, with limited exploration of its role in project-specific contexts. By filling this gap, this study provides a theoretical foundation for future research and informs the development of AI adoption models tailored to project-based environments, particularly in healthcare.

1.7 SCOPE OF THE STUDY

The study was conducted in Lusaka, covering a range of organizations operating in the healthcare industry. Stakeholder groups involved in project management, such as project managers, team members, executives, were included in the study. The study assessed attitudes towards AI technologies applicable to project management, including machine learning algorithms, natural language processing tools, predictive analytics, and AI-driven project management platforms. The study employed a qualitative approach using qualitative interviews, to provide both breadth and depth in understanding attitudes towards AI adoption in project management in Lusaka.

1.8 DELIMITATIONS

- The study was limited to organizations operating in Lusaka, Zambia. This means that findings cannot be generalizable to other geographic locations or regions.
- The research focused specifically on the healthcare sector. Other sectors will not be included in this study, potentially limiting the applicability of the results to healthcare organizations.

- The study included project managers, team members, and executives involved in project management. It did not consider other roles or stakeholders who may influence or be affected by AI adoption but are not directly involved in project management.
- The study assessed attitudes towards specific AI technologies relevant to project management, such as machine learning algorithms, natural language processing tools, predictive analytics, and AI-driven project management platforms. Other AI technologies outside these categories will not be covered.
- The study employed a qualitative approach using qualitative interviews and secondary literature review. It will not use quantitative methods or other research techniques such as surveys or case studies.
- The study focused on attitudes and perceptions as they are currently understood and will not account for changes in attitudes or technology over time beyond the study period.

1.9 LIMITATIONS

- **Limited Geographic Scope** – The study focuses on AI adoption in healthcare project management within a specific region, limiting the generalizability of findings to other contexts, particularly those with different technological advancements, policies, and healthcare structures.
- **Urban-Rural Disparities in Data Collection** – While the study highlights disparities in AI adoption between urban and rural areas, the availability of data from rural regions may be more limited due to infrastructural constraints and fewer AI-driven initiatives, potentially skewing findings toward urban perspectives.
- **Reliance on Self-Reported Data** – The study primarily relies on qualitative insights from stakeholders, which may be influenced by personal perceptions, biases, or limited exposure to AI technologies, affecting the objectivity and accuracy of responses.

- **Evolving AI Landscape** – Given the rapid advancements in AI, findings may become outdated as new technologies, policies, and implementation strategies emerge, requiring continuous updates to maintain relevance.
- **Limited Quantitative Analysis** – While the study provides rich qualitative insights, the lack of extensive quantitative data on AI adoption rates, cost-effectiveness, and impact assessment may limit its ability to provide statistically measurable conclusions.
- **Regulatory and Ethical Considerations** – AI adoption is influenced by policies, regulations, and ethical concerns, which may vary across different regions. The study may not fully account for how evolving legal frameworks and data privacy concerns shape AI implementation in healthcare.
- **Potential Response Bias** – Participants' views may be influenced by their level of exposure to AI, organizational priorities, or concerns about job security, leading to potential biases in their assessments of AI adoption and feasibility.

1.10 STRUCTURE OF THE DISSERTATION

This dissertation includes six chapters which will provide a comprehensive exploration of the adoption of artificial intelligence (AI) in project management. The first chapter sets the stage by outlining the study's context, problem statement, objectives, and research questions, and delineating the scope and delimitations of the research. The second chapter presents a thorough examination of existing literature on AI in project management, including its benefits, barriers, and ethical considerations, and discusses relevant theories and conceptual frameworks such as the Diffusion of Innovations Theory and the Theory of Perceived Attributes. The third chapter details the research approach, design, and methods that will be used for data collection and analysis, along with addressing ethical considerations and limitations of the study. Chapter four will provide an in-depth analysis of the collected data, presenting key findings and their implications. Chapter five interprets the results in relation to the literature review, offering insights into practical implications and recommendations for future research. Finally, the sixth chapter

summarizes the main findings, contributions to the field, and concludes recommendations for future directions.

1.11 CONCLUSION

In conclusion, Chapter 1 has established the foundation for this research by outlining the critical context of artificial intelligence (AI) adoption in project management. We have articulated the significance of understanding stakeholder attitudes and the perceived attributes of AI technologies, which are pivotal for successful integration and enhanced project outcomes. The chapter has defined the research problem, objectives, and questions, setting a clear direction for subsequent investigations. By addressing the scope and delimitations, it has also provided a framework for understanding the boundaries and focus of the study. This initial chapter paves the way for a deeper exploration into the theoretical and empirical aspects of AI adoption in project management, which will be further elaborated upon in the subsequent chapters.

CHAPTER TWO LITERATURE REVIEW

2.0 INTRODUCTION

This literature review aims to provide a comprehensive overview of the Adoption of AI and its role in project management by examining existing research on the benefits and barriers associated with AI adoption, as well as the ethical considerations and stakeholder attitudes that shape its implementation. By exploring the theoretical and conceptual frameworks underpinning technology adoption, including the Diffusion of Innovations Theory and the Theory of Perceived Attributes, this review seeks to elucidate the factors that influence stakeholder attitudes towards AI and their implications for successful integration. The insights derived from this review will lay the groundwork for understanding how AI can be effectively leveraged in healthcare project management and inform strategies to address challenges and promote positive adoption outcomes.

2.1 EMPIRICAL REVIEW

2.1.1 Artificial intelligence Adoption in Project Management processes

Artificial Intelligence (AI) technologies are revolutionizing project management practices by providing innovative solutions that streamline processes, enhance decision-making, and improve project outcomes (Brown & Miller, 2020). Studies globally show that 19% of organizations have adopted AI strategies and begun implementing AI-based systems, 45% have investigated or are piloting AI systems, while 36% have not developed or adopted any AI strategies (Ramsbotham et al., 2020). Predictive analytics, natural language processing (NLP), and machine learning are key AI technologies transforming project management. Predictive analytics uses advanced algorithms to analyze historical project data, identify patterns, and forecast future trends and outcomes with high accuracy, allowing project managers to anticipate delays, budget overruns, and resource bottlenecks (Chen et al., 2018). NLP enables computers to understand, interpret, and generate human language, which facilitates communication and collaboration among project teams by analyzing project documents, emails, and chat messages to extract valuable insights and support decision-making (Smith & Johnson, 2019). Studies

conducted by Jones et al., (2021) in the United States of America and Karamthulla et al., (2024) in India reveal that machine learning enables systems to learn from data and improve performance over time, optimizing resource allocation, scheduling, and task assignment, which leads to increased efficiency and productivity in project execution. The growing interest in AI stems from its potential to streamline workflows, increase overall efficiency, and deliver superior results in project management (Adegbite et al., 2023).

2.1.2 Benefits of Artificial intelligence Adoption in Project management

Artificial intelligence (AI) integration in project management offers unparalleled benefits, particularly in enhancing decision-making processes, improving overall efficiency, and strengthening project resilience. Studies conducted in the by Sahadevan (2023) and Al Khatib & Al Falasi (2021) emphasize that AI provides project managers with valuable insights derived from vast amounts of data, leading to faster and more informed decision-making. Additionally, a study conducted by Barcaui & Monat (2023) demonstrates the synergy between human expertise and AI capabilities in developing robust project plans. While AI offers automation and valuable insights, human intervention remains crucial for refining AI outputs and ensuring accuracy. However, this study focuses on AI's technical advantages but overlook resistance from project managers due to concerns about job security and lack of technical expertise. This suggests a gap in understanding the human and organizational barriers to AI adoption.

AI-driven solutions also enhance adaptability and flexibility in project management by enabling real-time monitoring and dynamic resource allocation, allowing project managers to respond effectively to evolving project needs, reduce delays, and control costs (Mohit et al., 2023). While many studies highlight that the integration of AI technologies empowers project managers to make better decisions, leverage human expertise, and adapt to changing conditions, leading to more successful project outcomes (Khatib & Al Falasi, 2021; Sahadevan, 2023; Barcaui & Monat, 2023), these findings largely stem from developed regions with higher AI readiness, raising concerns about their applicability in lower-resource settings like Zambia. This raises questions about

whether AI solutions are transferable across different economic and technological landscapes.

2.1.3 Barriers to Artificial Intelligence Adoption in Project Management

While the adoption of AI in Project management practices holds transforming benefits, literature reviewed highlights several challenges to the adoption of artificial intelligence (AI) in project management, spanning organizational, technological, financial, and societal barriers. Organizational challenges include human social dynamics, restrictive regulations, and a lack of trust and transparency in AI technologies (Alshebni, 2019). A study conducted by Westernberger et al, (2021) revealed that technological barriers involve the complexity of AI systems and the need for specialized skills to implement and manage these systems. Another study unearthed that financial constraints also pose significant hurdles, as businesses must invest in technology infrastructure, personnel training, and change management, all of which require substantial resources (Mohit et al., 2023). Additionally, a study by Wang & Pan, (2022) emphasized the need for competitive hardware and data acquisition forces organizations to compete in these areas, which can lead to a continuous cycle of upgrading and investment. A study conducted by Wang and Pan (2022) revealed that, Societal barriers to AI adoption include changes in work assignments, where more responsibilities may be delegated to AI, potentially leading to workforce reductions for those unable to keep pace with technological advancements (Wang & Pan, 2022). Moreover, adapting existing processes to AI requires addressing interoperability issues with legacy systems, potential disruptions during implementation, and the need for workforce upskilling (Kaplan, 2019; Heng & Nor 2024). Studies conducted by Kora (2020) & Kiemde (2021) in Africa revealed that, socio-cultural and organizational challenges further hinder AI adoption, with barriers such as insufficient digital infrastructure, inadequate education, data limitations, and public policy and funding constraints, while a study by Gwagwa et al. (2021) have further noted that Africa still scores very lowly in its AI readiness and will therefore need to depend on continued support from international partners and technology firms.

2.1.4 Strategies to increase the uptake of AI Adoption in project management

To increase AI adoption in project management, several strategies need to be implemented, with a focus on infrastructure, policy, education, and stakeholder involvement. Governments must prioritize the development of legislation and policies to govern AI adoption in sectors like healthcare, finance, manufacturing, which can also be extended to project management (Oladipo et al., 2024). Accelerating improvements in infrastructure, particularly electricity and internet access, is critical to supporting data generation and analysis necessary for AI integration (Owoyemi et al., 2023). AI models must also be trained under a robust legal and regulatory framework to meet the needs of low and middle-income countries (López et al., 2023). Improving access to secondary data for analysis can further overcome barriers to data availability and lead to advancements in project management insights (Luo et al., 2023). Additionally, integrating AI-related skills, such as mathematics and programming, into educational curricula from secondary levels will help create a workforce capable of leveraging AI technologies (Eke et al., 2023).

Early involvement of all stakeholders, including citizens, policymakers, and technical experts, is essential to addressing societal expectations and reducing uncertainties related to AI adoption (Eke et al., 2023). Furthermore, implementing a responsible data management framework that accounts for data diversity can improve AI system accuracy and foster a conducive environment for AI use (Eke et al., 2023). Ethical considerations emerge as a central theme in the literature on AI adoption. Researchers and policymakers alike recognize the importance of ethical frameworks, guidelines, and regulations to ensure the responsible development and deployment of AI technologies. Ethical concerns encompass issues such as bias in AI algorithms, data privacy, transparency, accountability, and societal impacts. Hyeonmin (2023) and Singh (2023) emphasize the need for transparency and accountability in AI decision-making processes, particularly in critical applications such as healthcare and criminal justice. Making developers aware of their professional responsibilities and moral implications while developing AI models will aid in reducing ethical issues. Also, government and other professional bodies should strengthen their ethical policies to guide the development process of AI. (Eke et.al, 2023)

2.1.5 Attitudes towards Adoption of Artificial Intelligence Technologies

Attitudes towards AI adoption in project management are shaped by a complex interplay of individual preferences, perceived benefits, and concerns. A study by Lichtenthaler (2020) introduces the concepts of "no-human-interaction attitudes" and "intelligent-automation attitudes," illustrating the paradox where employees' attitudes towards AI can vary based on their preference for human collaboration or virtual colleagues. This duality reflects both positive and negative attitudes depending on the context of AI application. Similarly, in their study, Pillai et al. (2024) highlight factors influencing attitudes towards AI adoption, including personalization, perceived intelligence, and perceived risk, demonstrating the need to address both the advantages and concerns associated with AI technologies. This study, however, utilizes the Technology Acceptance Model (TAM), emphasizing ease of use and perceived usefulness (Davis, 1989). However, AI implementation in project management is also influenced by factors like organizational culture and ethical concerns, which TAM does not fully address. The Diffusion of Innovation Theory (Rogers, 2003) might offer a more comprehensive perspective by considering how AI spreads within industries.

In the African context, users' attitudes toward AI adoption are influenced by cultural and social factors, with skepticism often playing a significant role in resistance to new technologies (Okonkwo et al., 2019). As attitudes are a key predictor of adoption, understanding them in a structured manner is crucial to fostering AI acceptance (Wang et al., 2008). In sectors like higher education, a study by Chatterjee and Bhattacharjee (2020) emphasizes that positive perceptions of AI technologies, such as chatbots, can accelerate adoption, while negative attitudes hinder it. However, they rely on self-reported data, which may introduce bias. A more robust approach, such as longitudinal studies tracking AI implementation over time, would provide stronger evidence. Lichtenthaler (2020) argues that firms need to address employees' attitudes towards AI, as the interface of human and AI will be a key driver of competitive advantage in the future. Therefore, shaping stakeholders' attitudes toward AI through awareness and engagement is vital for successful AI integration in project management (Chatterjee & Bhattacharjee, 2020).

2.1.6 Factors Influencing Attitudes towards AI Adoption

Various factors influence individuals' attitudes towards the adoption of artificial intelligence (AI) technologies in organizational contexts. A study done by Pillai & Sivathanu (2020) identifies predictors such as perceived ease of use, perceived usefulness, and perceived intelligence, highlighting the significance of technological attributes in shaping attitudes. Similarly, a study by Breward et al. (2017) emphasizes the need for a "net valence approach" that considers both benefits and concerns associated with AI adoption. This suggests that managers' attitudes towards AI adoption are likely to be influenced by a combination of perceived advantages and risks. Additionally, a study conducted by Schweitzer et al. (2019) further supports this notion by providing empirical evidence of the relationship between individuals' attitudes and technological attributes. Furthermore, Pillai & Sivathanu (2020) suggest that managers' commitment to providing services using AI-based technologies is influenced by factors such as technological anxiety and stickiness to traditional methods. Together, these findings underscore the importance of considering a wide range of factors in understanding and addressing attitudes towards AI adoption.

2.2 THEORETICAL LITERATURE

Several theories and models have been developed and refined over time to elucidate the acceptance and utilization of emerging technologies, reflecting the ever-evolving landscape of technological advancement. Among these theories are the Diffusion of Innovations Theory (IDT), the Unified Theory of acceptance and Use of Technology and the Technology acceptance model.

2.2.1 Technology Acceptance Model

The Technology Acceptance Model (TAM) was developed in the 1980s to address concerns that workers were not utilizing available information technologies (IT). The model's originators argued that increasing IT acceptance was key to enhancing usage, which could be predicted by assessing individuals' intentions to use the technology. TAM was derived from the Theory of Reasoned Action (TRA), a widely applied behavioral theory used to understand decision-making processes in various domains, including

voting and health behaviors. TAM originally proposed that three key factors influence IT acceptance: **Behavioral Intention (BI)** - The likelihood that an individual will use the IT, which is considered the closest predictor of actual usage, **Perceived Usefulness (PU)** – The extent to which an individual believes that using the IT will enhance their job performance and **Perceived Ease of Use (PEOU)** – The degree to which an individual perceives that using the IT will be free of effort (Holden, 2010).

In the model, attitude toward using technology (ATT) is influenced by both PU and PEOU, and in turn, ATT influences BI. Additionally, PU has a direct effect on BI, meaning that even if an individual does not have a favorable attitude toward the technology, they may still intend to use it if they find it beneficial for their tasks. PEOU also indirectly affects BI through PU, as a system perceived to be easy to use is more likely to be seen as useful. TAM has been widely applied in research on technology adoption, particularly in contexts where understanding user acceptance is critical to successful implementation. Many studies measure BI as a proxy for actual usage, given that tracking real-world IT adoption is often difficult (Holden, 2010). For instance, a study conducted by Holden and Karsh (2010) to review the application of one such theory, the Technology Acceptance Model (TAM), to health care, it was revealed that the TAM model predicts a substantial portion of the use or acceptance of health IT.

Relevance to the study

The TAM framework is useful for understanding how stakeholders perceive AI in healthcare project management. Its core components, Perceived Usefulness (PU) and Perceived Ease of Use (PEOU), align with the concerns expressed by healthcare professionals regarding AI's efficiency and usability. However, TAM mainly focuses on individual decision-making and may not fully capture the broader infrastructural and organizational barriers in Zambia's healthcare sector.

2.2.2 Unified Theory of acceptance and Use of Technology

The Unified Theory of Acceptance and Use of Technology (UTAUT) model, developed by Venkatesh et al. (2003), provides a comprehensive framework for understanding user

intentions and behaviors related to the adoption of information technology and information systems (IT/IS). The model identifies four key constructs—performance expectancy, effort expectancy, social influence, and facilitating conditions—which influence behavioral intentions and usage behavior. Specifically, performance expectancy, effort expectancy, and social influence directly affect behavioral intentions, which in turn influence actual technology use, while facilitating conditions have a direct impact on usage behavior. Additionally, these relationships are moderated by factors such as gender, age, experience, and voluntariness of use.

Many studies have adopted this theory to understand technological adoption, for instance, in their quantitative study to understand issues surrounding acceptance of information and communication technology (ICT) by students of tertiary institutions in Ghana, Attuquayefio & Addo, (2014), discovered that Effort Expectancy (EE) (0.4, $p < .05$) significantly predicted Behavioral Intention (BI) to use ICT, while Social influence (SI) and Performance Expectancy (PE) were statistically insignificant, as was Behavioral Intention (BI) on Use Behavior (UB). However, Facilitating Conditions (FC) ($b = .26$, $p < .01$) significantly influenced UB.

Over time, the UTAUT model has been widely adopted and expanded to enhance its predictive capabilities in various contexts. Researchers have introduced extensions to the model by incorporating new exogenous, endogenous, moderating, and outcome mechanisms to better address the evolving nature of technology adoption. Furthermore, the model has been integrated with other theoretical frameworks to provide deeper insights into the complexities of technology acceptance and usage across different domains (Cao et al., 2021)

Relevance to the study

UTAUT extends TAM by incorporating social and organizational influences on technology adoption. In Zambia, factors like social influence (pressure from peers or institutions) and facilitating conditions (access to resources and training) play a crucial role in AI adoption.

However, UTAUT assumes that users have equal access to technology, which may not be the case due to Zambia's urban-rural digital divide.

2.2.3 Diffusion of Innovations Theory (DOI)

A prominent Framework that has garnered widespread adoption and application in research and practice is the Diffusion of Innovations Theory. The Diffusion of Innovations (DOI) Theory, as outlined by Rogers (1995), provides a comprehensive meta-theoretical framework rooted in sociology and anthropology, focusing on how innovations spread within a society (Yates, 2001). This theory has been widely employed by researchers to explore the factors that influence the adoption of new technologies, including artificial intelligence (AI). For example, Morrison (2021) applied the DOI theory to identify the barriers and facilitators of AI adoption in the NHS, while Pandl et al. (2021) used it to understand the drivers and inhibitors for organizations' intention to adopt AI as a service. DOI emphasizes four key factors that impact the adoption process: the innovation itself, the communication channels used to share information, the time it takes for the innovation to be adopted, and the societal context into which it is introduced (Rogers, 1995). Additionally, DOI encompasses sub-theories such as the innovation-decision process theory, individual innovativeness theory, rate of adoption theory, and the theory of perceived attributes (Botha & Atkins, 2006). For this study, the theory of perceived attributes will be applied to explore stakeholder attitudes towards AI adoption in project management, providing a lens to consider both individual perceptions and broader social factors influencing the adoption process.

Theory of Perceived Attributes

The Theory of Perceived Attributes, a pivotal concept within the framework of Diffusion of Innovations Theory, was popularized by Everett Rogers in his seminal work, "Diffusion of Innovations" (1962). This theory posits that an innovation's adoption is contingent upon its perceived attributes, which encompass several dimensions:

1. **Relative Advantage:** This attribute denotes the extent to which an innovation is perceived as superior to its predecessor.

2. **Compatibility:** Compatibility refers to the degree of alignment between the innovation and existing values, experiences, and needs of potential adopters.
3. **Complexity:** Complexity pertains to the perceived difficulty associated with understanding and utilizing innovation.
4. **Trialability:** This signifies the extent to which individuals can experiment with the innovation on a limited basis before committing to its full adoption.
5. **Observability:** This refers to the degree to which the outcomes and benefits of the innovation are visible to others.

These perceived attributes collectively shape individuals' attitudes and decisions regarding the adoption of new technologies. Rogers' diffusion of innovations theory provides a comprehensive framework for investigating technology adoption.

Relevance to the study

This study primarily adopts the Theory of Perceived Attributes from DOI Theory, as it provides a comprehensive framework for assessing how AI is perceived by healthcare stakeholders. The key attributes—relative advantage, compatibility, complexity, trialability, and observability—help explain why AI adoption is uneven in Zambia. For example, rural healthcare settings may perceive AI as complex and incompatible with their current workflows due to limited infrastructure, while urban settings may experience greater observability and trialability of AI tools, encouraging adoption.

2.2.4 Gaps in Theoretical Literature

The Unified Theory of Acceptance and Use of Technology (UTAUT) model has been widely utilized and is recognized for its satisfactory measurement properties and invariance. However, traditional technology adoption models such as the Technology Acceptance Model (TAM) and UTAUT often have inadequacies for studying the adoption of Technology. These models primarily focus on the adoption of functional technologies and do not fully capture the complex decision-making processes associated with AI adoption. For instance, in their study, Holden and Karsh (2010) suggested that the theory may benefit from several additions and modifications. Aside from improved study quality,

standardization, and theoretically motivated additions to the model, an important future direction for TAM is to adapt the model specifically to the health care context.

Additionally, Despite the rigorousness of the model, UTAUT has some theoretical and methodological limitations that were not addressed in further studies (Venkatesh et al., 2003) UTAUT faced critique with regards to its inability to explain behavioral intention in different settings. Limited external validity of the model motivated further studies to extend the model by adding additional determinants of behavior, such as trust, self-efficacy, computer self-efficacy, innovativeness, perceived threats, perceived risk. (Marikyan & Papagiannidis, 2023)

In contrast, the Diffusion of Innovations (DOI) theory offers a more comprehensive approach by incorporating the concept of perception into the adoption decision-making process. DOI identifies five key attributes—relative advantage, compatibility, complexity, trialability, and observability—that influence an adopter’s perception of an innovation.

Justification for Using DOI Theory Over TAM and UTAUT

While TAM and UTAUT offer valuable insights into individual decision-making and behavioral intention, DOI provides a broader perspective by considering the socio-economic and infrastructural factors influencing adoption. Since AI adoption in healthcare project management is influenced by multiple stakeholders, including healthcare professionals, policymakers, and project managers, DOI’s focus on perceived attributes allows for a more nuanced exploration of barriers and facilitators to AI adoption. This makes DOI particularly relevant to studies exploring AI adoption, as it provides a deeper understanding of how potential adopters evaluate and ultimately decide to adopt AI technologies.

2.3 CONCEPTUAL FRAMEWORK

The conceptual framework suggests that stakeholders' attitudes towards AI adoption mediate the relationship between perceived attributes and adoption behavior. That is, stakeholders' perceptions of AI's relative advantage, compatibility, complexity, trialability,

and observability shape their attitudes towards AI adoption, which ultimately influence their decision to adopt AI technologies in project management.

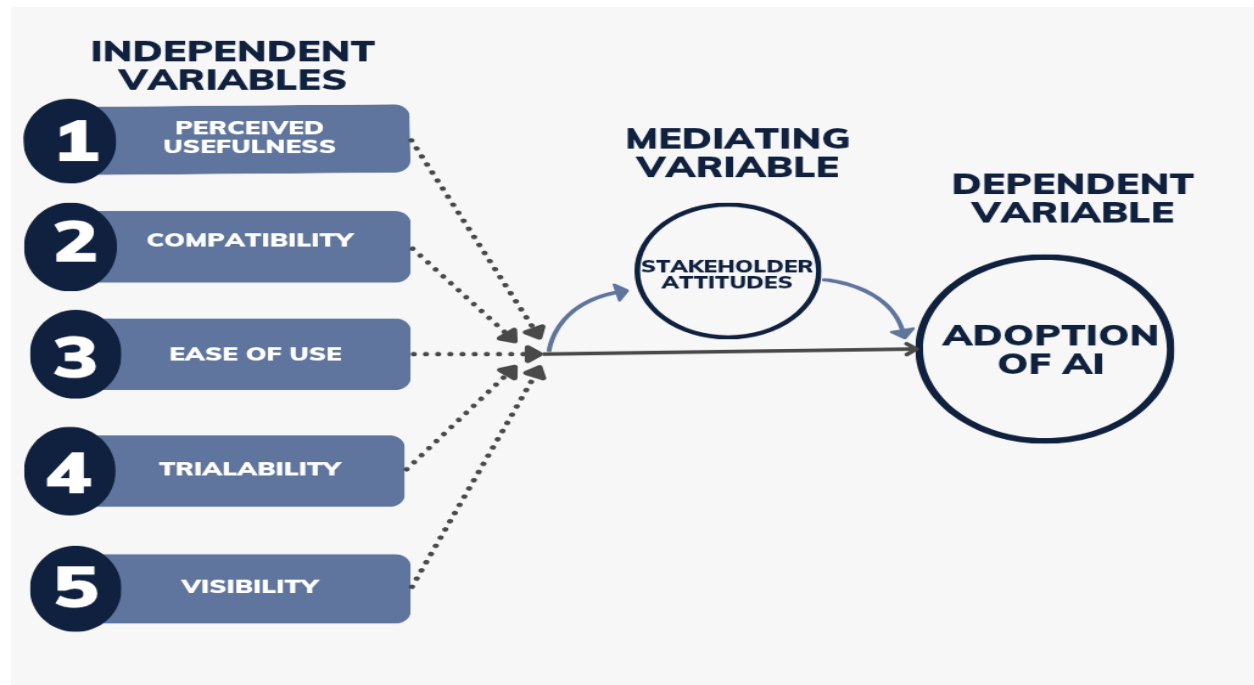


Figure 2.1: Conceptual framework

2.3.1 Definition of variables

Table 2.1 Definition of Variables

	Variables	Definition
Dependent Variable	Adoption of AI	Acceptance of AI Technologies (Pillai, et.al.2024)
Mediating Variable	Stakeholder Attitudes	Feelings, Beliefs and reactions of an individual towards an event, phenomenon, object or person (Olufemi, 2012).
Independent Variable	Relative Advantage/ Perceived Usefulness	Relative Advantage refers to the degree to which stakeholders perceive AI adoption as better than existing project management practices (Rogers, 2003)
	Compatibility	Compatibility relates to the extent to which AI integration aligns with stakeholders' values, needs, and existing practices within the project management context. (Rogers, 2003)

	Complexity/ Ease of use	Complexity considers the perceived difficulty of understanding and using AI technologies in project management processes. (Rogers, 2003)
	Trialability	Trialability refers to the extent to which stakeholders can experiment with AI on a limited basis before full adoption. (Rogers, 2003)
	Observability/ Visibility	Observability focuses on the visibility of AI's benefits and outcomes within project management practices (Rogers, 2003)

2.4 CONCLUSION

In summary, the literature on artificial intelligence (AI) in project management highlights both the transformative potential and the challenges associated with AI adoption. While AI offers significant benefits such as enhanced decision-making, improved efficiency, and increased adaptability, the integration of these technologies is not without obstacles. Barriers including technological complexity, financial constraints, and ethical concerns must be addressed to facilitate successful adoption. Additionally, stakeholders' attitudes towards AI, shaped by perceived attributes such as relative advantage, compatibility, complexity, trialability, and observability, play a crucial role in determining the success of AI implementation. Theoretical frameworks such as the Diffusion of Innovations Theory and the Theory of Perceived Attributes provide valuable insights into these dynamics, highlighting the need for a nuanced understanding of how perceptions influence adoption behavior. As the field continues to evolve, ongoing research and targeted strategies will be essential in overcoming barriers, addressing ethical issues, and fostering positive attitudes towards AI in project management, ultimately leading to more effective and innovative project outcomes.

CHAPTER THREE RESEARCH METHODOLOGY

3.0 INTRODUCTION

This chapter outlines the research design and methods employed to explore attitudes towards the adoption of artificial intelligence (AI) in project management within the healthcare industry. Adopting a qualitative research approach, the study seeks to uncover in-depth insights into the experiences, perceptions, and behaviors of stakeholders involved in project management. The exploratory research design allows for an open-ended investigation into a relatively under-researched area, facilitating the discovery of new themes and patterns. By employing purposive sampling to select knowledgeable informants and using Key Informant interviews, the research aims to capture a rich, nuanced understanding of how AI technologies are perceived and the challenges and opportunities they present. This chapter details the approach, design, population, sampling technique, data collection instruments, analysis methods, and ethical considerations guiding the study.

3.1 RESEARCH APPROACH

This study employs a qualitative research approach to investigate attitudes towards the adoption of Artificial Intelligence (AI) in project management and to identify challenges and opportunities for integration. The qualitative approach is one that is interested in understanding how people make sense of their world and the experiences they have in the world (Merriam, 2009). The researcher collects open-ended emerging data with the primary intent of developing themes from the data (Creswell, 2009). The qualitative research approach is chosen for its ability to delve deeply into the subjective experiences, perceptions, and behaviors of individuals and groups, providing rich and nuanced insights into complex phenomena such as attitudes towards technological adoption. The research approach is underpinned by an interpretivist epistemology, recognizing that reality is socially constructed and subjective, and that meaning is context dependent. Through this lens, the study seeks to understand how individuals within project management contexts

perceive and make sense of AI technologies, as well as the factors that shape their attitudes and behaviors towards adoption (Tracy, 2013).

3.2 RESEARCH DESIGN

The study adopted an exploratory research design to gain in-depth insights into stakeholder attitudes toward AI adoption in healthcare project management. Exploratory research is particularly suitable for investigating areas with limited prior research, as it allows for flexibility in uncovering emerging patterns and refining research questions (Burns & Bush, 2019). This design facilitated an open-ended approach, enabling the collection of rich qualitative data through in-depth interviews with key informants. Given the complexity of AI adoption in project management, the study employed an iterative process of data collection and analysis to identify recurring themes and new insights. By utilizing qualitative methods, the research design ensured a nuanced understanding of individual and organizational perspectives, barriers, and enablers influencing AI adoption. The exploratory nature of the study also allowed for the incorporation of diverse viewpoints from project managers, project officers, monitoring and evaluation personnel, communications personnel, program managers and officers, and medical doctors, ensuring a comprehensive exploration of the subject matter.

3.3 STUDY POPULATION

The study purposefully selected stakeholders within the healthcare industry involved in project management, including project managers, project officers, program managers and officers, monitoring and evaluation (M&E) personnel, communications personnel, and medical doctors. These individuals are directly engaged in project planning, implementation, and assessment, making them key decision-makers and end-users of AI technologies in project management. Their roles involve critical functions such as resource allocation, performance monitoring, reporting, and stakeholder engagement, all of which can be enhanced by AI-driven solutions such as machine learning algorithms, natural language processing tools, predictive analytics, and AI-powered project management platforms. Additionally, medical doctors were included to provide insights into AI adoption from a clinical perspective, given their involvement in healthcare delivery

and collaboration with project teams. By selecting a diverse range of professionals, the study ensures a comprehensive understanding of the perceived benefits, challenges, and feasibility of AI adoption in healthcare project management.

3.4 SAMPLE SIZE

A total of 12 Key Informants were interviewed virtually in this study. The initial target sample size was 15 key informants; however, data saturation was reached after 12 interviews, which was determined through an iterative process of simultaneous data collection and analysis. After each interview, responses were reviewed to identify recurring themes and assess whether new insights were emerging. As additional interviews were conducted, the data became repetitive, with no significant new themes, indicating that saturation had been reached. Thematic analysis confirmed that further interviews would likely yield redundant information rather than novel perspectives. The diverse selection of participants – including project managers, project officers, monitoring and evaluation personnel, communications personnel, program managers and officers, and medical doctors – ensured a comprehensive representation of stakeholder attitudes toward AI in healthcare project management.

LIST OF RESPONDENTS

Table 3.1 List of respondents

Respondents	Number
Medical Doctor	1
UNICEF IT Manager	1
Qure.AI Project Manager CIDRZ	1
Project Officer, ECHO Project	1
Communications Manager Macro Eyes	1
M&E Officer	1
Project Officer	1
Program Associate	1
Program Support Officer	1
M&E Coordinator	1
IT Personnel	1
M&E Officer (ECHO)	1
TOTAL	12

3.5 SAMPLING TECHNIQUE

Purposive sampling was chosen as the data collection method because it allows for the deliberate selection of participants who have specific knowledge, experience, and expertise related to the research topic. In the context of studying AI adoption in healthcare project management, this technique ensures that the individuals chosen are well-positioned to provide valuable and relevant insights. Since AI in healthcare project management is a specialized and emerging field, purposive sampling allows the researcher to target key informants—such as project managers, healthcare professionals, and AI experts—who have direct experience with the subject matter. This approach enhances the depth and quality of the data collected, as it focuses on individuals who are most likely to have firsthand knowledge of the challenges, opportunities, and practical considerations involved in AI adoption. Furthermore, purposive sampling is particularly useful in exploratory research, where understanding specific perspectives from informed sources is critical to uncovering nuanced insights. By selecting participants who can speak to the contextual and sector-specific factors influencing AI implementation, the researcher ensures the data is both rich and relevant for the study's objectives (Tracy, 2013)

3.6 DATA COLLECTION INSTRUMENTS

Key Informant Interviews (KIIs) were adopted as a data collection tool to gain in-depth insights into participants' attitudes, perceptions, and experiences related to AI adoption in healthcare project management. The structured questions ensured consistency across interviews, while the flexible format allowed for deeper exploration of emerging themes and individual experiences. KIIs provided the opportunity to gather expert-driven, context-specific knowledge from individuals with significant experience in the field, revealing nuanced barriers, opportunities, and attitudes that could impact AI adoption. This method was ideal for exploring the complex, new nature of AI in Zambia's healthcare sector and allowed participants to share their honest views in a confidential setting, providing valuable, qualitative data for the study (Burns and Bush, 2019)

3.7 RESEARCH ANALYSIS

Data analysis followed an inductive process, guided by principles of thematic analysis and constant comparison. Thematic analysis is a method for identifying, analyzing, and interpreting patterns of meaning—'themes'—within qualitative data. It provides accessible and systematic procedures for generating codes and themes from qualitative data (Braun & Clarke, 2013). The data was coded and categorized to identify recurring themes, patterns, and trends. Subsequent iterations of analysis refined and deepened the understanding of these themes.

3.8 ETHICAL CONSIDERATIONS

Several ethical considerations were prioritized throughout the research process to ensure the protection and respect of participants. Confidentiality was maintained, ensuring that responses remained anonymous, and the privacy of participants was protected. Participation in the study was voluntary, and participants were informed of their right to withdraw from the interview at any time without any negative consequences. Additionally, an ethical approval letter was obtained from the relevant ethics committee to ensure the study adhered to ethical standards. This approval letter, along with an introductory letter explaining the study's purpose and procedures, was shown to participants prior to the interview to confirm transparency and build trust. These measures were taken to ensure the ethical treatment of participants and uphold the principles of research ethics throughout the study.

3.9 CONCLUSION

In conclusion, this chapter has outlined the qualitative approach and exploratory design chosen for investigating perceived attributes influencing stakeholder attitudes towards AI adoption in project management. By focusing on key informants within the healthcare sector and employing purposive sampling, the study aims to generate comprehensive insights into the subjective experiences and perceptions of project managers, team members, and executives. The use of thematic analysis will enable the identification and interpretation of key themes and patterns within the data, contributing to a deeper understanding of the factors influencing AI adoption. Ethical considerations, including confidentiality and voluntary participation, are integral to ensuring the integrity of the

research process and the protection of participants' rights. This methodological framework provides a robust foundation for analyzing the complex dynamics of AI adoption and informing strategies to enhance its integration into project management practices.

CHAPTER FOUR PRESENTATION AND ANALYSIS OF RESULTS

4.0 INTRODUCTION

This section presents the findings of the study based on the key objectives, focusing on the extent to which AI is available in healthcare project management, the perceived benefits and barriers to its adoption, and the attitudes of project stakeholders towards AI technologies. The findings highlight significant disparities in AI adoption between urban and rural areas, with urban settings benefiting from better infrastructure and technical expertise, while rural areas face challenges such as limited internet connectivity and resource constraints. Despite these challenges, AI presents considerable benefits, including improved diagnostic accuracy, optimized resource allocation, and streamlined administrative processes. However, barriers such as financial limitations, lack of technical skills, and resistance to change continue to hinder widespread adoption. Furthermore, the study explores how stakeholders perceive AI through key attributes such as relative advantage, trialability, complexity, compatibility, and observability. These attributes play a crucial role in shaping attitudes towards AI adoption and determining its feasibility within different healthcare settings. The findings provide valuable insights into the current landscape of AI in healthcare project management and offer recommendations for overcoming existing challenges and maximizing AI's potential impact.

4.1 Objective: To assess the availability of AI in healthcare project management.

The purpose of this objective was to explore the availability of AI in healthcare project management and to examine the perceived benefits and challenges associated with its adoption. The key themes that emerged from this analysis include urban vs. rural disparities, perceived benefits of AI adoption, and barriers to its implementation.

Table 4.1: Summary of themes

Emerging themes/ Factors
Urban vs Rural Disparities
Perceived benefits of AI Adoption
Perceived barriers to AI Adoptions

4.1.1 Urban vs. Rural Disparities

Finding 1: Urban areas have better infrastructure for AI adoption. Most of the respondents emphasized that AI Adoption is more advanced in urban areas due to better infrastructure and expertise, whereas rural areas face significant challenges related to resource accessibility and technical capacity. Despite these challenges, rural areas hold immense potential if foundational needs are met.

“AI tools are increasingly discussed, but their presence in rural areas is minimal. Most of the M&E work here relies on manual data collection and analysis, with some digital tools being introduced in pilot projects.” M&E officer

“AI tools are available but are mostly concentrated in urban areas or specialized healthcare projects. In rural areas, their availability is almost non-existent due to infrastructure challenges.” Project Manager

Finding 2: AI adoption in healthcare project management is heavily dependent on robust infrastructure, including reliable internet, hardware, and IT systems. Resource limitations, particularly in rural areas, pose significant challenges, as basic healthcare needs often take priority over technological advancements. Investments in IT infrastructure and capacity-building are essential prerequisites for successful AI integration.

“AI tools are not commonly used in rural areas but could be accessible if tailored to our needs. For now, they seem more suited to urban settings.”

4.1.2 Perceived Benefits of AI Adoption

Finding 3: The integration of AI in healthcare projects offers numerous benefits, including improved diagnostic accuracy and speed, which enables early detection and treatment of medical conditions. Most respondents affirmed that AI offers significant benefits, including improved efficiency, reduced errors, and enhanced scalability. They further highlighted that it enhances resource allocation by optimizing the use of available assets, leading to more efficient operations. Automation of routine tasks not only saves time but also reduces the likelihood of human errors, improving overall project efficiency. Furthermore,

AI-powered reporting tools provide cost-effective solutions for tracking performance and facilitating evidence-based decision-making, ultimately enhancing healthcare delivery.

“AI presents opportunities to improve data quality and enhance reporting accuracy. In my experience, it is particularly valuable for tracking progress and generating insights that aid decision-making.” M&E Manager

4.1.3 Barriers to AI Adoption

Finding 4: Despite its potential, AI adoption in healthcare projects faces several challenges. Several respondents agreed that many organizations continue to rely on manual processes, limiting the full integration of AI technologies. Infrastructure deficiencies, such as limited internet connectivity and inadequate technical support, further hinder implementation, particularly in rural and underserved areas. Additionally, financial constraints and uncertainty among healthcare staff regarding AI's reliability contribute to resistance in adopting AI-driven solutions. Contextual disparities, such as varying healthcare needs and resource availability, also affect the alignment of AI with existing systems. All the Key Informants agreed that the adoption of AI in healthcare faces numerous challenges, including high costs, a lack of technical expertise, regulatory uncertainties, and cultural resistance.

“The biggest challenge is infrastructure—unreliable electricity and poor internet connectivity make AI adoption impossible. Cost is another factor; even basic equipment like computers is a luxury for us.” Project Officer

“Infrastructure challenges, especially poor internet and unreliable electricity, make access difficult. Additionally, there’s limited training for staff to use these tools effectively.” Program Associate

“Limited infrastructure and funding are the main challenges, but these can be overcome with strategic investments and partnerships.” Program Support officer

“Poor internet connectivity and lack of reliable electricity, another thing is most M&E staff are not trained to use advanced tools like AI. Another factor is AI solutions are expensive to procure and maintain.” M&E Coordinator

“Rural areas lack the IT infrastructure needed for AI tools, such as servers or stable internet, on top of that, IT hardware is expensive, another issue is project staff are unaware of how AI can help and are hesitant to adopt it.” IT Personnel

4.2 Objective two: To understand the attitude of project stakeholders towards AI adoption in healthcare project management.

This objective aims to explore how the perceived attributes of AI influence stakeholder attitudes towards its adoption. The emerging themes and their respective impacts on stakeholder attitudes are summarized in the table below.

Table 4.2: Perceived attributes and their influence on stakeholder attitudes

Perceives Attribute	Emerging themes/ Factors	Influence on attitudes
Relative Advantage	Diagnostic Accuracy and Efficiency	Positive
	Project Management and Resource Optimization	Positive
	Automation and Operational Efficiency	Positive
Triability	Triability of AI through Pilot Programs	Positive
	Confidence-Building and Risk Reduction through Pilots	Positive
	Enhancing Confidence and Mitigating Risks via Pilot Programs	Positive
Complexity	Perceived Complexity of AI Adoption	Negative
	User-Friendliness and Accessibility of AI Tools	Positive
	Training and Capacity Building Challenges	Negative
Observability	Success Stories of AI Implementation	Positive
Compatibility	Compatibility with Existent Workflows and Systems	Positive
	Consistency with the Objectives and Principles of the Organization	Positive

	Obstacles Regarding Cultural and Social Compatibility	Negative
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4.2.1 Relative Advantage

Diagnostic Accuracy and Efficiency

Finding 5: Artificial Intelligence possesses the capacity to significantly improve diagnostic precision and efficiency in healthcare initiatives. The Qure.AI project executed by CIDRZ exemplifies how AI systems can deliver swifter and more accurate analyses than conventional diagnostic techniques. This enables healthcare practitioners to identify medical issues more promptly and with enhanced accuracy. Many of the respondents indicated that AI optimises resource allocation and enhances forecasting abilities, allowing healthcare organisations to attain superior patient outcomes and refine operational procedures. Its ability to swiftly analyse extensive data sets facilitates quick decision-making and enhances service delivery.

"AI tools such as Qure.ai demonstrate clear benefits compared to conventional methods by reducing diagnostic wait times and enhancing accuracy. This efficiency greatly enhances project outcomes, especially in disease management." Project Manager

Project Management and Resource Optimization

Finding 6: AI substantially improves project management and resource allocation in healthcare environments through real-time monitoring and proactive issue resolution. These capabilities improve oversight and control, allowing healthcare managers to optimize staffing, budget allocation, and project timelines with greater efficiency. Many of respondents acknowledged that these innovations offer a distinct advantage over conventional manual techniques, which are frequently tedious and prone to human error. However, certain respondents expressed concerns that, despite the advantages of AI, it may not consistently outstrip conventional project management techniques due to contextual obstacles, including inadequate internet penetration and restricted accessibility in remote and rural regions.

"Artificial Intelligence may not consistently surpass conventional methods, particularly in environments lacking adequate technological support." Project officer

"I don't see AI as being significantly preferable to our current approaches in rural regions. Manual systems, although less convenient, are dependable and are not dependent on uncertain infrastructure." Program Associate

Automation and Operational Efficiency

Finding 7: AI-driven automation enhances healthcare operations by minimizing manual labor, decreasing errors, and saving time. Many respondents asserted that AI systems improve the accuracy of data and streamline administrative procedures, resulting in increased productivity and more effective resource allocation. Through the automation of repetitive tasks, AI allows healthcare professionals to focus on essential decision-making and patient care. The incorporation of AI into healthcare project management enhances overall efficiency in operations, providing an effective and efficient substitute for manual procedures.

"AI considerably enhances project efficiency by automating repetitive duties, including report compilation and indicator tracking. It also lessens inconsistencies in data analysis, providing a unique benefit over conventional methods." Monitoring and Evaluation Manager

4.2.2 Trialability

Trialability of AI through Pilot Programs

Finding 8: Pilot programs function as an effective method for evaluating AI on a limited scale prior to comprehensive deployment. Majority of the respondents affirmed that pilot projects enable stakeholders to evaluate the viability and potential success of AI in healthcare project management while recognising infrastructural challenges, including internet constraints. Minor trials, particularly those executed in rural environments, offer a chance to investigate the efficacy of AI in actual diagnostic applications. Pilot projects

assist stakeholders in comprehending AI's practical applications and guarantee its adaption to address the requirements of the healthcare sector prior to wider implementation.

“We conducted a pilot of AI tools in a limited project prior to expansion. This fostered confidence among stakeholders and imparted valuable insights for broader implementation. Project Officer

“My involvement in pilots, including the application of AI for vaccine inventory management, has demonstrated that AI can function effectively in rural settings when properly supported.” Information Technology Manager

Confidence-Building and Risk Reduction through Pilots

Finding 9: Pilot programs are essential for fostering stakeholders' confidence in AI by providing a low risk setting for implementation. Some informants mentioned that these initiatives enable organizations to test AI without the concern of significant failures, offering assurance to healthcare professionals and project managers. Stakeholders can directly observe AI's capabilities and identify potential challenges early through pilot projects. This process aids in alleviating resistance to change and enhancing acceptance of AI in healthcare project management.

“Prior to full implementation, we conducted a pilot of Qure.ai in select clinics to evaluate its efficacy and collect feedback. These trials were pivotal in fostering stakeholder trust and tailoring the technology to local requirements.” Project Manager

Finding 10: Pilot projects offer essential feedback mechanisms that facilitate ongoing enhancement and adjustment of AI systems. Some respondents reported that pilot projects assist organizations in recognizing immediate difficulties and implementing requisite modifications to improve AI's efficacy and usefulness. Stakeholders can utilize data from pilot trials to tailor AI technologies to more effectively meet operational

requirements and resolve unique process challenges. This iterative procedure guarantees that AI solutions are thoroughly optimized prior to extensive deployment.

“We piloted AI tools in a smaller project before scaling up. This helped build confidence among stakeholders and provided valuable lessons for wider implementation.”

Information technology manager

4.2.3 Complexity

Perceived Complexity of AI Adoption

Finding 11: The adoption of artificial intelligence is sometimes regarded as being difficult because of several issues that generate uncertainty and opposition among stakeholders.

Majority of the respondents informed that the introduction of artificial intelligence may be slowed down by these perceived complications, which necessitate specialized actions to solve them. They highlighted that there is a level of skepticism and worry regarding the use of artificial intelligence in healthcare project management due to the fear of job replacement. In addition, integrating the use of artificial intelligence into pre-existing workflows gives rise to significant challenges, as it demands the reconfiguration of existing processes and adjusting to new technology. The adoption process is made more complex by the need of specialized skills in areas such as predictive analytics and machine learning, which gives the impression that it is inaccessible to many stakeholders.

“Due to a lack of understanding of how the technology operates, stakeholders view artificial intelligence systems to be complicated. There is also the concern that technology could take over employment once held by humans. This complexity could be reduced using user-friendly technologies and training.” A Doctor of Medicine

User-Friendliness and Accessibility of AI Tools

Finding 12: The utilization of artificial intelligence tools is significantly affected by their user-friendliness and accessibility. A few of the Respondents highlighted that Artificial intelligence systems may be perceived as excessively complex by personnel lacking

technical expertise if they are not designed with user-friendliness as a priority. A considerable proportion of healthcare professionals and project managers perceive artificial intelligence as intimidating, which may hinder their engagement with new technologies. Simplifying user interfaces and ensuring intuitive design can diminish perceived complexity and facilitate broader adoption.

“The complexity of AI systems is a barrier. Most stakeholders need training to use them effectively. Simplified, user-friendly interfaces would help.” M&E officer

Training and Capacity Building Challenges

Finding 13: For artificial intelligence to be effectively adopted, it is vital to provide stakeholders with the appropriate knowledge and skills through adequate training and capacity-building efforts. Most of the respondents emphasized the significance of investing in efforts that continuously create capacity. However, the availability of comprehensive training programs can often be limited due to resource restrictions, which makes it challenging for users to develop the skills necessary to take advantage of artificial intelligence in an efficient manner. Because of the lack of appropriate training and continuing assistance, the adoption of artificial intelligence is believed to be more difficult than it is.

“Some staff still find it challenging to integrate AI outputs into their workflows.” IT Officer

“AI systems seem difficult to use, and training would take resources away from other critical areas.” Project support officer

4.2.4 Observability

Success Stories of AI Implementation

Finding 14: It is possible to persuade others to use artificial intelligence by sharing success stories and outcomes from AI implementations. This showcases the benefits that can be observed. Global triumphs in artificial intelligence, such as IBM Watson's

application in oncology, offer visible outcomes that boost adoption. Some respondents highlighted visible and measurable improvements AI projects bring to healthcare project management, demonstrating their effectiveness and reinforcing their value to stakeholders. Most of the respondents agreed that observability plays a crucial role in encouraging adoption by showcasing clear benefits.

“Our AI project at UNICEF has delivered visible improvements, such as faster reporting and better resource allocation. Sharing these results through reports and stakeholder meetings has enhanced confidence in AI”. IT Manager

“We’ve seen tangible results from Qure.ai, such as quicker TB diagnoses and fewer errors in interpreting radiology images. Sharing success stories and data has made the outcomes more convincing to stakeholders”. Project Manager

4.2.5 Compatibility

Compatibility with Existent Workflows and Systems

Finding 15: To facilitate adoption without interrupting established procedures, artificial intelligence (AI) in healthcare project management needs to connect smoothly with the tools and workflows that are already in place. Some respondents reported that it is possible to promote a smoother transition and lessen resistance to change by ensuring compatibility with regularly used systems such as dashboards and other similar programs. Artificial intelligence has the potential to supplement conventional procedures by operating in tandem with manual operations, so preserving continuity and improving efficiency. It is dependent on adequate investments in infrastructure and training to allow effective implementation for it to be compatible with data-intensive healthcare systems. However, a few informants indicated that AI adoption does not align with their current needs due to differences in contextual factors.

“AI doesn’t align well with our current needs. Rural healthcare has more pressing issues, such as staff shortages and lack of medical supplies.” Program officer

“AI tools can be compatible with healthcare goals if they are customized for rural settings.”

Project Support officer

Consistency with the Objectives and Principles of the Organization

Finding 16: It is imperative that artificial intelligence (AI) be aligned with the strategic goals of healthcare organizations to support objectives such as boosting data-driven decision-making, fostering transparency, and improving efficiency. Some of the respondents emphasized that the integration of this system helps to improve the delivery of healthcare by maximizing the utilization of available resources and easing the process of making informed decisions. Additionally, artificial intelligence helps to ensure transparency and accountability, both of which are necessary for efficient project management and improved healthcare outcomes. When artificial intelligence is aligned with the aims of an organization, it assures that its implementation will improve in-place procedures and satisfy the requirements of stakeholders.

“AI aligns well with healthcare project goals, especially for organizations prioritizing efficiency and data-driven decisions.” *Communications Manager*

AI aligns with CIDRZ’s goal of leveraging technology for better health outcomes.” *Project manager*

Education and skills development to achieve compatibility

Finding 17: When it comes to ensuring that artificial intelligence tools correspond with the existing competences of healthcare workers, training and skill development are necessary. Majority of the respondents corroborated that this will allow for a more seamless adoption process. It may be difficult for healthcare workers to efficiently utilize AI systems if they do not receive adequate training, which would restrict the potential benefits of these tools. When healthcare professionals invest in programs that create capacity, they can learn the skills necessary to work with artificial intelligence systems with confidence. Additionally, to maintain operational efficiency, it is necessary to make

continual training efforts and provide infrastructure support to guarantee interoperability with extremely data-intensive healthcare systems.

“AI compatibility depends on the readiness of the organization and its stakeholders. Limited IT literacy among some stakeholders may hinder adoption.” IT manager

Cultural and Social Compatibility

Finding 18: The adoption of artificial intelligence in healthcare is influenced by cultural and social variables, as local habits and traditions may cause resistance to changes brought about by technical advancements. All respondents confirmed that to guarantee acceptance and compatibility with preexisting workflows, efforts to embrace AI must take into consideration the aforementioned factors. To address concerns regarding the impact that artificial intelligence will have on traditional practices, training programs that are tailored to the local environment can assist bridge skill gaps. For overcoming social obstacles and guaranteeing the successful integration of artificial intelligence, it is vital to promote culturally appropriate solutions and encourage inclusive participatory participation from stakeholders.

“Cultural factors, such as skepticism toward technology, and organizational inertia pose challenges. Training programs can help bridge this gap.” Medical Doctor

“Some cultural resistance to new technologies and a preference for manual methods in certain settings create obstacles to full adoption.” IT Manager

4.3 Objective 3: To assess the availability of AI in healthcare project management. This objective seeks to assess the availability of AI in Healthcare Project management, and two emerging themes were identified.

Table 1.3: Summary of themes

Emerging themes/ Factors
Urban vs Rural Disparities
Perceived benefits of AI Adoption
Perceived barriers to AI Adoptions

4.3.1 Current Applications of AI in Healthcare Projects

Finding 19: AI is currently being utilized in various healthcare projects to enhance operations and improve patient outcomes. Some respondents confirmed that AI's applications include patient data analysis and diagnostics, predictive analytics for healthcare forecasting, and Natural Language Processing (NLP) for analyzing feedback surveys. Additionally, Robotic Process Automation (RPA) is used to streamline administrative tasks such as scheduling and reporting, while AI-powered tools like Qure.ai assist in diagnosing conditions such as tuberculosis through chest X-ray analysis. AI dashboards and data visualization platforms are employed to monitor project indicators in real-time, helping healthcare professionals track trends and optimize decision-making processes.

"AI is currently used for patient data analysis and diagnostics, such as detecting heart conditions. These processes have become faster and more accurate.

AI Implementation Challenges." Medical Doctor

"We use machine learning models for predictive analytics, natural language processing (NLP) for analyzing feedback surveys, and robotic process automation (RPA) for streamlining administrative tasks like scheduling and reporting." IT Manager

4.3.2 AI Readiness and Future Potential

Finding 20: While AI adoption in healthcare projects is still in its early stages, there is considerable potential for expansion. Few respondents informed that many organizations are considering integrating AI with their existing digital tools to enhance efficiency and decision-making capabilities. Building capacity through targeted training programs and sharing success stories can help overcome resistance and foster a culture of AI acceptance. Scaling AI-driven solutions requires strategic planning and investment in infrastructure to ensure seamless integration into healthcare systems. With proper

support, AI has the potential to revolutionize healthcare project management and significantly improve service delivery.

“AI is becoming more accessible in Zambia's healthcare projects, especially with support from international organizations like UNICEF.” IT Manager

4.4 CONCLUSION

The findings of this study reveal that while AI presents significant opportunities for improving healthcare project management, its adoption is still in the early stages and faces several challenges. The availability of AI varies significantly between urban and rural areas, with infrastructure and resource constraints hindering its implementation in underserved regions. Despite these barriers, AI offers substantial benefits such as enhanced diagnostic accuracy, optimized resource management, and improved operational efficiency. Stakeholder attitudes toward AI adoption are influenced by key perceived attributes, including relative advantage, trialability, complexity, compatibility, and observability. Addressing these factors through targeted strategies such as capacity building, infrastructure investment, and policy development can help facilitate AI integration and maximize its potential in healthcare project management. The study underscores the need for a balanced approach that considers both the opportunities and challenges associated with AI adoption to ensure its successful and sustainable implementation

CHAPTER FIVE

DISCUSSION OF RESEARCH FINDINGS

5.0 INTRODUCTION

This discussion examines the findings in relation to the perceived attributes of artificial intelligence (AI) that influence its adoption in healthcare project management, guided by Rogers' Diffusion of Innovations Theory. Attributes such as relative advantage, which highlights AI's potential to enhance diagnostic accuracy, operational efficiency, and decision-making, are explored alongside trialability, emphasizing the value of pilot programs in reducing risks and fostering stakeholder confidence. The study also addresses complexity, with stakeholders citing challenges such as job displacement fears, integration difficulties, and the need for specialized skills, and compatibility, focusing on the alignment of AI with existing workflows and organizational goals. Lastly, observability emerges as a critical factor, with success stories and visible outcomes boosting trust and encouraging broader adoption. These attributes, coupled with infrastructural, cultural, and training-related considerations, underscore the pathways and barriers to successful AI integration in healthcare systems.

5.1 Objective 1: To Assess the Availability of AI in Healthcare Project Management.

Urban vs. Rural Disparities

Urban areas demonstrate a clear advantage in AI adoption within healthcare project management, driven by better infrastructure, reliable internet, and access to technical expertise. Respondents highlighted the disparity between urban and rural areas, with rural regions struggling due to limited resources and technical capacity. While urban areas benefit from advanced tools and systems, rural healthcare settings rely heavily on manual data collection and are only beginning to explore digital tools through pilot projects. These findings align with Mohit et al. (2023), who emphasize that financial constraints are significant hurdles to adopting AI, as investments in infrastructure, personnel training, and change management require substantial resources.

The research underscores that while AI adoption is concentrated in urban areas, rural areas hold untapped potential if foundational challenges are addressed. Participants pointed out that tailoring AI tools to the specific needs of rural healthcare systems, combined with investments in IT infrastructure and capacity-building, could bridge the gap. However, in resource-limited settings, basic healthcare needs often take precedence over technological advancements, making it imperative for stakeholders to prioritize scalable, cost-effective solutions that address both infrastructure gaps and local healthcare priorities.

Perceived Benefits of AI Adoption

The integration of AI into healthcare project management provides substantial benefits, particularly in improving diagnostic accuracy, resource allocation, and operational efficiency. Respondents highlighted how AI-powered tools enhance data quality, automate routine tasks, and facilitate evidence-based decision-making, leading to more efficient healthcare delivery and reduced human errors. AI-driven reporting systems were noted as cost-effective solutions that support real-time progress tracking and the generation of actionable insights. These findings align with Smith and Jones (2023) and Adegbite (2023), who emphasize AI's potential to revolutionize workflows by automating operations and improving decision-making processes.

Furthermore, AI technologies like machine learning enhance adaptability and scalability in project management by optimizing resource allocation, task scheduling, and performance over time (Jones et al., 2021; Karamthulla et al., 2024). As noted by Mohit et al. (2023), AI's real-time monitoring capabilities allow for dynamic resource allocation and effective responses to evolving project needs, reducing delays and controlling costs. While the benefits are substantial, the literature also underscores the continued importance of human intervention to refine AI outputs and ensure accuracy, ensuring that these tools are effectively integrated into healthcare workflows for maximum impact.

Barriers to AI Adoption

The adoption of AI in healthcare projects faces significant barriers despite its transformative potential. Organizations often rely on manual processes due to infrastructure deficiencies, such as limited internet connectivity and inadequate technical support, particularly in rural and underserved areas. Financial constraints remain a major obstacle, as the costs associated with technology infrastructure, personnel training, and change management are prohibitive for many organizations (Mohit et al., 2023). Additionally, skepticism among healthcare staff regarding AI's reliability and resistance to change further impede adoption efforts.

Contextual challenges, such as varying healthcare needs and resource availability, exacerbate these barriers, making it difficult to align AI-driven solutions with existing systems. Regulatory uncertainties and cultural resistance also contribute to the slow uptake of AI in healthcare. While the potential benefits of AI are widely recognized, these challenges highlight the need for strategic investments, capacity-building initiatives, and efforts to address both technical and cultural barriers to create an enabling environment for AI integration

5.2 Objective 2: To Understand the Attitude of Project Stakeholders Towards AI Adoption.

Relative Advantage

Artificial Intelligence (AI) offers transformative potential in healthcare project management, significantly enhancing diagnostic precision, resource optimization, and operational efficiency. Projects like Qure.AI, executed by CIDRZ, exemplify how AI systems can deliver faster and more accurate diagnostic results than traditional methods, enabling prompt decision-making and better patient outcomes. Respondents noted that AI optimizes resource allocation and enhances forecasting abilities, streamlining operations and improving service delivery. These findings align with the literature, which highlights AI's ability to process vast datasets, automate routine tasks, and improve project workflows, as emphasized by Brown and Miller (2020) and Jones et al. (2021).

AI-driven project management tools provide real-time monitoring and proactive issue resolution, allowing healthcare managers to optimize budgets, staffing, and timelines more effectively. Studies like Oladipo et al. (2024) demonstrate AI's potential to enhance resource allocation during public health crises, such as in South Africa's pandemic response. However, respondents and researchers, including Oyeyemi et al. (2024), acknowledge the contextual challenges to AI adoption, particularly in rural areas where limited infrastructure and internet access hinder implementation. While AI-driven automation reduces manual labor, minimizes errors, and saves time, respondents emphasized that manual systems remain reliable in regions lacking technological support, highlighting the importance of tailoring AI solutions to local contexts.

The relative advantage of AI, as described by Rogers' Diffusion of Innovations Theory, is evident in its ability to save time, enhance efficiency, and deliver immediate results. Despite the challenges, AI-driven automation provides substantial benefits, such as real-time monitoring and dynamic resource allocation, which empower project managers to swiftly adapt to evolving needs, reduce delays, and manage costs effectively. These findings support the assertion that AI is revolutionizing project management by streamlining workflows, enhancing decision-making, and optimizing outcomes, as discussed by Smith and Johnson (2019) and Adegbite et al. (2023). However, the full realization of AI's potential depends on addressing infrastructural gaps and ensuring its accessibility in underserved regions.

Trialability

Pilot programs play a crucial role in evaluating the feasibility, effectiveness, and adaptability of AI technologies in healthcare project management. They provide a controlled environment to test AI systems on a limited scale, enabling stakeholders to assess their practical applications, particularly in rural and resource-constrained settings. Respondents emphasized that pilot initiatives, such as using AI for vaccine inventory management or diagnostic support, foster confidence among stakeholders by demonstrating tangible benefits while addressing infrastructural challenges like limited internet connectivity. These findings underscore that pilot projects not only build trust but

also ensure AI solutions are adapted to the specific needs of the healthcare sector prior to broader implementation.

Pilot programs also function as risk-reduction strategies, offering stakeholders the opportunity to test AI systems without the fear of significant failures. Through direct observation and feedback mechanisms, organizations can evaluate AI's efficacy, identify challenges, and make iterative improvements to optimize performance. Respondents noted that these initiatives alleviate resistance to change by showcasing AI's capabilities and reliability in real-world scenarios, ultimately enhancing stakeholder acceptance. This aligns with the iterative nature of pilot programs, which facilitate ongoing adjustments, ensure alignment with operational requirements, and refine AI technologies to maximize their efficacy before comprehensive deployment. By serving as a bridge between conceptual innovation and practical application, pilot programs are instrumental in mitigating risks, fostering stakeholder confidence, and ensuring the successful integration of AI into healthcare project management.

Complexity

The adoption of artificial intelligence (AI) in healthcare project management is often perceived as complex due to various challenges that create uncertainty and resistance among stakeholders. Respondents noted concerns such as the fear of job replacement and the difficulties associated with integrating AI into existing workflows, which often require significant process reconfiguration. Additionally, the specialized skills required for predictive analytics and machine learning make AI seem inaccessible to many, further slowing its adoption. These findings align with Westernberger et al. (2021), who emphasize that the complexity of AI systems and the need for specialized expertise present significant technological barriers. To address these issues, respondents suggested simplifying AI tools and offering training to reduce complexity and foster trust.

The user-friendliness and accessibility of AI tools play a critical role in influencing their adoption. Many respondents highlighted that overly complex interfaces and the lack of intuitive design can deter healthcare professionals and project managers from engaging

with AI technologies. This finding supports the insights of Pillai and Sivathanu (2020), who identified perceived ease of use and usefulness as significant predictors of AI adoption. Simplified, user-friendly interfaces and tailored training programs can alleviate these concerns, making AI tools more approachable for non-technical users.

Training and capacity-building challenges further complicate AI adoption. Respondents emphasized that comprehensive training programs are often limited by resource constraints, leaving users without the necessary skills to integrate AI effectively into their workflows. This corresponds with Alshebni's (2019) findings, which highlight the lack of trust and transparency in AI systems as a barrier to adoption. By investing in continuous capacity-building efforts and ensuring that stakeholders receive adequate support, organizations can mitigate these challenges, build confidence, and foster broader acceptance of AI technologies in healthcare project management.

Compatibility

The adoption of artificial intelligence (AI) in healthcare project management requires seamless compatibility with existing workflows, systems, and organizational objectives to minimize disruptions and resistance to change. Respondents emphasized that integrating AI with regularly used tools, such as dashboards, and supplementing conventional procedures can improve efficiency while maintaining continuity. However, achieving compatibility depends heavily on investments in infrastructure, training, and customization, particularly in rural healthcare settings with unique contextual needs. This aligns with Kaplan (2019) and Heng and Nor (2024), who highlight interoperability challenges and the need for workforce upskilling during AI implementation.

For AI adoption to succeed, it must align with the strategic goals of healthcare organizations, such as fostering transparency, improving decision-making, and enhancing efficiency. When properly integrated, AI can optimize resource utilization and enhance healthcare outcomes. However, cultural resistance, skepticism toward new technologies, and concerns about data privacy remain significant barriers, as noted by Wang and Pan (2022). Studies by Kora (2020) and Kiemde (2021) in Africa further

reinforce that insufficient digital infrastructure, education gaps, and public policy constraints hinder AI adoption. These socio-cultural and organizational challenges underscore the need for culturally sensitive solutions, inclusive stakeholder engagement, and continuous capacity-building initiatives to ensure successful implementation.

Training and skill development are essential for healthcare workers to effectively use AI systems. Without adequate training, the potential benefits of AI may remain unrealized, particularly in data-intensive systems. Tailored programs that address skill gaps and support workforce upskilling can help bridge these challenges. However, Africa's overall low AI readiness, as noted by Gwagwa et al. (2021), highlights the importance of international partnerships and funding to address digital infrastructure gaps and support sustainable AI adoption. Culturally appropriate strategies and participatory approaches will be critical to overcoming resistance and ensuring that AI aligns with local contexts and organizational needs.

Observability

Observability plays a crucial role in driving the adoption of artificial intelligence (AI) in healthcare project management by showcasing visible and measurable benefits. Success stories from global AI implementations, such as IBM Watson's application in oncology, provide compelling examples of how AI can deliver tangible improvements. Respondents emphasized that sharing results from local initiatives, such as Qure.ai's ability to expedite tuberculosis diagnoses and reduce radiology errors, or UNICEF's AI projects that improved reporting and resource allocation, helps build stakeholder confidence and demonstrates AI's value.

By presenting these outcomes through reports, data visualization, and stakeholder meetings, organizations can effectively highlight the efficiency, accuracy, and scalability AI brings to healthcare. Observability not only reinforces the practical benefits of AI but also serves as a persuasive tool to alleviate skepticism and encourage broader adoption. This aligns with the notion that showcasing real-world applications and success stories is

critical for gaining buy-in from stakeholders and demonstrating AI's potential to revolutionize healthcare project management.

5.3 Objective 3: To Assess the Availability of AI in Healthcare Project Management.

Current Applications of AI in Healthcare Projects

The findings reveal that Artificial intelligence (AI) is currently being applied across various healthcare projects to enhance operations, improve diagnostics, and streamline administrative processes. Key applications include patient data analysis, predictive analytics for healthcare forecasting, and Natural Language Processing (NLP) for interpreting feedback surveys. Robotic Process Automation (RPA) is employed to optimize administrative tasks like scheduling and reporting, reducing manual workloads. Tools such as Qure.ai exemplify AI's potential in diagnostics by providing faster and more accurate analyses, such as detecting tuberculosis through chest X-ray interpretation. Additionally, AI-powered dashboards and data visualization platforms enable healthcare professionals to monitor project indicators in real-time, facilitating trend analysis and data-driven decision-making.

Despite these advancements, the integration of AI in healthcare is contingent on addressing infrastructural challenges, such as improving electricity and internet access, as highlighted by Owoyemi et al. (2023). Accelerating infrastructure development is critical to supporting the data generation and analysis required for AI to achieve its full potential. These technologies demonstrate the transformative power of AI in healthcare while emphasizing the need for foundational support to maximize its impact.

AI Readiness and Future Potential

Although AI adoption in healthcare projects is still in its early stages, it holds significant potential for growth and transformative impact. Many organizations are exploring ways to integrate AI with existing digital tools to improve efficiency and enhance decision-making. Scaling these solutions requires strategic investments in infrastructure and targeted capacity-building programs to ensure seamless integration into healthcare systems.

Sharing success stories and demonstrating tangible outcomes can help overcome resistance, foster trust, and encourage broader acceptance of AI technologies.

With support from international organizations like UNICEF, AI is gradually becoming more accessible in Zambia’s healthcare projects. Properly planned initiatives, coupled with investments in training and infrastructure, can unlock AI’s full potential to revolutionize healthcare project management and significantly enhance service delivery, particularly in resource-constrained settings.

Table 2.1: Perceived attributes influence on adoption and impact on AI Adoption

Perceived Attribute	Definition	Influence on attitudes	Impact on AI adoption
Relative Advantage	The degree to which stakeholders perceive AI adoption as better than existing project management practices	Positive	positive
Compatibility	The extent to which AI integration aligns with stakeholders' values, needs, and existing practices within the project management context.	Positive	Positive
Complexity	The perceived difficulty of understanding and using AI technologies in project management processes.	Negative	Negative
Trialability	The extent to which stakeholders can experiment with AI on a limited basis before full adoption.	Positive	Positive
Observability	The visibility of AI's benefits and outcomes within project management practices	Positive	Positive

5.4 CONCLUSION

In summary, this study highlights the transformative potential of AI in healthcare project management while also taking into consideration the key challenges that influence its adoption. While AI offers significant advantages in efficiency, decision-making, and resource optimization, barriers such as infrastructure limitations, financial constraints, and resistance to change remain critical obstacles. Stakeholder attitudes are shaped by factors like perceived complexity, compatibility with existing systems, and the visibility of

successful implementations. Addressing these challenges through targeted investments in digital infrastructure, training, and pilot programs can foster a more conducive environment for AI adoption. Ultimately, strategic and context-specific approaches will be essential to unlocking AI's full potential in enhancing healthcare project management.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 CONCLUSION

This report provides a comprehensive exploration of the availability, perceived attributes, and readiness for artificial intelligence (AI) adoption in healthcare project management. The findings reveal that while AI holds immense potential to revolutionize healthcare by enhancing diagnostic precision, operational efficiency, and decision-making, its adoption is still in its nascent stages, particularly in resource-constrained settings. Urban areas exhibit higher AI adoption due to better infrastructure and access to technical expertise, while rural regions face significant barriers, including limited resources, inadequate infrastructure, and a lack of technical capacity.

The study highlights several key perceived attributes influencing AI adoption. Relative advantage underscores the significant benefits of AI in optimizing resources, automating workflows, and improving healthcare outcomes. Trialability emerges as a critical enabler, with pilot programs demonstrating the feasibility and reliability of AI solutions while addressing stakeholder concerns. However, complexity and compatibility present major challenges, as integrating AI into existing workflows often requires reconfigurations, capacity building, and tailored solutions to meet local needs. Observability proves instrumental in driving adoption, as success stories and visible outcomes reinforce stakeholder confidence and foster trust in AI technologies.

Addressing these challenges requires a strategic and collaborative approach. Investments in infrastructure, targeted training programs, and culturally sensitive strategies are essential to overcome barriers and ensure that AI solutions are accessible and sustainable. By fostering an enabling environment and leveraging international support, healthcare organizations can unlock the transformative potential of AI, bridging the gap between innovation and real-world impact. As AI adoption in healthcare continues to evolve, this report underscores the importance of a tailored, inclusive, and evidence-

based approach to ensure equitable and effective integration into healthcare project management.

6.2 RECOMMENDATIONS

1. Monetary Assistance and Financial Backing

An essential technique for enhancing AI adoption in healthcare initiatives is the provision of financial assistance via subsidies and funding. Participants underscored the necessity for augmented investment in AI training initiatives and infrastructure enhancement, especially in rural and marginalized regions. Augmenting financial resources will empower healthcare organizations to procure essential AI tools, bolster personnel capabilities, and guarantee sustainable adoption.

2. Development of Policies and Regulations

Formulating explicit policies and legal frameworks is crucial for directing AI implementation in healthcare. Participants emphasized the necessity of formulating local rules that tackle data privacy, security, and ethical issues, so assuring the proper utilization of AI. Standardizing electronic health records and promoting interoperability among healthcare facilities would enhance the smooth integration of AI technologies.

3. Capacity Development and Instruction

The effective implementation of AI in healthcare necessitates substantial investment in capacity-building initiatives. Participants recommended educating healthcare practitioners and IT personnel to proficiently manage and employ AI solutions. Improving AI literacy across stakeholders will mitigate scepticism and foster confidence in the technology. Delivering continuous technical support and imparting essential skills to monitoring and evaluation personnel would enhance the efficient application of AI in healthcare initiatives.

4. Pilot Initiatives and Demonstration Projects

Pilot programs are essential for showcasing the advantages of AI and fostering stakeholder trust. Implementing pilot projects in targeted healthcare domains, such as training effect assessments and project administration, enables organizations to evaluate AI tools in practical environments. These activities assist in identifying difficulties, enhancing AI applications, and customizing solutions to local contexts prior to broader introduction.

5. Infrastructure Advancement

Rectifying infrastructure deficiencies is essential to facilitate AI implementation, especially in rural and marginalized areas. Participants emphasized the necessity of investing in the enhancement of internet connectivity, the modernization of IT systems, and the fortification of data security to facilitate AI integration. Enhancing healthcare infrastructure would enable the efficient functioning of AI systems and promote their enduring viability.

6. Collaborations and Alliances

Partnerships with technological firms, global organizations, and local entities are crucial for tailoring AI solutions to meet Zambia's healthcare requirements. Participants underscored the importance of establishing strategic alliances to adapt AI technologies, use global experience, and guarantee the sustainability of AI efforts via pooled resources and technical assistance.

7. Dissemination of Knowledge and Advocacy

Facilitating knowledge dissemination and enhancing awareness of effective AI implementations are essential for fostering adoption. Communicating success narratives to stakeholders may foster trust and underscore the potential advantages of AI. Promoting transparency and trust via transparent communication would enable stakeholders to comprehend the influence and significance of AI in healthcare project management.

8. Surveillance and Assessment

Establishing definitive measures to evaluate AI's influence on healthcare initiatives is essential for guaranteeing its efficacy and pertinence. Participants advocated for ongoing assessment of AI technologies to evaluate their impact on project results, pinpoint opportunities for enhancement, and illustrate their worth to stakeholders. Consistent reporting and demonstration of concrete outcomes will enhance AI's acceptance and facilitate its wider deployment.

9. Maintaining Equilibrium Between AI and Conventional Approaches

In the context of AI deployment, respondents highlighted the necessity of preserving equilibrium with conventional healthcare practices. Addressing essential healthcare demands prior to the implementation of AI solutions will mitigate excessive dependence on technology and facilitate a smooth, pragmatic transition to AI-driven healthcare systems.

6.3 AREAS FOR FUTURE RESEARCH

Future research on AI adoption in healthcare project management in Zambia should prioritize several key areas. First, longitudinal studies on AI adoption trends can provide insights into how perceptions, challenges, and facilitators evolve over time, helping policymakers and healthcare leaders develop adaptive strategies for sustainable AI integration. Second, comparative studies between Zambia and other developing countries would offer valuable lessons by highlighting best practices, challenges, and contextual factors influencing AI adoption, enabling Zambia to learn from similar healthcare environments. Third, ethical and legal considerations in AI adoption require further investigation, particularly regarding data privacy, security, and the development of regulatory frameworks that ensure responsible and fair AI implementation in healthcare. Fourth, AI readiness and digital literacy among healthcare professionals is a crucial area of study, as understanding the current skill gaps and designing targeted training programs can significantly enhance AI adoption and utilization. Finally, the impact of AI on healthcare workforce and service delivery needs to be explored to assess how AI technologies influence job roles, workload distribution, and overall patient care, as well as potential resistance from healthcare practitioners. Addressing these areas through

future research will provide a strong foundation for scaling AI adoption in Zambia's healthcare sector.

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APPENDICES

APPENDIX 1: RESEARCH TIME FRAME AND RESEARCH ACTIVITIES

Activities	Months				
	July	Aug	Sept	Oct	Nov
Data Collection					
Transcription					
Qualitative Data Analysis					
Report writing					
Report Submission					

APPENDIX 2: RESEARCH INTERVIEW GUIDE

INTERVIEW GUIDE

My name is Encyla Chisha, and I am a Master of Science in Project Management student at the University of Lusaka. As part of the requirements for the partial fulfillment of my degree, I am conducting a research study titled *“Exploring the Perceived Attributes Influencing Stakeholder Attitudes Towards AI Adoption in Healthcare Project Management in Zambia.”*

This study seeks to assess the availability of AI, understand stakeholder attitudes toward its adoption based on perceived attributes, and explore the utilization of AI in healthcare project management. Your participation in this interview is vital to providing valuable insights that will contribute to a better understanding of this topic.

The interview will take approximately 30 -40 mins, and all your responses will remain confidential, and your identity will not be disclosed. Participation is entirely voluntary, and you are free to skip any questions or withdraw at any time without any consequences. With your consent, I would like to audio-record this session to ensure that your views are accurately captured.

Thank you for taking the time to participate in this research, your responses are invaluable to this undertaking.

Section 1: Availability of AI in Healthcare Project Management

1. What is your understanding of the availability of AI tools or systems in healthcare project management within your organization or the healthcare sector in Zambia?
2. Have you encountered any AI solutions or projects in healthcare project management? If yes, can you share examples? *Probe: What resources (e.g., infrastructure, budget, personnel) are currently available to support the adoption of AI in your organization?*
3. What are the main challenges you perceive in accessing or implementing AI tools for healthcare projects? *Probe: Are there any regulatory, technical, or organizational constraints affecting AI availability?*
4. What opportunities do you think AI presents for improving healthcare project management in Zambia? *Probe: In your opinion, are there specific areas of healthcare project management where AI could have the most significant impact?*

Section 2: Attitudes of Project Stakeholders Toward AI Adoption (Exploring Perceived Attributes)

Relative Advantage

5. In your opinion, how does AI compare to traditional methods of managing healthcare projects in terms of improving efficiency or outcomes? *What specific benefits do you think AI could bring to healthcare project management? Are there areas where you feel AI offers a clear advantage or disadvantage? Why?*

Compatibility

6. Do you feel that AI aligns with the needs and priorities of healthcare stakeholders? Why or why not? *Probe: Are there cultural or organizational factors that could make AI adoption easier or harder in this context?*

Complexity

7. How easy or difficult do you think it is for stakeholders to understand and use AI in healthcare project management? *Probe: What aspects of AI technology seem complex or challenging for project stakeholders to adopt?*

Trialability

8. Have you or others in your organization had opportunities to test or pilot AI tools in healthcare projects? What kinds of support or resources would make it easier to try out AI solutions in healthcare projects?

Observability

9. Have you observed or heard about successful AI implementations in healthcare project management (locally or globally)?
10. What would make the outcomes of AI adoption more evident or convincing to stakeholders?

11. Based on your earlier responses about the perceived attributes of AI, would you personally consider adopting AI technology in healthcare project management? *Why or why not?*
12. Considering your experience and perspective, do you see AI adoption as a priority for healthcare project management in Zambia? What factors influence your stance?

Section 3: Utilization of AI in Healthcare Project Management

13. Are there any specific AI tools or technologies currently being utilized in your healthcare projects? If yes, how are they being used? *Probe: What processes, if any, have been automated or optimized using AI in your projects?*
14. What benefits, if any, have you experienced or observed from using AI in healthcare project management? *Probe: How has AI impacted project outcomes, efficiency, or decision-making in your organization?*
15. Are there any gaps or unmet needs in the current utilization of AI in healthcare project management?

Recommendations

16. What strategies would you recommend addressing the barriers to AI adoption that you mentioned or increase its adoption?

APPENDIX 3: ETHICAL APPROVAL LETTER



SCHOOL OF POSTGRADUATE STUDIES

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UNILUS-RESEARCH ETHICS COMMITTEE

Ref no: FWA00033228-20212/24

Date: 13th December 2024

STUDENT NAME: Encyla Chisha

RESEARCH TOPIC: Perceived attributes influencing Stakeholder attitudes towards the adoption of Artificial Intelligence in Project Management.

The above research was submitted to the research ethics committee for review. The study has no major ethical problems and is approved subject to the following:

1. The study cannot be changed without express permission of the UNILUS research ethics committee.
2. Approval from the necessary authority should be sought.

Congratulations and the committee wishes you success in your work.

A handwritten signature in blue ink, appearing to be 'KB', is written above a horizontal line.

Professor Kasonde Bowa

MSc(Glasgow),M.Med(UNZA),FRCS(Glasgow),FACS,FCS,DPH(LSTMH),MPH(UCL)

Chairman- UNILUS REC

Professor of Urology and Consultant Urologist

Deputy Vice-Chancellor – Research and Innovation

Executive Dean - School of Medicine and Health Sciences

APPENDIX 4: SIMILARITY REPORT



0%

SIMILARITY OVERALL

0.65%

POTENTIALLY AI

SCANNED ON: 29 JAN 2025, 11:12 PM

AI Detector Results

Highlighted sentences with the lowest perplexity, most likely generated by AI.

 LIKELY AI
0.65%

 HIGHLY LIKELY AI
0.00%

Report #24584597

1063625766900 SCHOOL OF POSTGRADUATE STUDIES Perceived Attributes Influencing Stakeholder Attitudes towards the Adoption of Artificial Intelligence in Project Management A Proposal Presented in Partial Fulfilment for requirement of the Program Master of Science in Project Management (MSc PM) Student Name: Encyla Chisha Student Number: MSCPM23118685 2025

DECLARATION, Encyla Chisha, hereby declare that this dissertation is my original work and has been conducted in accordance with the academic writing rules, copyright regulations, and research ethics of the University of Lusaka. I affirm that all sources of information, data, and references used in this work have been duly acknowledged