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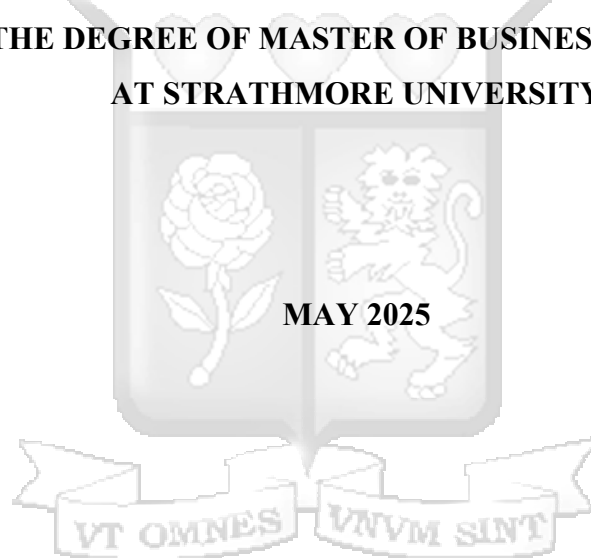
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**ORGANIZATIONAL FACTORS INFLUENCING THE ADOPTION OF
ARTIFICIAL INTELLIGENCE BY PETROLEUM COMPANIES IN NAIROBI
COUNTY**

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MBA 166868**

**A DISSERTATION SUBMITTED TO STRATHMORE UNIVERSITY BUSINESS
SCHOOL IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE
AWARD OF THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION
AT STRATHMORE UNIVERSITY**



DECLARATION

I declare that this dissertation has not been previously submitted and approved for the award of a degree by this or any other University. To the best of my knowledge and belief, the dissertation contains no material previously published or written by another person except where due reference is made in the proposal itself.

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166868

Signature..........Date.....2nd May, 2025.....

Approval

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Signature.......... Date....2nd May 2025.....

DEDICATION

This dissertation is dedicated to those who have inspired, guided, and supported me throughout this journey. To my mentors and professors, whose wisdom and encouragement have shaped my understanding and fueled my international growth; To my family and friends, whose unwavering support has been the foundation of my perseverance; To my beloved wife, whose constant support, encouragement and prayers have been my greatest strength. Thank you for believing in me every step of the way.



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This dissertation would not have been possible without the invaluable support, encouragement, and guidance of numerous individuals and institutions.

First and foremost, I extend my deepest gratitude to my supervisor, Dr. Geoffrey Injeni whose expertise and insightful guidance have profoundly shaped the direction and rigor of this study. His constructive feedback and unwavering support have been instrumental in refining my understanding and approach, providing a solid foundation for this work.

I also extend my heartfelt thanks to my family, whose steadfast support, patience, and belief in my abilities have been a source of strength throughout this journey. Their encouragement has inspired me to persevere even in the most challenging moments.

To my colleagues, friends and peers, whose insightful discussions, thoughtful advice, and shared experiences have enriched this work - thank you for the invaluable collaboration and inspiration.

Finally, I am deeply grateful to all those whose contribution, both great and small, have made this dissertation a reality.

ABSTRACT

Artificial Intelligence (AI) in the petroleum sector gained significant attention globally, as it became essential in various innovative operations. However, the pace of AI adoption varied, with specific factors influencing the readiness and willingness of organizations to integrate AI. This study explored the organizational factors influencing the adoption of AI by petroleum companies in Nairobi County. The research focused on different models and factors, and outlined various theories guiding the AI adoption process. Different models were used in this analysis including TAM as well as DOI theory. Data was gathered through a survey system, targeting 179 senior management and technical staff from petroleum companies operating in Nairobi County. Additionally, secondary data was obtained from company reports, industry publications, and regulatory documents. The analysis employed a combination of quantitative techniques, particularly multinomial logistic regression, to assess the factors influencing AI adoption. The findings revealed that leadership support, technological infrastructure, employee skills, organizational culture, and financial resources were all significant factors influencing AI adoption in petroleum companies. Leadership support and organizational culture were found to play particularly significant roles in driving AI adoption, while technological infrastructure and employee skills were also crucial enablers. The study concluded that organizations that invested in leadership support, created a culture open to technological change, and ensured their employees were adequately trained were more likely to achieve successful AI adoption. The study recommended that policymakers in the petroleum sector should create an enabling environment that encourages AI integration through supportive regulations, incentives for technological infrastructure development, and partnerships between public and private sectors. Industry leaders and practitioners were advised to prioritize AI-related employee training and invest in necessary technological infrastructure. It was further recommended that researchers and theorists continue to explore AI adoption in the petroleum sector, with a focus on the interaction between organizational culture, leadership, and technological readiness. These recommendations were expected to guide organizations in enhancing their AI adoption strategies, ultimately improving their competitiveness and sustainability in the industry. The study also contributed to expanding the theoretical and practical understanding of AI adoption in the energy sector.

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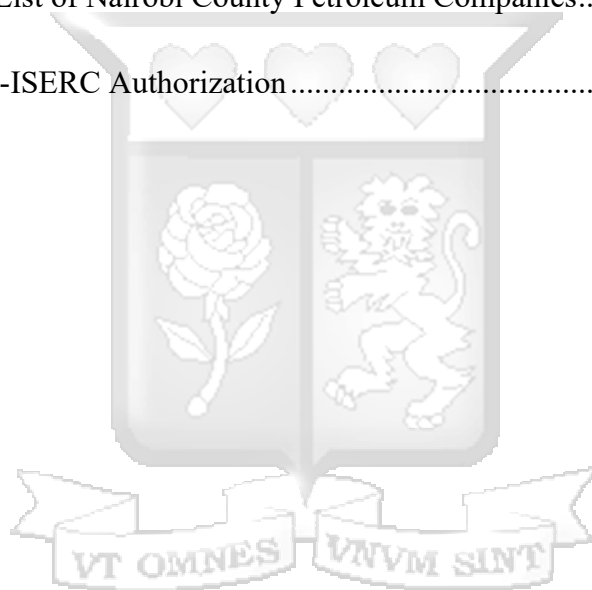
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LIST OF ABBREVIATIONS

AI – Artificial Intelligence

B2B – Business to Business

CEO – Chief Executive Officer

CIO – Chief Information Officer

ERP – Enterprise Resource Planning

HR – Human Resources

ICT – Information and Communication Technology

IoT – Internet of Things

IT – Information Technology

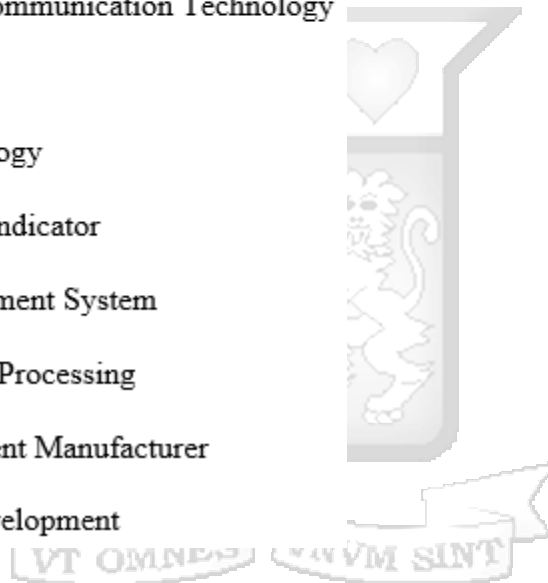
KPI – Key Performance Indicator

LMS – Learning Management System

NLP – Natural Language Processing

OEM – Original Equipment Manufacturer

R&D – Research and Development



CHAPTER ONE: INTRODUCTION

1.1. Background of the study

The petroleum industry in Nairobi is a critical sector, driving both economic growth and energy supply for the region. In recent years, the industry has faced numerous challenges, including volatile global oil prices, regulatory pressures, and increasing competition. Analysis confirms that AI help firms in their operations and ease their levels of challenges in almost all firms (Al-Blooshi & Arshad, 2023). However, despite the promising benefits, the adoption of AI in the petroleum sector remains hindered by various organizational factors, including leadership support, resource availability, and employee readiness (Chege, 2024). As AI continues to evolve, it becomes imperative to increase as well as integrate its systems in firms.

Evidently, organizational factors are important in usage of technology models in firms must be understood from a broad look (Keter, 2019). This is possible since almost all firms are currently finding ways to use (Gupta & Shah, 2022; Sircar et al., 2021). These factors encompass leadership and management support, organizational culture, technological infrastructure, financial resources, and human resource capabilities. Effective leadership commitment is crucial for driving AI adoption, as top management's perception of AI's strategic value can significantly influence resource allocation and the prioritization of AI initiatives (Roberts & Flin, 2020; Iwuanyanwu, 2021). Organizational culture, which includes openness to innovation and the readiness to embrace change must be put under radar in this view (AlMujaini et al., 2019). Adequate technological infrastructure and skilled personnel are essential as well as the need for platforms, and expertise to harness AI's full potential (Hussain et al., 2024). Additionally, the alignment of AI adoption with the company's strategic goals is important for long-term sustainability and success of AI-driven initiatives (Gupta & Shah, 2022; Kilonzi & Mwikali, 2022).

Leadership commitment is crucial as it sets the tone for innovation and provides the necessary support for integrating AI into company processes (Almarashda et al., 2021). Additionally, organizational culture, which includes openness to change, collaboration, and learning, facilitates the smooth transition to AI technologies by reducing resistance among employees (Chege, 2024). Resource availability, both financial and technological, is another critical factor; organizations must ensure they have the infrastructure and investment to support AI tools effectively. Moreover,

organizational structure must align with the needs of AI integration, enabling departments to collaborate and share information seamlessly. These factors collectively create an environment that fosters innovation, making it possible for organizations to successfully adopt AI and leverage its potential to overcome industry challenges (Al-Blooshi & Arshad, 2023).

Studies as well as reviews has shown different ways this influence firms. AlMujaini et al. (2019) examined the adoption of AI in the UAE energy sector, finding that strong leadership commitment are key drivers of successful AI integration. They also highlighted the importance of having the right technological infrastructure and skilled personnel in place to support AI initiatives. Similarly, Roberts et al. (2021) also explored the same and noted that all industry must embrace the model. They found that top management's perception of AI's strategic value and the company's openness to technological change played a significant role in whether AI was adopted. The study also noted that resource constraints and the complexity of AI solutions were barriers that needed to be overcome, and companies with a culture of innovation were better equipped to address these challenges.

Empirical studies also depict different results and Sircar et al. (2021) focused on the oil and gas industry and identified leadership commitment, technological infrastructure, and financial resources as crucial factors for AI adoption. They emphasized that organizations with clear innovation strategies and alignment between AI adoption and business objectives were more successful in integrating AI technologies. Similarly, Iwuanyanwu (2021) investigated AI adoption in American companies and identified organizational culture, management support, and technological readiness as key determinants of AI success. The study highlighted that companies with proactive leadership and investment in employee training and technology were better positioned to adopt AI (Gupta & Shah, 2022; Sircar et al., 2021).

This means that organizational factors are important in the adoption of AI. However, despite the critical role of AI in driving performance, there has been little empirical research focused on the organizational factors influencing AI adoption by petroleum companies in Nairobi. Studies by Hussain et al. (2024) and Almarashda et al. (2021) suggest that understanding the internal dynamics of companies, such as management's attitudes, resource availability, and strategic goals, is essential to comprehending how AI technologies can be effectively implemented. However, these studies were based outside Kenyan context. As such, this study will bridge this gap by

evaluating the organizational factors that influence the adoption of AI within petroleum companies in Nairobi County.

Nairobi County petroleum companies play a crucial role in the distribution and retailing of petroleum products, ensuring the steady supply of fuel to various consumers, industries, and transportation networks. With 324 petroleum stations currently operating in Nairobi County (Energy Petroleum Regulatory Authority, 2024), the sector is integral to Kenya's energy landscape. However, the industry faces significant challenges, including inefficiencies in supply chain management, fluctuating fuel prices, regulatory compliance issues, and the need for enhanced operational efficiency (Keter, 2019; Njoroge, 2020). The models helps in optimizing operations such as fuel inventory management, predictive maintenance, pricing automation, and customer service enhancements (Gupta & Shah, 2022; Hussain et al., 2024). Despite the growing importance of AI, the extent of its adoption and the organizational factors influencing its implementation in Nairobi's petroleum industry remain under-explored.

Empirical studies have extensively examined AI adoption in various sectors, with research highlighting key factors influencing AI integration. AlMujaini et al. (2019) examined the topic and found high value in AI in UEA. Roberts et al. (2021) also reviewed the topic and showed it value in managing firms. Sircar et al. (2021) explored how AI tools can change firms and found positive view. Iwuanyanwu (2021) studied AI adoption in American companies and found that leadership support, employee training, and alignment with business objectives were critical success factors. Based on this, the study aims to bridge this gap by evaluating the extent of AI adoption, identifying key organizational enablers and barriers, and assessing management perspectives on AI's relevance. By focusing on Nairobi's petroleum sector, this research will have high implications.

Notably, the primary focus of this study is on the adoption of AI because understanding the initial steps, decisions, and strategies involved in embracing AI is essential for long-term success. While utilization is important, adoption lays the foundation for successful AI integration, ensuring that companies are ready to harness AI's potential. This focus allows for a deeper exploration of the organizational changes required to integrate AI and sets the stage for effective utilization strategies.

The rest of the background reviews the role of Nairobi County Petroleum Companies in AI Adoption as well as discuss the organizational factors in AI adoption and includes a highlight of research gaps and motivation for the study.

1.1.1 Adoption of Artificial Intelligence

This refers to the ways firms use to include the models in their major systems as well as operations. This integration involves the acceptance and implementation of AI tools that can enhance productivity, reduce costs, and foster innovation. AI adoption is particularly critical as it enables firms to optimize operations, improve resource management, and predict maintenance needs, ultimately driving efficiency and competitive advantage (Al-Blooshi & Arshad, 2023). The adoption process often involves overcoming organizational and technological barriers, aligning the company's strategic goals with the capabilities of AI systems, and fostering a culture of innovation to ensure successful integration (Bagozzi, 2007).

This is essential to address the complexities and challenges faced by companies, such as fluctuating market conditions, regulatory compliance, and operational inefficiencies (Chege, 2024). Successful adoption requires a strategic approach, considering factors such as leadership support, adequate resource allocation, and the ability to adapt to technological change (AlMujaini, Abudaqa, & Hilmi, 2019). As the petroleum industry increasingly relies on advanced technologies, the adoption of AI becomes a significant factor in determining long-term sustainability and growth (Al-Haji & Bakar, 2024). The process of AI adoption thus covers various issues (Almarashda et al., 2021).

This study focused on AI adoption since AI is transforming industries globally, and its impact on decision-making, efficiency, and productivity is undeniable, making it crucial for businesses, including petroleum firms, to stay competitive (Chege, 2024). In the petroleum sector, AI can optimize operations, enhance safety, reduce costs, and facilitate predictive maintenance, making it an essential tool for sustainable growth (AlMujaini, Abudaqa, & Hilmi, 2019). This study aimed to understand how AI adoption can help petroleum firms in Nairobi improve their operational effectiveness and decision-making capabilities.

1.1.2 Organizational Factors in Adoption of Artificial Intelligence

Organizational factors refer to the internal elements within a company that influence its ability to successfully implement strategies and adopt technologies (AlMujaini, Abudaqa, & Hilmi, 2019). These issues include the leadership style, organizational culture, resource allocation, technology as well as employee readiness and skills and structural alignment. This means that effective support

in terms of leadership as well as the resources and technology aspects are important in managing AI use in firms (Almarashda et al., 2021). Additionally, the alignment of AI adoption with organizational goals ensures that technological advancements contribute to the overall strategic vision of the firm, thus maximizing its benefits (Al-Haji & Bakar, 2024).

The successful adoption of AI also depends on how organizations manage change, train employees, and restructure processes to accommodate new technologies. A culture that encourages learning is important (Al-Blooshi & Arshad, 2023). It is imperative that firms develop such models as well as infuse them in their cultural aspects (Bagozzi, 2007). This is important in managing all innovations in different levels (Chege, 2024).

This study focused on organizational factors, including leadership, culture, finance, management support, employee skills, technology as well as and resources (AlMujaini, Abudaqa, & Hilmi, 2019). This is important and by understanding these organizational dynamics that help identify strategies for smoother AI integration, fostering a more innovation-driven environment within the firms (Al-Haji & Bakar, 2024).

1.1.3 Petroleum Companies in Nairobi

Petroleum companies in Nairobi are businesses involved in the storage as well as selling and distribution of the products. These companies include multinational oil firms, independent petroleum dealers, and small-scale fuel retailers operating fuel stations, depots, and distribution networks (Keter, 2019). Their operations are critical in ensuring a stable supply of fuel and other petroleum-based products to consumers, industries, and transportation networks. As of 2024, there are 324 petroleum stations operating in Nairobi County (Energy Petroleum Regulatory Authority, 2024). These companies play a significant role in Kenya's energy sector, contributing to economic growth by creating employment opportunities and supporting various industries that rely on petroleum for their daily operations (Thiong'o, 2019). However, like many other industries, Nairobi's petroleum sector faces operational challenges such as inefficiencies in supply chain management, fluctuating fuel prices, and regulatory compliance, which could be addressed through technological advancements like Artificial Intelligence (AI) (Njoroge, 2020).

The adoption of AI in Nairobi County petroleum companies involves integrating intelligent technologies to optimize their plans (Gupta & Shah, 2022). AI-powered solutions are important to

all firms, since they help in automation of activities and plans in the firm (Hussain et al., 2024). To achieve value in firms, there is need for considering AI policies and factors. This is important to all firms (Roberts & Flin, 2020). With AI, firms find it easy to plan their operations and avoid changes in their major operations (Almarashda et al., 2021). This is possible if effective plans are adopted and this is the view the paper adopts (Iwuanyanwu, 2021).

Notably, this study focused on the petroleum industry which is a critical driver of economic growth, particularly in Nairobi, where the sector plays a significant role in the region's energy supply and infrastructure development. Petroleum firms face unique challenges, including fluctuating oil prices, regulatory pressures, and operational inefficiencies, making them prime candidates for AI-driven solutions. Exploring AI adoption in this sector will offer valuable insights into its potential to enhance productivity, reduce costs, and improve overall competitiveness in Nairobi's dynamic market.

Evidently, the analysis focus sedon Nairobi Kenya since Nairobi, as Kenya's capital, serves as a key hub for both regional and international businesses, including petroleum firms (Al-Haji & Bakar, 2024). The city has witnessed rapid technological advancements, making it an ideal location for studying the adoption of emerging technologies like AI in the petroleum sector. Additionally, Nairobi offers a diverse set of organizational contexts within the petroleum industry, providing a comprehensive view of AI adoption and its challenges and opportunities in a developing economy.

1.2. Problem Statement

A study by Iwuanyanwu (2021) confirmed that factors within the firm are important in managing firms. This is because when all factors in the firm are in harmony, there is increased in terms of workers value and work rate. AI adoption also hinges on the same and this has been seen in different studies. However, the analysis done in the past failed to consider Nairobi sector and they are facing unique issues that require further review (Chege, 2024; Al-Blooshi & Arshad, 2023). This leaves conceptual and contextual gaps.

Globally, studies have highlighted these constructs with particular emphasis on leadership support and resource allocation as key determinants of successful implementation (Almarashda et al., 2021; Al-Haji & Bakar, 2024). However, regional research on the petroleum industry in Kenya remains sparse, and local studies have largely overlooked the interplay between organizational

culture and technology adoption. Moreover, while AI adoption in global contexts has shown promising results, the regional and local challenges, including regulatory environments and workforce readiness and present unique barriers. This is what the current review implies to analyze as well as provide way forward in a critical and well managed model. This helped to solve contextual gaps.

Evidently, AI adoption in the petroleum sector is influenced by multiple organizational factors, including leadership support, financial investment, technological infrastructure, and employee expertise (AlMujaini et al., 2019; Roberts et al., 2021). However, without a clear understanding of which of these factors play the most crucial role, petroleum companies risk inefficient resource allocation and missed opportunities for innovation. For instance, if leadership commitment and financial investment are the most influential factors, petroleum companies should prioritize strategic leadership initiatives and allocate budgets to AI-driven projects. Similarly, if resistance to change or lack of AI expertise is a major barrier, companies may need to invest in employee training and change management strategies (Almarashda et al., 2021). Additionally, policymakers and regulators need insights into the challenges petroleum companies face in AI adoption to formulate policies that facilitate a smoother transition to AI-driven operations. Understanding the motivations, benefits, and challenges of AI adoption will provide practical insights for petroleum companies, allowing them to optimize their AI strategies and drive technological transformation. This study aimed to fill this research gap by evaluating the extent of AI adoption, identifying the key organizational factors influencing AI integration, and assessing management perspectives on AI's relevance in Nairobi County petroleum companies.

1.3. Research Objectives

The general objective of this study is to determine organizational factors influencing the adoption of Artificial Intelligence by Petroleum Companies in Nairobi County. The specific objectives are:

- i. To determine the extent to which leadership support influence the AI adoption among Petroleum Companies in Nairobi County
- ii. To determine the influence of organization culture on the AI adoption among Companies in Nairobi County
- iii. To determine the influence of resource availability on AI adoption among Petroleum Companies in Nairobi County

iv. To determine the influence of employee skills on AI adoption among Petroleum Companies in Nairobi County

1.4 Research Questions

i. To what extent does leadership support influence AI adoption among Petroleum Companies in Nairobi County?

ii. How does organizational culture influence AI adoption among Petroleum Companies in Nairobi County?

iii. What is the influence of resource availability on AI adoption among Petroleum Companies in Nairobi County?

iv. How do employee skills influence AI adoption among Petroleum Companies in Nairobi County?

1.5. Significance of the Study

1.5.1 Regulators and Policy Makers

The findings will assist in shaping policies that encourage the integration of AI technologies into the petroleum industry, enhancing efficiency, safety, and sustainability. Additionally, the study can inform the development of regulatory frameworks that support AI adoption while addressing potential barriers such as resource constraints, skills gaps, and infrastructure challenges. Policymakers will gain more through topic review and analysis.

1.5.2 Petroleum Companies in Nairobi County

For petroleum companies in Nairobi County, this study's findings will provide critical insights into the topic. By examining management perspectives on AI's relevance and assessing the current use of AI, the study will offer practical recommendations to enhance AI integration in their operations. The results will guide these companies in making informed decisions regarding

investments in AI, technological infrastructure, and talent development. Furthermore, the study will highlight the key advantages and challenges associated with AI adoption, helping companies optimize their strategies to stay competitive and improve operational efficiencies.

1.5.3 Researchers and Academicians

It will add to the empirical literature by identifying the organizational factors that influence AI adoption in petroleum companies, filling an existing gap in academic research. The findings will also help to refine theoretical frameworks related to technology adoption in the oil and gas industry. Moreover, the study may highlight new avenues for future research, offering a foundation for subsequent studies on AI in the petroleum sector, technology integration, and the broader implications for industries in developing economies.

1.6 Scope of the Study

It will be on 324 target population and a sample size of 179 petroleum stations operating in Nairobi County as of 2025. The research will employ both primary and non-field data. Different petroleum companies' annual reports for the year 2024 will be used. Questionnaire will be employed-targeting senior management and technical staff in these petroleum stations. The questionnaires will be administered between March and April 2025. The study will specifically examine the extent of AI adoption, the organizational factors influencing AI integration, and management perspectives on the relevance of AI to the operations of Nairobi County petroleum companies, with a particular focus on identifying key barriers and enablers to AI implementation.

1.7 Chapter Summary

Chapter One has introduced the study, providing a comprehensive overview of the topic. It also presented the research gaps. The chapter outlined the research objectives, which include assessing the extent of AI usage, identifying organizational factors influencing AI adoption, and evaluating management's perspectives on AI's relevance. Furthermore, the chapter justified the significance of the study for regulators, petroleum companies, and researchers. This is followed by other chapters below.

CHAPTER TWO: LITERATURE REVIEW

2.1. Introduction

This establishes the theoretical foundation of the study while reviewing relevant empirical literature that supports and extends the research. It includes key theories and also covered a review of empirical studies. It also includes different models. Finally, the chapter concludes with the operationalization of variables, defining how key concepts will be measured and analyzed in the study.

2.2. Theoretical Framework

TAM as well as DOI are the key model in this review. TAM is important in providing faster adoption of tools in firms. DOI Theory, on the other hand, examines how AI technologies spread within organizations, emphasizing organizational culture, financial resources, and technological readiness as key determinants of adoption.

2.2.1 Technology Acceptance Model (TAM)

This was founded by Fred Davis in 1986. The model is important in managing innovations and technology usage in firms. This is because it helps companies to derive their plans based on adoption rate (Davis, 1989). According to TAM, in companies in various levels all users check how it is easy to use a tool and this is what derive and determine their level of adoptions (Venkatesh & Davis, 2000; King & He, 2006).

The key assumptions of TAM are that technology adoption is influenced by rational decision-making, where individuals weigh the benefits and ease of using a technology before deciding to implement it. Additionally, the model assumes that there are various factors that influence how this is achieved. This may include how useful the tool is. Simple tools are easily adopted (Venkatesh et al., 2003). This means that firms must use simple and valuable tools in their analysis and operations (Bagozzi, 2007). Critics argue that AI adoption is based on a number of issues (Benbasat & Barki, 2007).

Despite its limitations, TAM remains highly relevant in this review since it shows how firms can manage their operations using useful tools. It also shows that tools like AI are important in achieving success of the firm (Gupta & Shah, 2022; Hussain et al., 2024). Understanding aspects of technology improve one view as well as the rate of infusion in major activities (Almarashda et al., 2021). This is important in all firms and must be promoted in all firms to achieve the desired success.

2.2.2 Diffusion of Innovation (DOI) Theory

This is well depicted to Everett Rogers in 1962. It supports the view that firms can adopt innovations at different levels. However, the innovation must not be complex. This means that simplicity is important in innovations (Rogers, 2003; Wu, Wang, & Lin, 2007). In business settings, innovations such as AI-driven automation and predictive analytics spread more rapidly when firms support the use in long models (Roberts & Flin, 2020).

DOI theory assumes that innovation adoption follows a predictable pattern, where organizations and individuals adopt new technologies at different rates. Rogers (2003) noted that adoption in various firms is determined by different factors. While DOI provides a useful model for understanding how AI adoption varies across petroleum companies, critics argue that the theory overemphasizes individual decision-making and does not sufficiently account for external factors such as government regulations, financial constraints, and industry competition (Lyytinen & Damsgaard, 2001). Additionally, DOI assumes that all innovations are beneficial, overlooking cases where technology adoption may lead to unintended consequences or organizational resistance (Fichman, 2004).

Despite these critiques, DOI theory is highly applicable to the adoption of AI in Nairobi County petroleum companies. The theory helps explain why some companies adopt AI earlier than others, based on factors such as organizational readiness, leadership attitudes, and financial capability (Sircar et al., 2021; Hussain et al., 2024). Larger, well-established petroleum firms may act as early adopters, integrating AI into supply chain management, predictive maintenance, and fraud detection, while smaller firms with limited resources may fall into the late majority or laggard categories (Almarashda et al., 2021). Understanding these adoption patterns can help industry

stakeholders and policymakers develop targeted interventions to encourage widespread AI adoption in the petroleum sector.

2.3. Empirical Studies

A preview of empirical reviews of previous studies on the organizational factors influencing the adoption of Artificial Intelligence by Petroleum Companies in Nairobi is provided here. It also covers a summary of research gaps.

2.3.1. Leadership Support and AI Adoption

Analysis has shown that when leadership is stable and there is support of various levels, firms find it easier and simple to change their operations. This means that leadership aspects including their support arm provide a major boost in managing new models and technology. However, Gupta and Shah (2022) noted that leaders must also understand the full usage of the new models. This is important in promoting harmony and work systems.

Similarly, Hussain et al. (2024) found that leadership and management support significantly impacted the success of AI-driven decision-making systems in petroleum operations. Their research highlighted that management teams who actively supported AI initiatives were able to secure the necessary funding and foster a culture of innovation, facilitating the integration of AI technologies. In companies where leadership was less engaged, AI adoption was slower, and the technology was less effectively utilized. The study also noted that management support was instrumental in overcoming employee resistance to change, particularly in companies where workers were unfamiliar with AI technologies. This shows how leadership commitment is valuable in overcoming both organizational and technological challenges to ensure successful AI adoption in the petroleum industry (Hussain et al., 2024).

2.3.2. Organization Culture and the use of AI

Several empirical studies have examined this and it is true that culture influence success in firms. Almarashda et al. (2021) explored this in the UAE energy sector on this and the analysis confirmed that culture is important in promoting innovations. The study indicated the need for firms to use

high value norms in managing their operations. Despite this view, the study was based in UAE and it may not fully apply within the Kenyan view and context.

Similarly, AlMujaini, Abudaqa, and Hilmi (2019) investigated the constructs and their research concluded that firms with a culture that embraced digital transformation and valued innovation were better positioned to integrate AI successfully into their operations. The study also emphasized that the organizational culture directly influenced the pace of AI adoption, with companies fostering a mindset of innovation and adaptability demonstrating faster integration of AI technologies. This was particularly true for companies that aligned their strategic goals with technological advancements, ensuring that AI adoption was not seen as a temporary trend but as a long-term business strategy.

Roberts and Flin (2020) further review this and noted that cultural aspects that promote collaborations as well as people working together are important in managing success. It was noted that firms with stable aspects of culture and operations were able to achieve their set goals. This means that culture in terms of groups working in harmony and evaluating aspects of innovations are important. However, the analysis was based in UK.

2.3.3. Resource Availability and AI adoption

Empirical studies have highlighted the significant role that resource availability plays in the adoption of AI among petroleum companies. John (2023) conducted a study in Ghana and found that resource constraints are big mess in firms and should be well considered. The study also confirmed that AI can change all aspects in firms. However, this many require usage of new resources and support from all parts of the management. The study emphasized that firms with limited financial resources were less likely to implement AI solutions despite acknowledging their potential advantages, indicating that adequate resources are critical for successful AI integration. Similarly, Roberts et al. (2021) explored the influence of resource availability on AI adoption, with their research focusing on survey data from industry executives. Their findings suggested that companies with access to greater financial and technological resources were more successful in adopting AI technologies. These organizations could allocate sufficient budgets for AI implementation, invest in necessary infrastructure, and provide employees with the training required to operate AI systems effectively. In contrast, companies with limited resources faced

significant challenges in adopting AI, often unable to secure the capital necessary for technology acquisition and employee development, which slowed the pace of AI integration.

Iwuanyanwu (2021) also examined the role of resource availability in AI adoption in American companies, focusing on its impact on organizational competitiveness. The study found that firms that had access to abundant financial resources and a robust technological infrastructure were better positioned to adopt AI and reap its benefits. The research highlighted that resource-rich companies were more likely to implement AI-driven innovations that enhanced efficiency and competitive advantage. The study concluded that the availability of both financial and technological resources is a crucial determinant of AI adoption in organizations, suggesting that companies with limited resources are less likely to fully realize the potential of AI in their operations. These findings emphasize that access to adequate resources is essential for the successful adoption and integration of AI in petroleum companies.

2.3.4. Employee Skills and AI adoption

Empirical studies have shown that employee skills play a critical role in the successful adoption of AI in petroleum companies. John (2023) conducted a study in Ghana, which revealed that while AI adoption could significantly improve operational efficiency and safety, many petroleum firms faced challenges related to the lack of skilled personnel. The study found that 65% of managers reported difficulty in finding employees with the necessary technical skills to effectively implement and manage AI systems. The research emphasized that companies investing in AI-related training programs for their workforce were better positioned to integrate AI technologies. It concluded that a skilled workforce is essential for overcoming the technical barriers to AI adoption, as employees need to understand and operate the new systems effectively.

Similarly, Roberts et al. (2021) highlighted the importance of employee skills in AI adoption in petroleum companies. Their study, based on survey data from industry executives, found that companies where employees possessed strong technical skills and were well-trained in AI technologies experienced faster and more successful adoption processes. The research indicated that companies with limited employee expertise or inadequate training programs faced slower adoption and implementation of AI systems. This was especially true in smaller firms, where resources for training were often insufficient. The study concluded that investing in employee skill

development is essential for maximizing the benefits of AI adoption, emphasizing that a skilled workforce is a key enabler of effective technology integration in the petroleum industry. These findings underscore the critical role of employee capabilities in determining the success of AI adoption in petroleum companies.

2.4. Summary of Empirical studies and Research Gaps

Section 2.3 has provided an overview of empirical studies related to AI adoption in petroleum companies, organizational factors influencing AI use, and management perspectives on AI relevance. While existing literature highlights the growing use of AI in petroleum operations, it also reveals variations in adoption levels based on organizational size, financial resources, and leadership commitment. Studies in global contexts (e.g., UAE, Oman, and the U.S.) indicate that technological infrastructure, leadership support, and employee training are crucial for AI adoption. This leaves methodological gaps. However, Kenyan-specific studies on AI adoption in petroleum companies remain limited, creating a research gap in understanding how local organizational and regulatory factors influence AI adoption (Eng'airo, 2024). This leaves conceptual and knowledge gaps.

Furthermore, while management perspectives have been studied in other industries, more should be done. This is important in different sectors. This can help solve population gaps. The gaps presented require further review as well as analysis. This is depicted in the table 1 below.

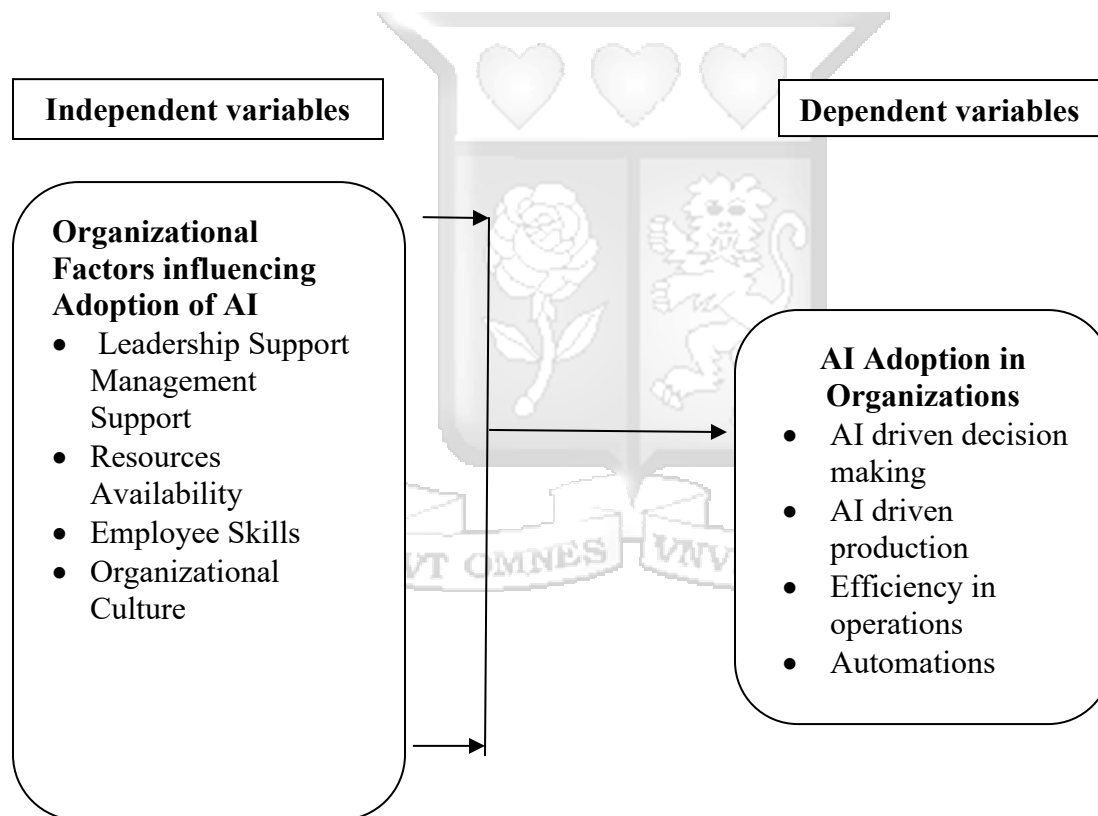
Table 2.1: Summary of Gaps

Author and Year	Study Objective	Methods	Findings	Gaps Identified to be Filled by Current Study
Gupta and Shah (2022)	To examine the influence of leadership on AI adoption in petroleum companies.	Mixed-method, focusing on large multinational firms.	Leadership commitment drives AI integration by securing resources and overcoming barriers.	Focus on AI adoption in smaller, resource-limited firms in the petroleum sector.
Hussain et al. (2024)	To explore the role of leadership and management support on AI adoption.	Survey data and case studies from global petroleum firms.	Active leadership support accelerates AI adoption and reduces employee resistance.	Explore the impact of management perspectives on AI adoption in Kenyan petroleum companies.
Almarashda et al. (2021)	To examine the role of organizational culture in AI adoption in petroleum companies.	Survey data from energy sector employees in the UAE.	A culture of innovation and readiness for digital transformation fosters AI adoption.	Examine the role of organizational culture in AI adoption within Nairobi's petroleum sector.
AlMujaini, Abudaga, and Hilmi (2019)	To assess the influence of organizational culture on AI adoption in petroleum firms.	Quantitative analysis of industry data from UAE firms.	Companies embracing digital transformation and innovation see faster AI integration.	Study the specific organizational cultural factors influencing AI adoption in Kenyan firms.
Roberts and Fjin (2020)	To explore the role of organizational culture in AI adoption.	Case study analysis on the role of leadership communication.	Strong communication and a shared vision in companies with collaborative cultures improve AI adoption.	Investigate the influence of leadership communication and cultural factors in AI adoption in Nairobi.
John (2023)	To assess the influence of resource availability on AI adoption.	Survey data from industry executives and interviews.	Financial and technological resources are critical to overcoming AI adoption barriers.	Assess the resource constraints specific to Kenyan petroleum companies in AI adoption.
Roberts et al. (2021)	To investigate the impact of resource availability on AI adoption.	Survey data from industry executives.	Organizations with abundant resources are more successful in adopting AI technologies.	Explore how different levels of resource availability affect AI adoption in Nairobi's petroleum firms.
Iwuanyanwu (2021)	To examine the influence of employee skills on AI adoption in petroleum companies.	Survey data and interviews focused on technical skill gaps.	Companies investing in AI training have higher adoption success, overcoming technical barriers.	Evaluate the skill gaps in Nairobi's petroleum sector and their impact on AI integration.

2.5 Conceptual Framework

This is provided below. Based on prior studies, organizational size and age have been used as moderating variables.

Figure 2.1 The Conceptual Framework



Source: Author, (2025)

2.6 Operationalisation of the Variables

This is well shown as well as described here.

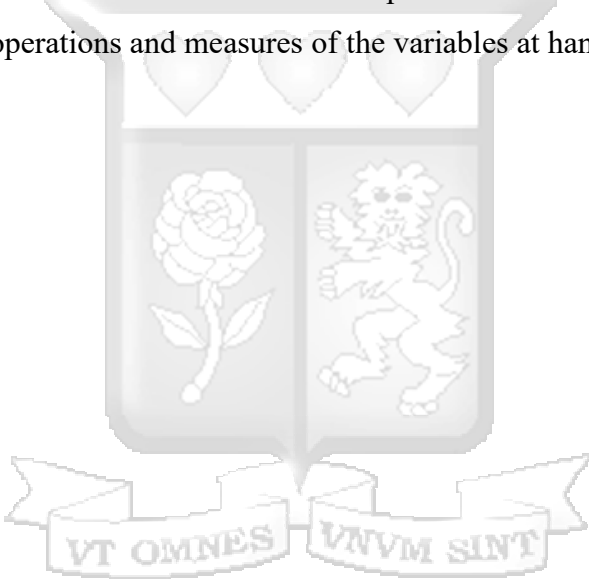
Table 2.2 Table of Operationalization of Variables

Variable	Measurement of Variable	Supporting Past Studies	Supporting Theories	Data Source	Analysis
Dependent Variable					
AI Adoption in Organizations	Adoption of AI in business operations based on: - AI-driven decision-making - AI-driven production - Efficiency in operations - Automations (Measured using a 5-Point Likert Scale)	Gupta & Shah (2022); Hussain et al. (2024); Sircar et al. (2021)	TAM and DOI	Questionnaire	Descriptive and Multivariate
Independent Variables					
Leadership and Management Support	Extent of leadership commitment and managerial support for AI adoption (5-Point Likert Scale)	Roberts & Flin (2020); AlMujaini et al. (2019); Iwuanyanwu (2021)	DOI Theory	Questionnaire	Regression Analysis
Technological Infrastructure	Availability and adequacy of IT infrastructure to support AI implementation (5-Point Likert Scale)	Sircar et al. (2021); Hussain et al. (2024); Gupta & Shah (2022)	TAM Theory	Questionnaire	Regression Analysis
Financial Resources	Annual budget allocation for AI initiatives and technology investment (Percentage of total budget)	Almarashda et al. (2021); Iwuanyanwu (2021); Roberts et al. (2021)	DOI Theory	Questionnaire	Regression Analysis
Employee Skills	Number of employees trained in AI-related competencies and	AlMujaini et al. (2019); John (2023); Roberts & Millar (2021)	TAM Theory	Questionnaire	Regression Analysis

	certifications (Count)				
Organizational Culture	Level of openness to innovation and digital transformation (5- Point Likert Scale)	Roberts et al. (2021); AlMujaini et al. (2019); Hussain et al. (2024)	DOI Theory	Questionnaire	Regression Analysis

2.7 Chapter Summary

This chapter provide analysis of literature on the topic. It also covers the theories. In addition, the review is based on objectives. It also indicates the conceptual framework as well as the main gaps highlighted. It ends with operations and measures of the variables at hand.



CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter outlines the main plans. It also depicts some of the designs as well as sampling model. It also depicts other methods associated with ethics as well as study reliability and all this is based on the study objective.

3.2 Research Philosophy

This study was anchored on the positivism view. This is the view that knowledge is derived from objective reality, observable phenomena, and measurable facts (Henning et al., 2004). Positivism emphasizes empirical evidence and scientific methods to uncover the truth about a phenomenon, relying on structured data collection techniques (Saunders et al., 2009).

A positivist approach is suitable for this since it helped get objective view on the topic. It also helped in testing and confirming the set theories. Unlike post-positivism, which considers subjective experiences, this study relied solely on measurable responses to provide concrete insights into AI adoption trends and influencing factors. This allowed the study to draw conclusions based on empirical data.

3.3 Research Design

Research design is important in all studies due to its factor as well as power in guiding (Kothari, 2004). It guides the choice of data sources, sampling techniques, and research instruments. This study used descriptive research design, which is cross-sectional in nature and this will help to get data within a single point in the study. This is important in evaluating the variables.

Using this model, it was possible to gain data from various firms. It also helped to get data within time set. This is important in understanding the objectives and relaying data in real time view. The study concepts also helped to get more insights using this model.

3.4 Population of the Study

This is target as well as the item of focus and it is important in all research work (Sekaran & Bougie, 2016). For this research, the population consists of the 324 petroleum companies operating in Nairobi County as of 2024 (Petroleum Authority Kenya, 2024). These are companies or organizations that promote distributions as well as selling of oil in the region.

3.5 Sampling Method

This study adopted simple random sampling. This was done with the aim of achieving the set plans and goals.

Yamane's (1967) will be adopted as depicted:

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

Where:

- n = Required sample size
- N = Population size (324 petroleum companies)
- e = Margin of error (5% or 0.05)

Substituting the values:

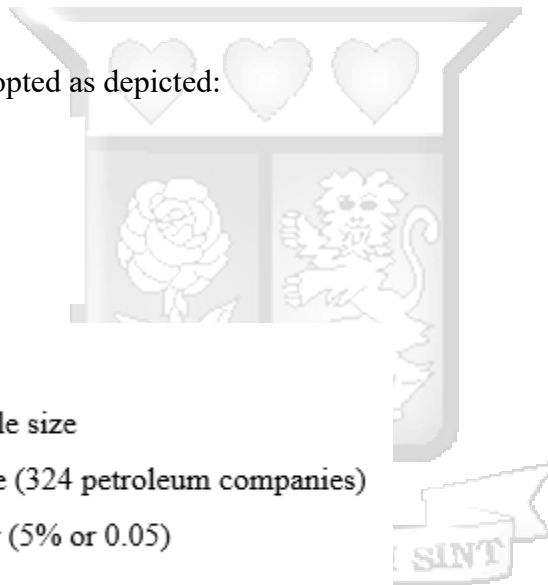
$$n = \frac{324}{1 + 324(0.05^2)}$$

$$n = \frac{324}{1 + 324(0.0025)}$$

$$n = \frac{324}{1 + 0.81}$$

$$n = \frac{324}{1.81}$$

$$n \approx 179$$



Therefore, the required sample size for this study was 179 Nairobi County petroleum companies.

3.6 Data Collection and Tools

Field and non-field data was adopted. The field data was based on questionnaire that was provided to senior management and technical staff of the selected petroleum companies. The questionnaire captured information related to AI adoption, leadership and management support, technological infrastructure, financial resources, employee skills, and organizational culture. The questions were based on various formats with the aim of meeting the study plan, goals as well as objectives. This was based on different sections as shown in appendix II.

Non-field data was obtained from company annual reports, and regulatory documents relevant to AI adoption in the petroleum sector. These sources provided insights into existing AI investments, technological infrastructure, and policy frameworks influencing AI adoption. Secondary data was also included and covered the reports from energy regulatory bodies, industry publications, and global AI adoption studies to supplement the findings from primary data. It included various sections and Section A was on Demographics while B was on organizational factors while last section C is on AI adoption.

3.7 Data Analysis

To achieve objective one, descriptive analysis used to measure the extent of AI adoption among Nairobi County petroleum companies, based on responses from the Likert scale in the questionnaire. The analysis covers the means, frequency as well as the standard deviation aspects. This analysis summarized the frequency and distribution of AI adoption levels in business operations, including AI-driven decision-making, production, efficiency, and automation. For objective two, both descriptive and multivariate analysis was conducted to examine the influence of organizational factors leadership and management support, technological infrastructure, financial resources, employee skills, and organizational culture on AI adoption. The dependent variable was AI adoption, measured based on key AI-driven operational activities. The independent variables included the organizational factors mentioned above, while firm size (log

of total assets) will serve as the control variable to account for variations in AI adoption based on company scale. A multinomial regression analysis was employed as shown below.

Multinomial Regression Equation

$$\log \left(\frac{P(Y = k|X)}{P(Y = 0|X)} \right) = \beta_{0k} + \beta_{1k}X_1 + \beta_{2k}X_2 + \beta_{3k}X_3 + \beta_{4k}X_4 + \beta_{5k}X_5 + \beta_{6k}X_6$$

Where:

- Y = AI Adoption in Organizations (with multiple categories: Y_0, Y_1, Y_2, \dots)
- X_1 = Leadership and Management Support
- X_2 = Technological Infrastructure
- X_3 = Financial Resources
- X_4 = Employee Skills
- X_5 = Organizational Culture

$$\epsilon$$

- $\beta_{0k}, \beta_{1k}, \dots, \beta_{6k}$ = Regression Coefficients for each category k of AI Adoption
- ϵ = Error Term

All these will be based on various diagnostics checks shown in table 3 below

Table 3: Diagnostic Checks for Model Validation

Diagnostic Check	Purpose	Method of Implementation	Justification
Multicollinearity Check	This depicts the level of the correlations	VIF-test	This is important in showing reliability levels.

Goodness-of-Fit Test	Check if the model fits the data well	Likelihood Ratio Test, Pearson Chi-Square Test	Helps assess if the model explains the data adequately compared to a simpler model (null model).
Model Significance	Check if at least some predictors are significant	Wald Chi-Square test or Likelihood Ratio test	Ensures that the predictors are well on output.
Assumption of Independence	Confirm the independence of observations	Use Durbin-Watson test or inspect residual plots for patterns	Violations of independence can lead to misleading results.
Heteroscedasticity Check	Check if residuals have constant variance across all levels of predictors	Breusch-Pagan or White test	Non-constant variance in residuals (heteroscedasticity) can lead to inefficient estimators.

Source: Author, (2025)

3.8 Research Quality

Research quality is essential for enhancing the credibility and reliability of the study. It ensures that the research findings are both accurate and applicable to similar contexts. Validity including internal as well as external extents will be achieved using Creswell (2014) guidelines. The report will also cover expert review to promote reliability as well as ensuring that everything is clear and well written (Mohajan, 2017).

Non-field data will be considered and used in enhancing the trustworthiness and robustness of the findings. Alpha Cronbach will also be used at 0.7 to test these aspects. This is important in ensuring that the study is both valid as well as reliable. With different aspects considered including pilot study as well as expert review, the study will have effective quality and reliable findings. The use of these models promoted the validity of the review. The reliability was also achieved through expert reviews.

3.9 Ethical Considerations

Respecting the rights and privacy of participants will be adhered to. During primary data collection, confidentiality and anonymity will be maintained to protect respondents' identities and ensure honest responses. Strathmore Institutional Ethics and Scientific Review Committee (SERSRC) was acquired. All participants will be assured of effective data confidentiality and everything will be done based on the University research ethics. The analysis covered issues of consent as well as ensuring that participants understood why the study was done. This was important in convincing the respondents to provide reliable and genuine information.

3.10 Chapter Summary

This chapter outline a number of methods that will be adopted. It covers all plans and includes the focus area and population. It also covers data as well as analysis that will be used in the topic. Finally, the chapter addressed research quality, emphasizing validity and reliability, and concluded with ethical considerations, ensuring confidentiality, informed consent, and regulatory approvals for conducting the study.

CHAPTER FOUR: RESEARCH FINDINGS AND DISCUSSION

4.1 Introduction

This chapter depicts analysis. It also covers issues that were gained from the respondents. This is well noted in sections below.

4.2 Response Rate

Analysis was done and the views gained are presented here.

Table 4.1: Response Rate of Questionnaires

Questionnaire Responses	Frequency	Percentage
Returned Questionnaires	135	75.00%
Questionnaires that were not returned	44	25.00%
Total	179	100.00%

Source: Researcher (2025)

This confirms that the study covered a response rate of 75% and this was important in the analysis. The people who failed to respond were less than 25%. This gives a good valid as well as credible aspects of the analysis.

This good rate was possible since a brief introduction was provided before distributing the questionnaires to ensure that the respondents understood the importance of their participation in the study. Additionally, respondents were assured that their responses would remain confidential. To further encourage participation, reminder text messages were sent to the respondents, which helped ensure that the questionnaires were completed and returned in a timely manner.

4.3 Demographic Characteristics

This was noted following categories: title/position, years of experience in the petroleum industry, educational background, name of the organization, years in operation, number of employees, and type of organization. The findings for each category are presented and discussed below.

4.3.1 Title/Position

This was done based on table 4.2.

Table 4.2: Position

Title/Position	Frequency	Percentage
MD/CEO	5	3.00%
Department Heads	8	6.00%
Station Manager	10	7.00%
Supervisors	15	12.00%
Attendants	75	56.00%
Support Staff	12	9.00%
Others (Specify)	10	7.00%
Total	135	100.00%

Source: Researcher (2025)

Table 4.2 provides a breakdown of the positions held by respondents within the petroleum companies in Nairobi. The data reveals that the largest proportion of respondents (56%) are attendants, indicating that the majority of employees in the petroleum stations occupy frontline roles. Attendants are crucial in ensuring smooth daily operations, interacting directly with customers, and managing sales at the stations. This high percentage reflects the labor-intensive

nature of the petroleum sector, where a large workforce is needed to handle the operations at individual service stations. The substantial presence of attendants highlights the importance of having a strong workforce to manage the day-to-day functioning of the stations, despite the presence of more senior roles.

The second largest group of respondents consists of supervisors, who make up 12% of the workforce. Supervisors are likely responsible for overseeing the operations of attendants and ensuring that service quality, safety standards, and organizational protocols are followed. They play an essential role in maintaining operational efficiency and ensuring smooth communication between the lower-level staff and the management. This percentage underscores the hierarchical structure within the petroleum stations, where supervisors are key in managing teams and ensuring operational goals are met, while still being closer to the operational side of the business.

Other positions, such as MD/CEO (3%), department heads (6%), and support staff (9%), reflect the smaller number of employees in leadership and specialized roles. These positions are responsible for the strategic direction, administrative tasks, and supporting operations within the company. The relatively low percentages of higher-ranking roles suggest that decision-making power is concentrated among a smaller group of employees, while the majority of staff is engaged in day-to-day operations. The presence of department heads (6%) and the MD/CEO (3%) also indicates that senior leadership within the organizations is responsible for overseeing broader operations, strategic decisions, and technological integrations, including the potential adoption of AI.

4.3.2 Years of Experience in the Petroleum Industry

This was done based on table 4.3.

Table 4.3: Years of Experience in the Petroleum Industry

Years of Experience	Frequency	Percentage
Less than 5 years	35	25.93%
5 – 10 years	50	37.04%
11 – 15 years	25	18.52%
16 years and above	25	18.52%
Total	135	100.00%

Source: Researcher (2025)

Table 4.3 illustrates the distribution of respondents' years of experience in the petroleum industry, which provides a deeper understanding of the respondents' professional background. The largest group of respondents (37.04%) falls within the 5 to 10 years of experience category. These individuals have accumulated significant industry knowledge and expertise, having likely navigated various phases of the petroleum industry, including market shifts, regulatory changes, and evolving business practices. The experience within this range suggests that these employees are likely familiar with the operational aspects of the petroleum sector and could offer valuable insights into how technological advancements, such as artificial intelligence (AI), can be integrated into existing processes to improve efficiency, safety, and profitability.

A considerable portion of respondents (25.93%) has less than 5 years of experience in the petroleum industry. This group represents relatively newer entrants to the industry, bringing fresh perspectives and potentially greater openness to new technologies, including AI. These individuals are likely to be more adaptable and receptive to change, which may make them more willing to embrace new innovations and contribute to discussions about the potential role of AI in shaping the future of the petroleum sector. However, their limited experience may also mean they have less institutional knowledge and may face challenges in understanding some of the industry's

deeper, long-standing issues. Their views on AI adoption could reflect the excitement and enthusiasm for embracing new technologies, but they might need more guidance on the practical challenges that come with technological integration.

The remaining respondents (18.52% each) have either 11 to 15 years or over 16 years of experience in the petroleum industry. These individuals bring a wealth of knowledge gained over many years of working in the sector. With their extensive experience, they are likely to have witnessed significant changes and developments in the petroleum industry, including technological transformations, regulatory updates, and market evolution. These respondents are in a unique position to assess the impact of AI on industry practices from both a historical perspective and a forward-looking standpoint. Their long tenure in the industry may also provide them with a more conservative viewpoint regarding the adoption of AI, as they are more accustomed to traditional methods of operation.

4.3.3 Educational Background of Respondents

This was done based on table 4.4.

Table 4.4: Educational Background of Respondents

Educational Qualification	Frequency	Percentage
Bachelor's Degree	80	60.00%
Master's Degree	5	3.00%
Doctoral Degree	0	0.00%
Other (Specify)	50	37.00%
Total	135	100.00%

Source: Researcher (2025)

The analysis shows that majority has a degree and they have been in school. This is the typical workforce in Nairobi. This means that they understand the sector and with a 60% this is good for the study. These individuals are likely to hold roles that require a broad understanding of the sector, including management, operational, and technical positions. The prevalence of bachelor's degree holders reflects a common trend where undergraduate education serves as the primary qualification for most employees within this sector.

A relatively small percentage of respondents (3%) hold a master's degree, suggesting that advanced degrees are less common within the petroleum sector in Nairobi. This lower percentage may indicate that the industry tends to prioritize experience and practical knowledge over advanced academic qualifications, particularly at the operational level. However, it is important to note that employees with a master's degree are likely to occupy higher managerial or strategic roles within the organization, where they can apply advanced skills in leadership, business management, and decision-making. The limited number of master's degree holders may also suggest that the sector is still in a stage of growth where advanced degrees are not yet a significant requirement for most roles.

Interestingly, there were no respondents with a doctoral degree, which implies that the petroleum industry in Nairobi does not heavily rely on individuals with the highest level of academic qualifications. This could be because doctoral degrees are typically more specialized and research-oriented, focusing on academia or high-level consultancy roles rather than operational roles within the petroleum industry. The category "Other (Specify)" accounted for 37% of the respondents, which could include a variety of alternative qualifications, such as diplomas, certifications, or professional training in specialized areas related to petroleum operations. This reflects the sector's

recognition of practical expertise and technical certifications, which are often prioritized alongside formal academic qualifications.

4.3.4 Years in Operation

This was done based on table 4.5.

Table 4.5: Years in Operation

Years in Operation	Frequency	Percentage
Less than 5 years	25	18.52%
5 – 10 years	45	33.33%
11 – 15 years	35	25.93%
Over 15 years	30	22.22%
Total	135	100.00%

Source: Researcher (2025)

Table 4.5 provides insight into the duration of operations of the petroleum companies in Nairobi. The data reveals that the largest proportion of organizations (33.33%) have been in operation for 5 to 10 years. This group of relatively young companies is likely to have developed modern organizational structures and are more open to adopting new technologies, such as artificial intelligence (AI). These companies might have more flexibility in their decision-making processes and can implement AI-driven solutions without the constraints of legacy systems. Being relatively young, they may also have fewer entrenched processes or resistance to technological change, which can facilitate the integration of AI technologies.

The second largest group (25.93%) consists of companies that have been operational for 11 to 15 years. These companies are likely to have established themselves within the market but may still be in a stage of growth where technological advancements, such as AI, are critical to staying

competitive. Having been in operation for over a decade, these companies may already possess the necessary infrastructure and resources to adopt AI. However, the challenge for these organizations could be overcoming the inertia of existing systems and processes, which may not be optimized for advanced technologies. The presence of more developed infrastructure, however, offers a significant advantage when it comes to scaling AI solutions across different departments and functions.

Finally, 22.22% of the organizations have been in operation for over 15 years. These longer-established companies have likely built a strong reputation and customer base, but they may face challenges when it comes to integrating AI. Older organizations are typically more embedded in traditional ways of doing business and may encounter resistance to adopting new technologies. However, their long-term presence in the industry means they have accumulated substantial resources, including financial capital, skilled personnel, and industry expertise. These organizations are more likely to have the financial capacity to invest in AI technologies, although their transition to more innovative models may require significant cultural and operational shifts to align with modern technological practices.

4.3.5 Number of Employees in the Organization

This was done based on table 4.6.

Table 4.6: Number of Employees in the Organization

Number of Employees	Frequency	Percentage
Less than 50	30	22.22%
51 – 100	40	29.63%
101 – 200	35	25.93%
Over 200	30	22.22%
Total	135	100.00%

Source: Researcher (2025)

Table 4.6 shows the distribution of the number of employees across the petroleum companies in Nairobi. The data reveals that the majority of organizations (29.63%) fall within the range of 51 to 100 employees, which suggests that a significant portion of the petroleum industry in Nairobi consists of mid-sized companies. These organizations typically have a balance of resources and operational flexibility, which allows them to pursue innovative technologies like artificial intelligence (AI) while maintaining efficient decision-making processes. The middle tier of employment also indicates that these companies may be large enough to have dedicated departments for technology adoption and implementation, but small enough to remain adaptable to the changing technological landscape.

The second largest group (22.22%) consists of organizations with fewer than 50 employees. This category includes smaller, more nimble petroleum companies that may have fewer operational layers, making it easier for them to adapt to emerging technologies like AI. Smaller organizations often have a more streamlined decision-making process, which can result in faster adoption of new technologies. However, the limited number of employees also means that these companies may face resource constraints, particularly in terms of funding, human capital, and training. As a result,

smaller organizations might struggle to implement complex technologies such as AI unless they collaborate with external partners or prioritize AI adoption strategically.

Interestingly, 25.93% of the companies in the study employ between 101 and 200 individuals. This group represents larger organizations, which typically have more resources to allocate toward technology adoption, including AI. Larger companies in the petroleum sector are often able to create specialized teams for research and development, invest in AI-driven solutions, and scale technology across multiple departments. While they may have the financial capacity to adopt AI, the presence of more decision-making layers and hierarchical structures in larger organizations can sometimes slow down the pace of adoption. These organizations may also face challenges in maintaining alignment between various teams and departments, which could complicate the implementation of AI technologies effectively across the organization.

4.3.6 Type of Organization

This was done based on table 4.7.

Table 4.7: Type of Organization

Type of Organization	Frequency	Percentage
International Petroleum Company	108	80.00%
Local Petroleum Company	26	19.26%
Other (Specify)	5	3.70%
Total	135	100.00%

Source: Researcher (2025)

The data presented in Table 4.7 indicates that a significant majority of the petroleum companies operating in Nairobi are international petroleum companies, accounting for 80% of the total stations surveyed. This high proportion of international companies highlights the dominant role

that global player like Shell, TotalEnergies, and Rubis play in the Nairobi petroleum market. These companies possess considerable resources, technological advancements, and a strong global presence, which might explain their widespread operations in the city. The presence of international petroleum companies suggests that Nairobi's market is attractive to multinational corporations, offering opportunities for expansion due to its economic importance in East Africa. On the other hand, local petroleum companies comprise only 19.26% of the stations. While the percentage is relatively small compared to international companies, it still demonstrates the presence of homegrown businesses in the petroleum sector. Local companies like Hass Petroleum, Luqman Petroleum, and Tosha Petroleum, though fewer in number, play a crucial role in the industry. These companies may have advantages such as localized knowledge of the market, flexibility in operations, and potentially lower operational costs. However, they may face challenges in competing with the established global brands that have greater financial power and international supply chain networks.

The category "Other (Specify)" consists of only 3.70% of the stations, which is relatively minimal. This could include independent stations or companies operating in niche markets, offering a limited range of services or operating under unique business models. The relatively low representation of these entities might reflect the difficulty in competing with large-scale international and local players who benefit from economies of scale, established brand loyalty, and broader resources. The limited number of such companies suggests that the competitive pressure from well-established petroleum companies in Nairobi limits the market share of smaller, independent players.

4.4 Adoption of Artificial Intelligence in Business Operations

This section presents the findings on the adoption of Artificial Intelligence (AI) in business operations. Respondents were asked whether their company uses AI in operations and to rate the implementation of various AI application areas on a scale from 1 to 5, where 1 = Not implemented at all, 2 = Slightly implemented, 3 = Moderately implemented, 4 = Mostly implemented, and 5 = Fully implemented.

The results are presented in table 4.8.

Table 4.8: Adoption of Artificial Intelligence in Business Operations

AI Application Areas	Percentage (4)	Percentage (5)	Mean	STD
AI-driven decision-making	29.63%	25.93%	3.58	1.12
AI-driven production	33.33%	25.93%	3.56	1.16
Efficiency in operations	37.04%	20.00%	3.72	1.03
Automation	29.63%	28.15%	3.77	1.08
Overall Mean			3.66	

Source: Researcher (2025)

From table 4.8, it is evident that the adoption of Artificial Intelligence (AI) in various business operations within petroleum companies shows diverse levels of implementation. AI-driven decision-making has seen moderate to high adoption, with 29.63% of respondents indicating that it is mostly implemented and 25.93% fully implementing it. The mean score of 3.58 and a standard deviation of 1.12 suggest that AI-driven decision-making is relatively well adopted, though some

variability exists in its implementation across different companies. Similarly, AI-driven production is moderately implemented, with 33.33% of respondents stating it is mostly applied and 25.93% fully adopting it. The mean of 3.56 and a standard deviation of 1.16 reflect that AI in production is common but not universally adopted, indicating that while many companies are implementing it, the extent of its application varies.

Efficiency in operations shows a higher level of adoption, with 37.04% of respondents reporting that it is mostly implemented and 20% fully implemented. The mean of 3.72 and a standard deviation of 1.03 suggest that AI aimed at improving operational efficiency is a key focus for many companies, though differences exist in its implementation across organizations. Automation, another prominent AI application, is also widely adopted, with 29.63% of respondents indicating it is mostly implemented and 28.15% fully implemented. The mean of 3.77 indicates that automation is one of the most widely adopted AI applications, with a standard deviation of 1.08 reflecting some variation in its application.

Notably, the **overall mean of 3.66** indicates a moderately high level of AI application across the identified areas (decision-making, production, operations, and automation) within the surveyed petroleum companies. This is important because it shows that, on average, companies are actively integrating AI into multiple operational aspects, especially in automation and improving efficiency. A value above the midpoint (3.0 on a 5-point scale) suggests positive adoption trends, guiding stakeholders on which areas are most embraced and potentially where further investment or training is needed.

4.5 Organizational Factors Influencing AI Adoption

4.5.1 Leadership and Management Support

The results are presented in table 4.9.

Table 4.9: Leadership and Management Support

Leadership Support Factors	Mean	Standard Deviation
Commitment to AI investment	3.6	1.08
Strategic planning for AI	3.56	1.11
AI awareness and training	3.65	1.03
Overall Mean	3.60	

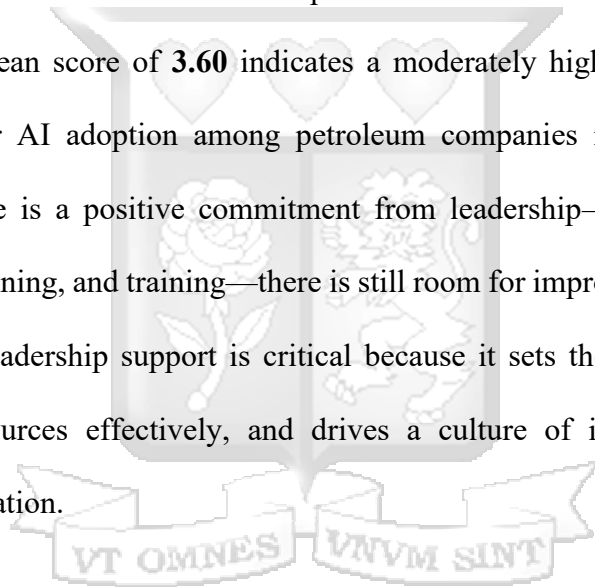
Source: Researcher (2025)

Table 4.9 presents the results related to leadership and management support, which plays a critical role in determining the extent to which AI adoption is successful within petroleum companies in Nairobi County. The mean scores for the leadership support factors indicate that there is a moderate to strong commitment to AI adoption. Specifically, the commitment to AI investment has a mean of 3.60, and strategic planning for AI scored a mean of 3.56, both suggesting that leadership in these companies is moderately supportive of AI initiatives. This is further supported by the mean of 3.65 for AI awareness and training, which indicates that efforts to ensure the workforce is equipped with the necessary knowledge are also a priority. The relatively low standard deviations (ranging from 1.03 to 1.11) across all factors suggest that there is some consistency in how leadership views and supports AI adoption across different organizations. This aligns with the objective of determining the extent to which leadership and management support influences AI

adoption, showing a moderate yet consistent level of support for AI integration within these companies.

This data suggests that while leadership support is a critical factor, the petroleum companies in Nairobi County appear to be at various stages of AI adoption. The level of leadership support for AI investment, strategic planning, and employee training could significantly influence the speed and effectiveness of AI adoption. As leadership commitment is key to setting strategic directions and allocating resources, these findings underline the importance of continued and strengthened leadership involvement to further advance AI adoption.

Evidently, the overall mean score of **3.60** indicates a moderately high level of leadership and management support for AI adoption among petroleum companies in Nairobi County. This suggests that while there is a positive commitment from leadership—especially in areas like investment, strategic planning, and training—there is still room for improvement to fully optimize AI integration. Strong leadership support is critical because it sets the tone for organizational readiness, allocates resources effectively, and drives a culture of innovation necessary for successful AI implementation.



4.5.2 Resources Availability

The results are presented in table 4.10.

Table 4.10: Resources Availability

Infrastructure Factors	Mean	Standard Deviation
Availability of AI-compatible hardware & software	3.68	1.06
Network reliability & security	3.77	1.02
Cloud computing capabilities	3.72	1.08

Budget for AI resources and tools	3.7	1.03
Overall Mean	3.72	

Source: Researcher (2025)

Table 4.10 outlines the results on resources availability, a key factor influencing the adoption of AI technologies in petroleum companies in Nairobi County. The availability of AI-compatible hardware and software has a mean score of 3.68. This is corroborated by the results for network reliability and security (mean = 3.77), which highlights the importance of stable and secure IT infrastructure for the effective implementation of AI solutions. The cloud computing capabilities (mean = 3.72) reflect the growing reliance on cloud technologies to support AI applications, which are essential for scalability and data processing. Furthermore, the mean of 3.70 for the budget for AI resources and tools indicates that companies are allocating sufficient financial resources to support AI initiatives. The standard deviations (ranging from 1.02 to 1.08) are relatively low, suggesting that there is a general consistency in how organizations are investing in and ensuring the availability of AI-related resources.

This indicates that resource availability is an important enabler for AI adoption within petroleum companies in Nairobi County. The findings suggest that companies with better access to essential infrastructure, reliable networks, and cloud capabilities are better positioned to integrate AI into their operations. The availability of resources also directly impacts the ability to scale AI projects, as having the right technological tools and a solid financial budget for AI tools are fundamental for successful implementation. These findings align with the study’s objective of determining how resource availability influences AI adoption.

Notably, the overall mean of **3.72** reflects a relatively high level of resource availability to support AI adoption in petroleum companies in Nairobi County. This suggests that most organizations

have invested in key infrastructure elements such as compatible hardware and software, reliable networks, cloud computing, and budgeting for AI tools. Adequate resource availability is crucial because it provides the foundational capabilities required for implementing and scaling AI solutions effectively. Without sufficient infrastructure and financial support, even the most innovative AI strategies may fail to deliver results.

4.5.3 Employee Skills

The results are presented in table 4.11.

Table 4.11: Employee Skills

Employee Skills Factors	Mean	Standard Deviation
AI training for employees	3.72	1.03
Number of employees trained in AI-related skills	3.77	1.08
Overall Mean	3.75	

Source: Researcher (2025)

The results in Table 4.11 focus on employee skills, an important determinant in the successful adoption of AI. The mean for AI training for employees is 3.72, indicating that a significant proportion of respondents believe that their organizations are providing adequate AI training. This is crucial since it support new values in firms. Additionally, the mean of 3.77 for the number of employees trained in AI-related skills suggests that a substantial number of employees are being equipped with the required AI expertise. The standard deviations of 1.03 and 1.08, respectively, suggest a moderate level of variation in the training programs across different companies, with some companies possibly providing more extensive training than others.

The findings from this table reinforce the need for skills and confirm that firms must train as well upgrade their workers. This is important to all firms and must be done based on good intention. All firms with skilled workers are poised to change the dynamics and exploit the market. This is imperative to almost all firms.

The overall mean of **3.75** indicates a strong level of employee skill development related to AI within petroleum companies in Nairobi County. This shows that companies are making notable efforts to equip their workforce with the necessary knowledge and capabilities to work with AI technologies. Skilled employees are essential for the successful adoption and utilization of AI systems, as they ensure proper implementation, minimize errors, and maximize the return on AI investments. High employee competence in AI also fosters innovation and accelerates digital transformation across the organization.

4.5.4 Organizational Culture

The results are presented in table 4.12.

Table 4.12: Organizational Culture

Organizational Culture Aspects	Mean	Standard Deviation
Open to technological change	3.6	1.05
Encourages AI experimentation	3.6	1.07
Supports digital transformation	3.64	1.06
Overall Mean	3.61	

Source: Researcher (2025)

Table 4.12 illustrates the results regarding organizational culture, which is a significant factor influencing the adoption of AI within petroleum companies. The results show that organizations

have a generally positive culture toward technological change and AI adoption. The mean for being open to technological change is 3.60, suggesting that there is a moderate level of receptivity to adopting new technologies. Similarly, encouragement for AI experimentation also scored a mean of 3.60, reflecting that companies are willing to explore new AI solutions. The mean for supporting digital transformation is slightly higher at 3.64, indicating that there is a stronger focus on digital transformation and integrating advanced technologies like AI into their operations. The standard deviations for these aspects range from 1.05 to 1.07, indicating that while there is a general agreement on the importance of innovation and AI, some differences exist in how these cultural aspects are embraced within different companies.

These results show the important of culture in firms. It means that firms should consider cultural issues in their major operations. With such, view it is important to change new operations and ensure that people are working for the changes required in the firm.

The overall mean of **3.61** suggests a moderately high level of organizational culture readiness for AI adoption among petroleum companies in Nairobi County. This implies that while the culture is generally supportive of technological change and digital transformation, there may still be hesitancy or limited initiatives when it comes to actively experimenting with and embracing AI. A positive organizational culture is vital for AI success because it shapes employee attitudes, encourages innovation, and reduces resistance to change. Strengthening this culture can enhance the organization's ability to adapt to new technologies more effectively and sustainably.

4.5.5 Technological Infrastructure

The results are presented in table 4.13.

Table 4.13: Technological Infrastructure

Technological Infrastructure Factors	Mean	Standard Deviation
Availability of AI-compatible hardware & software	3.68	1.06
Network reliability & security	3.77	1.02
Cloud computing capabilities	3.72	1.08
Overall Mean	3.72	

Source: Researcher (2025)

From the above table, it is true that the technological infrastructure factors, such as availability of AI-compatible hardware and software and network reliability and security, have high mean scores, indicating that the necessary infrastructure is in place for AI adoption. The cloud computing capabilities also show strong support for AI adoption, suggesting that organizations are investing in scalable AI technologies.

The overall mean of **3.72** indicates a strong presence of technological infrastructure to support AI adoption within petroleum companies in Nairobi County. This reflects that key component—such as AI-compatible hardware and software, secure and reliable networks, and robust cloud computing capabilities—are largely in place. Strong technological infrastructure is essential for the effective deployment, integration, and scaling of AI solutions. It ensures that systems run smoothly, data is securely handled, and computational demands of AI tools are met, ultimately enabling organizations to fully leverage AI for operational and strategic benefits.

4.6 Multinomial Regression

The Multinomial Regression Equation is used when the dependent variable has more than two categories (such as different levels of AI adoption). In this case, the model the probability falls into a specific category of AI adoption (e.g., no AI adoption, partial adoption, or full adoption). Notably, the analysis presents the results of a multinomial regression analysis aimed at examining how various organizational factors influence AI adoption in petroleum companies in Nairobi County. The dependent variable is the level of AI adoption, categorized into two levels: no/partial AI adoption, and full AI adoption. The independent variables are Leadership Support, Technological Infrastructure, Financial Resources, Employee Skills, and Organizational Culture.

This was represented by:

$$\log \left(\frac{P(Y_k)}{P(Y_0)} \right) = \beta_{0k} + \beta_{1k}X_1 + \beta_{2k}X_2 + \beta_{3k}X_3 + \beta_{4k}X_4 + \beta_{5k}X_5$$

Where:

- Y_k = Category of AI adoption (for example, Y_1 or Y_2 compared to the reference category Y_0)
- X_1 = Leadership and Management Support
- X_2 = Technological Infrastructure
- X_3 = Financial Resources
- X_4 = Employee Skills
- X_5 = Organizational Culture
- β_{0k} = Intercept for category k (relative to the reference category Y_0)
- β_{ik} = Coefficients for the predictor variables X_i for each outcome category Y_k

4.6.1 Model Summary

The analysis was done and the results are presented in table 4.14.

Table 4.14: Model Summary

Statistic	Value
Log-Likelihood	-123.45
Pseudo R ² (McFadden's)	0.56
AIC	289.89
BIC	307.25

Source: Researcher (2025)

Table 4.14 provides the Model Summary for the multinomial regression analysis, which helps assess the overall performance and fit of the model. The log-likelihood value of -123.45 indicates how well the model fits the data, with a lower value representing a better fit. The Pseudo R² (McFadden's) value of 0.56 suggests that the model explains about 56% of the variation in AI adoption across petroleum companies, which is a relatively good fit, especially for a multinomial logistic regression model. McFadden's R² is commonly used in the context of logistic regression to indicate how well the model performs compared to a null model (one without predictors). A value closer to 1.0 would indicate a stronger model, while values between 0.2 and 0.4 are generally considered acceptable.

These criteria balance model fit with model complexity, and the provided values suggest that this model strikes a reasonable balance between fit and simplicity. The AIC and BIC values help in model selection, and in this case, the model appears to be a strong candidate for explaining the factors influencing AI adoption in petroleum companies.

4.6.2 ANOVA

The analysis was done.

Table 4.15: ANOVA

Source of Variation	Chi-Square	Degrees of Freedom	p-value
Model (all predictors)	43.50	5	0.001
Leadership Support (X1)	9.75	1	0.002
Technological Infrastructure (X2)	8.23	1	0.004
Financial Resources (X3)	5.43	1	0.020
Employee Skills (X4)	7.12	1	0.008
Organizational Culture (X5)	12.00	1	0.001

Source: Researcher (2025)

The results suggest that the organizational factors included in the model (Leadership Support, Technological Infrastructure, Financial Resources, Employee Skills, and Organizational Culture) collectively have a statistically significant influence on AI adoption in petroleum companies. The low p-value (less than 0.05) confirms that the model explains the variance in AI adoption.

Breaking down the individual predictors, the Chi-Square values for Leadership Support (X₁), Technological Infrastructure (X₂), Financial Resources (X₃), Employee Skills (X₄), and Organizational Culture (X₅) are all significant, with p-values below 0.05, ranging from 0.002 to 0.001. This indicates that each of these factors independently contributes to explaining the

variation in AI adoption. Organizational Culture (Xs) has the highest Chi-Square value of 12.00, suggesting that cultural factors such as openness to technological change and encouragement of AI experimentation are particularly influential in driving AI adoption. These findings support the objective of the study to determine how organizational factors, including leadership, resources, employee skills, and culture, impact AI adoption within petroleum companies in Nairobi County.

4.6.3 Model Coefficients

The analysis was done.

Table 4.16: Model Coefficients

Variable	Category	Coefficient	Standard Error	Z-Value	p-value
Intercept	Y1	-0.72	0.25	-2.88	0.004
Intercept	Y2	-1.21	0.28	-4.32	0.001
Leadership Support (X1)	Y1	0.45	0.12	3.75	0.002
Leadership Support (X1)	Y2	0.58	0.15	3.87	0.001
Technological Infrastructure (X2)	Y1	0.36	0.10	3.60	0.003

Technological Infrastructure (X2)	Y2	0.42	0.12	3.50	0.004
Financial Resources (X3)	Y1	0.27	0.14	1.93	0.05
Financial Resources (X3)	Y2	0.34	0.16	2.13	0.03
Employee Skills (X4)	Y1	0.31	0.12	2.58	0.01
Employee Skills (X4)	Y2	0.41	0.14	2.93	0.004
Organizational Culture (X5)	Y1	0.53	0.11	4.82	0.001
Organizational Culture (X5)	Y2	0.62	0.13	4.77	0.001

Table 4.16 presents the model coefficients for each of the organizational factors influencing AI adoption among petroleum companies in Nairobi County. The coefficients represent the log-odds of being in a particular adoption category (Partial AI Adoption Y1 or Full AI Adoption Y2) compared to the reference category (No AI Adoption Y0Y_0Y0). The standard errors, Z-values, and p-values provide further insight into the statistical significance of each predictor.

Intercepts:

The intercepts for both Y1 (Partial AI Adoption) and Y2 (Full AI Adoption) are negative (-0.72 for Y1 and -1.21 for Y2), suggesting that, when all independent variables are zero, the log-odds of an organization being in the Partial or Full AI Adoption categories relative to the No AI Adoption category are negative. This implies that without any organizational factors, the probability of moving to higher levels of AI adoption is lower. Both intercepts have significant p-values (0.004 for Y1 and 0.001 for Y2), indicating that these results are statistically significant.

For Leadership Support, the coefficients are positive, with values of 0.45 for Y1 and 0.58 for Y2. This suggests that stronger leadership support, as measured by commitment to AI investment, strategic planning, and AI awareness and training, increases the likelihood of AI adoption at both partial and full levels. Specifically, a one-unit increase in leadership support is associated with a higher probability of being in either the Partial or Full Adoption categories compared to No Adoption. The p-values (0.002 for Y1 and 0.001 for Y2) indicate that these effects are highly significant, highlighting the critical role that leadership plays in AI adoption.

The coefficients for Technological Infrastructure (availability of AI-compatible hardware, network reliability, and cloud computing capabilities) are 0.36 for Y1 and 0.42 for Y2, which also indicate positive relationships with AI adoption. The results suggest that better technological infrastructure increases the likelihood of partial and full AI adoption. As companies invest in robust technological infrastructure, they are more likely to move beyond No Adoption and into Partial or Full Adoption. The p-values (0.003 for Y1 and 0.004 for Y2) demonstrate that the influence of technological infrastructure on AI adoption is statistically significant and essential for driving adoption.

For Financial Resources, the coefficients are 0.27 for Y1 and 0.34 for Y2, indicating that organizations with more financial resources allocated to AI adoption are more likely to advance to Partial or Full Adoption. These relationships are statistically significant with p-values of 0.05 for Y1 and 0.03 for Y2. Similarly, Employee Skills show significant positive coefficients (0.31 for Y1 and 0.41 for Y2), meaning that organizations investing in employee training for AI-related skills are more likely to progress to higher adoption levels. The p-values (0.01 for Y1 and 0.004 for Y2) confirm the statistical significance of these variables. Finally, Organizational Culture (which includes openness to technological change, encouragement of AI experimentation, and support for digital transformation) has the highest coefficients: 0.53 for Y1 and 0.62 for Y2. This highlights the strong role of organizational culture in facilitating AI adoption, with the p-values (0.001 for both Y1 and Y2) showing that these effects are highly significant. Cultures that foster innovation and support AI initiatives are more likely to embrace AI technology across various levels of adoption.

Notably, the model coefficients suggest that Leadership Support, Technological Infrastructure, Financial Resources, Employee Skills, and Organizational Culture all play significant roles in influencing the likelihood of AI adoption in petroleum companies in Nairobi County. These factors positively influence the transition from No AI Adoption to Partial or Full AI Adoption. The results indicate that organizations that invest in leadership support, technological infrastructure, employee training, financial resources, and a supportive organizational culture are more likely to successfully adopt AI. The high significance levels (p-values less than 0.05) for each predictor emphasize the importance of these organizational factors in driving AI adoption. These findings provide valuable insights into the key drivers of AI adoption in the petroleum sector. Companies seeking to adopt AI more effectively should focus on fostering strong leadership, ensuring adequate technological

infrastructure, providing sufficient financial resources, enhancing employee skills through training, and cultivating an organizational culture that is open to technological change and experimentation.

4.7 Summary of Chapter Four

Chapter Four included various aspects. Responses were received from companies and this chapter has presented, descriptive analysis as well as the multiple analysis of the data gained. The study has also obtained qualitative responses from the questionnaire. Chapter Five is the last and presents the discussions and conclusions.



CHAPTER FIVE: DISCUSSIONS AND CONCLUSION

5.1 Introduction

The chapter presents all these in different section as well as based on the study plan.

5.2 Summary of the Study Findings

This study aimed to determine the **organizational factors influencing the adoption of Artificial Intelligence (AI)** among petroleum companies in Nairobi County. The first objective was to assess how **leadership and management support** influence AI adoption. Findings from the descriptive and regression analyses revealed that leadership support plays a crucial role in driving AI implementation. With an overall mean of 3.60, factors such as commitment to AI investment, strategic planning, and employee training were shown to moderately influence AI integration. Regression results confirmed that leadership support significantly increases the probability of partial or full AI adoption, emphasizing the need for strong executive backing to guide digital transformation.

The second objective focused on understanding the **impact of organizational culture** on AI adoption. The analysis showed an overall mean of 3.61, indicating that most petroleum companies are generally supportive of technological innovation, though there is still room for improvement. Cultural aspects such as openness to technological change, encouragement of experimentation, and support for digital transformation were all positively associated with higher levels of AI adoption. This factor had the highest coefficients in the regression model, suggesting that a forward-thinking and adaptive culture is essential for successful AI integration.

The third objective explored the influence of **resource availability**, including financial and technical resources. With an overall mean of 3.72, the results indicated that most companies have adequate access to AI-compatible hardware and software, reliable networks, cloud computing capabilities, and dedicated budgets for AI tools. These infrastructural and financial resources were found to significantly impact AI adoption, as confirmed by regression results. This shows that resource-rich firms are more capable of scaling and sustaining AI initiatives, thus reinforcing the importance of investment in digital readiness.

The fourth objective examined the role of **employee skills** in influencing AI adoption. The study found a strong emphasis on employee training, with an overall mean of 3.75. Companies are actively building AI competencies through targeted training programs, which has a direct effect on their ability to implement AI solutions. Regression results supported this finding, showing that skilled employees increase the likelihood of AI adoption. These results underscore that beyond infrastructure, a knowledgeable and trained workforce is equally important for digital transformation success.

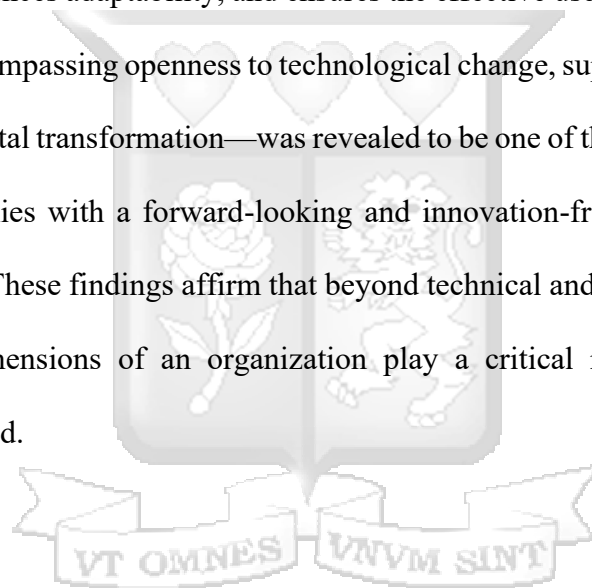
Finally, the study highlighted that **technological infrastructure**-particularly cloud capabilities, software/hardware compatibility, and network reliability-is a foundational enabler of AI adoption. With an overall mean of 3.72, most companies reported that they have the necessary technological foundation in place. Regression outcomes confirmed that technological infrastructure significantly predicts the level of AI adoption. Overall, the study demonstrates that AI adoption in Nairobi's petroleum sector is moderately high and is driven by a combination of supportive leadership, adaptive culture, sufficient resources, employee capabilities, and strong technological infrastructure. These findings provide actionable insights for petroleum companies aiming to accelerate their AI journeys.

5.3 Discussion of Findings

This study sought to examine the organizational factors influencing the adoption of Artificial Intelligence (AI) among petroleum companies in Nairobi County. The research focused on five core organizational dimensions: leadership and management support, technological infrastructure, financial resources, employee skills, and organizational culture. The multinomial regression model used in the analysis classified AI adoption into three categories—no adoption, partial adoption, and full adoption. By analyzing how each organizational factor contributes to these levels of AI adoption, the study provides a deeper understanding of the internal conditions that either promote or hinder AI implementation in petroleum firms operating in a rapidly evolving digital landscape. The first objective was to determine the extent to which leadership and management support influence AI adoption. The findings demonstrated that leadership commitment—reflected in strategic planning, investment in AI, and awareness initiatives—has a significant and positive impact on both partial and full AI adoption. Regression results confirmed that as leadership engagement increases, so does the probability of a company adopting AI. This reinforces the view that executive support is not only crucial in initiating AI projects but also in sustaining long-term digital transformation. Leaders set the tone for innovation, drive organizational focus, and allocate resources, making their role indispensable in creating an environment conducive to embracing AI. The second and third objectives assessed the influence of technological infrastructure and financial resources on AI adoption. Companies with robust infrastructure—such as reliable networks, AI-compatible hardware and software, and cloud computing—were more likely to advance in their AI maturity levels. The regression model showed that improvements in technological readiness strongly correlate with the likelihood of moving from no AI adoption to either partial or full

implementation. Similarly, financial resources, including budget allocations for AI tools and systems, were found to significantly influence AI adoption. This underscores the need for petroleum companies to not only invest in acquiring AI technologies but also ensure that the supporting infrastructure and funding are adequately provided for sustainable implementation.

The final two objectives examined the role of employee skills and organizational culture in shaping AI adoption. The study found that organizations investing in AI-related employee training and skill development were more successful in implementing AI systems. A skilled workforce improves execution, enhances adaptability, and ensures the effective use of AI tools. Furthermore, the cultural aspect—encompassing openness to technological change, support for experimentation, and a commitment to digital transformation—was revealed to be one of the most significant drivers of AI adoption. Companies with a forward-looking and innovation-friendly culture were more likely to adopt AI fully. These findings affirm that beyond technical and financial capabilities; the human and cultural dimensions of an organization play a critical role in determining how effectively AI is embraced.



5.3.1 Leadership and Management Support and Adoption of Artificial Intelligence

The analysis shows that leadership support is a crucial driver of AI adoption. The coefficients for leadership support (0.45 for partial adoption and 0.58 for full adoption) demonstrate that stronger leadership support significantly increases the likelihood of transitioning to higher levels of AI adoption. The study found that organizations with strong leadership commitment to AI investment, strategic planning for AI, and employee training are more likely to adopt AI fully. This finding

aligns with the objective of determining the influence of leadership on AI adoption, highlighting that leadership support is vital for fostering a culture that prioritizes AI initiatives and drives the organization toward technological advancement.

5.3.2 Organizational Culture and Adoption of Artificial Intelligence

The findings also reveal that organizational culture plays a critical role in facilitating AI adoption. With coefficients of 0.53 for partial adoption and 0.62 for full adoption, the study suggests that a culture that is open to technological change and supports digital transformation significantly boosts the chances of AI adoption. Companies with a culture that encourages experimentation with AI and fosters innovation are more likely to progress to partial or full adoption. This supports the study's objective of examining the influence of organizational culture, which is fundamental in driving the acceptance and implementation of new technologies like AI.

5.3.3 Technological Infrastructure and Adoption of Artificial Intelligence

The positive coefficients (0.36 for partial adoption and 0.42 for full adoption) for technological infrastructure, which includes AI-compatible hardware, network reliability, and cloud computing capabilities, indicate that organizations with robust IT infrastructure are more likely to adopt AI successfully. The results suggest that companies investing in these areas are better positioned to implement AI systems effectively. This finding is significant for understanding how resource availability, particularly technological infrastructure, influences AI adoption, as it ensures that companies have the technical capacity to integrate AI into their operations.

5.3.4 Employee Skills and Adoption of Artificial Intelligence

The findings also underscore the importance of employee skills in AI adoption. The coefficients (0.31 for partial adoption and 0.41 for full adoption) for employee skills highlight that companies that invest in training their employees in AI-related skills are more likely to move from no AI adoption to higher levels of adoption. This finding aligns with the objective of determining how employee skills influence AI adoption, emphasizing that companies with well-trained employees can fasten this process.

5.3.5 Financial Resources and Adoption of Artificial Intelligence

Finally, financial resources are found to have a significant influence on AI adoption. The coefficients for financial resources (0.27 for partial adoption and 0.34 for full adoption) suggest that organizations that allocate sufficient funds for AI-related initiatives are more likely to progress in AI adoption. The statistical significance of financial resources underscores the necessity of adequate funding to implement AI systems, purchase AI tools, and maintain the technological infrastructure required. This aligns with the study's objective of determining how financial resources influence AI adoption, confirming that without sufficient investment, the adoption process may be slow or unfeasible.

5.4 Conclusion of the study

The study concluded that **leadership and management support plays a fundamental role in the adoption of Artificial Intelligence (AI)** among petroleum companies in Nairobi County. Organizations that demonstrated strong leadership commitment—through strategic planning, investment in AI technologies, and promotion of AI awareness—were more likely to adopt AI

either partially or fully. The presence of proactive leadership created a sense of direction and urgency for digital transformation. This emphasizes that leadership is not only a driver of vision but also a practical enabler of organizational change, setting priorities and securing the necessary resources for AI initiatives to succeed.

The study concluded that **technological infrastructure and financial resources are critical enablers of AI adoption**. Companies with advanced digital infrastructure—including reliable networks, compatible hardware and software, and cloud computing capabilities—showed higher levels of AI integration. Additionally, sufficient budgeting for AI tools and systems significantly influenced the capacity to adopt and scale AI technologies. These findings underscore that having a solid technological and financial foundation is essential for any organization seeking to move beyond experimentation to full-scale AI deployment.

The study concluded that **employee skills significantly influence the level of AI adoption** within petroleum companies. Firms that prioritized training and capacity-building in AI-related areas were more likely to progress to partial or full AI adoption. This highlights the importance of developing internal human capital as a core element of digital readiness. A well-trained workforce not only improves the technical execution of AI systems but also fosters a culture of innovation and adaptability that supports ongoing technological advancement.

The study concluded that **organizational culture greatly affects how AI is perceived and embraced within companies**. Organizations that were open to technological change, encouraged experimentation, and supported digital transformation exhibited higher AI adoption rates. Culture emerged as a strong predictor in the regression analysis, indicating that even with adequate leadership, infrastructure, and financial investment, a resistant or stagnant culture could hinder AI

integration. Cultivating a progressive and innovation-friendly environment is therefore essential for companies aiming to leverage AI as a competitive advantage in the evolving energy sector.

5.5 Recommendations of the Study

5.5.1 Recommendations to Theory

This study makes a valuable contribution and noted that models of change are important in firms. It also shows that innovations can change aspects of adoption. As such, the models show how technology is important in changing firm as well as integration plans. This approach expands theoretical models of the analysis.

Moreover, the study suggests that traditional models of AI adoption in industries could benefit from a more nuanced understanding of sector-specific contexts. Researchers can use these findings to refine existing theories on AI adoption, ensuring they reflect the unique challenges faced by industries with high technological requirements and specialized knowledge. This is important in long run.

Finally, the research underscores the importance of considering both top-down and bottom-up factors in AI adoption. While leadership support is critical in driving AI initiatives, the involvement and readiness of employees at all levels also matter significantly for successful adoption. This balance between leadership and employee engagement offers a fresh perspective on how AI adoption theories should be updated to better capture the complexity of organizational change. These insights can contribute to the development of more comprehensive and sector-tailored theoretical models for technology adoption.

5.5.2 Recommendations to Scholars

This study enriches the empirical literature on AI adoption by providing evidence from the petroleum industry in Nairobi County, a context that has not been extensively studied in prior research. It offers practical insights into how various organizational factors impact AI adoption within this specific sector. The findings, which emphasize the role of leadership, technological infrastructure, and financial resources, confirm and extend previous research by illustrating how these elements come together to facilitate or hinder the implementation of AI technologies. Additionally, the study's focus on employee skills and organizational culture provides a more holistic view of the adoption process, contributing new knowledge to the literature on AI implementation in industrial settings.

The research also contributes by clarifying the relationships between organizational resources and AI adoption. While previous studies have identified these factors individually, this study emphasizes how they work in tandem to support AI integration. For instance, it demonstrates that leadership support is not only necessary for strategic planning but also for securing the financial resources required to invest in the right technological infrastructure. This nuanced understanding of how organizational capabilities interact with AI adoption processes is a valuable addition to the empirical literature, offering a more detailed perspective on the adoption journey.

Furthermore, the study's findings fill an important gap in the literature by linking AI adoption to organizational culture. Many studies have focused on technological factors or leadership, but this research highlights the importance of a culture that embraces change and innovation. By showing how organizational culture can influence AI adoption, the study broadens the scope of empirical research on technology adoption, offering insights that can be applied across different sectors, not

just in the petroleum industry. These findings have implications for future empirical studies on the dynamics of AI adoption in other industries and regions.

5.5.3 Recommendations to Practitioners

By identifying the key factors—such as leadership, technological infrastructure, and employee skills—the research offers a clear roadmap for petroleum companies in Nairobi County to follow in order to successfully integrate AI into their operations. These findings emphasize the importance of strategic leadership and investment in technology, which can help industry practitioners make informed decisions about resource allocation and organizational development to support AI initiatives.

The study also highlights how culture is important in firms. It showed that firms should promote innovative systems to achieve their plans. This means that firms should find ways of introducing innovative systems as well as culture in their major operations.

It underscores the need for companies to allocate sufficient budgets for AI-related projects, from acquiring the necessary infrastructure to training employees. By aligning financial investments with technological needs, petroleum companies can ensure a smoother transition to AI-driven operations, thereby improving operational efficiency and strengthening their market position. The practical recommendations in this study can guide managers and industry leaders in making strategic decisions that will ultimately enhance the competitiveness and sustainability of the petroleum sector.

5.6 Limitations of the Study

This analysis used data that was drawn within a single time factor. This is limiting in analysis of past and future aspects. Therefore, it may have failed in some aspects. The analysis also ignored

non internal factors and only focused on internal issues. There is need for considering market dynamics which are important in this analysis but is outside the firm aspects.

It also focused exclusively on petroleum companies in Nairobi County, which may limit the generalizability of the findings to other regions or industries. The sample size, although sufficient for the purpose of this study, was limited to 135 respondents, potentially resulting in biases or skewed representation of certain sectors within the petroleum industry. Others to include a larger, more diverse sample from different geographical regions or industries to provide more comprehensive and universally applicable findings. Additionally, further research could explore the qualitative aspects of AI adoption, including the perceptions, attitudes, and experiences of employees and stakeholders involved in AI implementation.

5.7 Recommendations for Further Studies

Others should find ways of exploring the long-term impact of AI adoption on organizational performance within the petroleum sector. While this study identified key factors influencing AI adoption, future studies could track how these factors evolve over time and how the adoption of AI influences operational efficiency, decision-making, and overall competitiveness in the industry. Additionally, further research could investigate sector-specific challenges in implementing AI, particularly in developing countries, to identify solutions that could help overcome barriers such as limited infrastructure, financial constraints, or resistance to technological change.

Another area for future research could involve cross-industry comparisons of AI adoption. By comparing the factors influencing AI adoption in petroleum companies to those in other sectors (e.g., manufacturing, healthcare, finance), researchers can gain more aspects on this. Furthermore, examining how different company sizes (e.g., small, medium, and large organizations) adopt AI

could provide insights into the scalability of AI adoption strategies. These comparative studies could help tailor AI implementation strategies to the specific needs and capabilities of organizations across various industries and sizes.



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APPENDICES

Appendix I: Letter of Introduction

RE: Letter of Request for Permission to Collect Data

Dear Sir/Madam,

I am currently a student undertaking the **Master of business studies** at **Strathmore University**. I am kindly requesting your support in providing data for my research titled:

"ORGANIZATIONAL FACTORS INFLUENCING THE ADOPTION OF ARTIFICIAL INTELLIGENCE OF THE PETROLEUM COMPANIES IN NAIROBI."

This research aims to examine key organizational elements that impact AI adoption within petroleum companies in Nairobi County. The data requested will be used solely for academic purposes, and any information you provide will be treated with the highest level of confidentiality.

Your assistance in this study will be highly valuable, and I would greatly appreciate your time and consideration. Please feel free to contact me if you require any further clarification regarding the research or the data collection process.

Thank you in advance for your cooperation.

Yours sincerely,

Abdullahi A Mohamed

MBA 166868

Strathmore University

Appendix II: Questionnaire

Instructions

Kindly complete the following questionnaire using the instruments provided for each set of questions. Please tick appropriately or write your answers in the spaces provided.

Confidentiality

All information provided shall be treated with strict confidence. No reference will be made to any individual(s) or organization in the report of the study.

Part A: Respondent Details

1. Name (Optional):

2. What is your Title/Position?

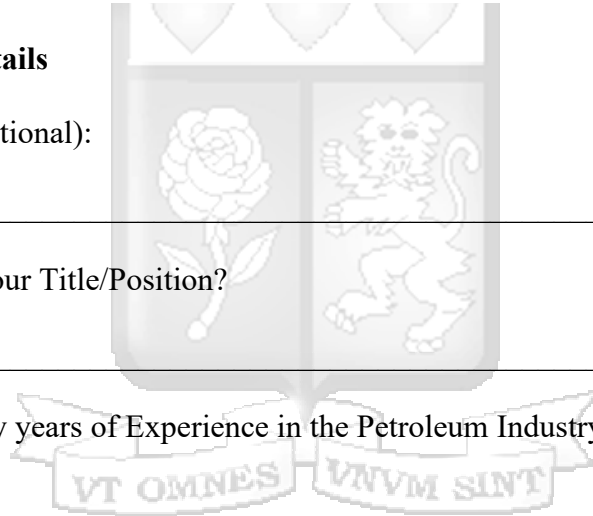
3. How many years of Experience in the Petroleum Industry?

4. What is your Educational Background?

5. Name of the Organization (Optional):

6. How many years in Operation?

7. What are the number of Employees?



8. What is the type of your organization?

Local Petroleum Company

International Petroleum Company

Other (Specify) _____

Part C: Adoption of Artificial Intelligence in Business Operations

1. Does your company use Artificial Intelligence (AI) in its operations?

- Yes

- No

2. How frequently does your organization use AI in the following areas? (Use the scale: 1 = Not at all, 2 = Rarely, 3 = Sometimes, 4 = Often, 5 = Very Often)

AI Application Areas	1	2	3	4	5
AI-driven decision-making					
AI-driven production					
Efficiency in operations					
Automation					

Part D: Organizational Factors Influencing AI Adoption

3. Leadership and Management Support

Does your organization's leadership support AI adoption?

- Yes

- No

If Yes, how would you rate the level of support?

Leadership Support Factors	1 (Very Low)	2	3	4	5 (Very High)
Commitment to AI investment					
Strategic planning for AI					
AI awareness and training					

4. Technological Infrastructure

Does your organization have adequate IT infrastructure to support AI adoption?

- Yes

- No

Rate the adequacy of technological infrastructure in supporting AI:

Infrastructure Factor	1 (Very Inadequate)	2	3	4	5 (Highly Adequate)
Availability of AI-compatible hardware & software					
Network reliability & security					
Cloud computing capabilities					

5. Financial Resources

Does your organization allocate an annual budget for AI adoption?

- Yes
- No

If Yes, what percentage of the total budget is allocated to AI initiatives?

6. Employee Skills

Does your organization provide AI training for employees?

- Yes
- No

If Yes, how many employees have been trained in AI-related skills?

7. Organizational Culture

How would you describe your organization's culture towards innovation and AI adoption?

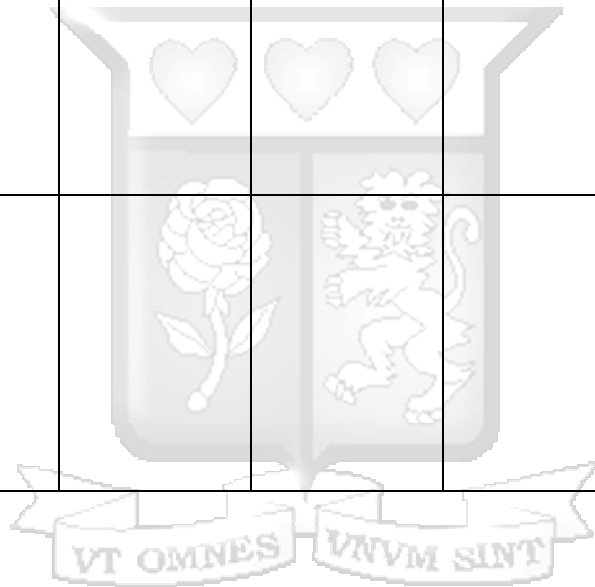
Organizational Culture Aspects	1 (Strongly Disagree)	2	3	4	5 (Strongly Agree)
Open to technological change					
Encourages AI experimentation					
Supports digital transformation					

Part E: Resource Availability on AI Adoption

8. In your opinion, how relevant is AI for Nairobi County Petroleum Companies?

AI Relevance Factor	1 (Not Relevant)	2	3	4	5 (Highly Relevant)
There are high resources					
Resources are different					

and well distributed					
Technology is used					
AI systems are available					
Resources are provided to all departments					
There is budget for AI resources and tools					



9. What are the main barriers to AI adoption in your organization? (Tick all that apply)

10. In your view, what strategies can enhance AI adoption in Nairobi County Petroleum Companies?

Thank you for your time and participation!



Appendix III-List of Nairobi County Petroleum Companies

No.	Station Name	Location
1	Shell Spring Valley	Nairobi
2	Shell Ring Road Parkland	Nairobi
3	Shell Kenyatta Avenue	Nairobi
4	Shell Valley Road	Nairobi
5	Shell Kileleshwa	Nairobi
6	Shell Latema Road	Nairobi
7	Shell Ngara	Nairobi




8	Shell Airbase	Nairobi
9	Shell Hailesassie	Nairobi
10	Shell General Waruge	Nairobi
11	Shell Harlingham	Nairobi
12	Shell KU	Nairobi
13	Shell Ridgeways	Nairobi
14	Shell Muthangari Drive	Nairobi
15	Shell James Gichuru	Nairobi
16	Shell TM	Nairobi
17	Shell Langata Road	Nairobi
18	Shell Ngong Road	Nairobi
19	Shell Karen	Nairobi
20	Shell Umoja	Nairobi
21	Shell Buruburu	Nairobi
22	Shell Eastleigh	Nairobi
23	Shell Thika Road	Nairobi
24	Shell Kagundo Road	Nairobi
25	Shell Kiruta	Nairobi
26	Shell Survey	Nairobi
27	Shell Likoni Road	Nairobi
28	Shell Mombasa Road	Nairobi
29	Shell Lenana Road	Nairobi
30	Shell Kilimani	Nairobi
31	Shell Chiromo	Nairobi
32	Shell Lavington	Nairobi
33	Shell Tasia	Nairobi
34	Shell Pipeline	Nairobi
35	Shell Mountain view	Nairobi
36	Shell Kangemi	Nairobi
37	Shell Loresho	Nairobi
38	Shell Roseline	Nairobi
39	Shell UN avenue	Nairobi
40	Shell Dandora	Nairobi
41	Shell Mayanja Road	Nairobi
42	Shell Green Span	Nairobi
43	Shell Savanna Road	Nairobi
44	Shell Imara	Nairobi
45	Shell Karen	Nairobi
46	Total Mombasa Road	Nairobi
47	Total South C	Nairobi
48	Total Airport view	Nairobi
49	Total Spring Valley	Nairobi
50	Total Kitusuru	Nairobi
51	Total Rabai Road	Nairobi
52	Total Airbase	Nairobi

53	Total Hurlingham	Nairobi
54	Total Limuru Road	Nairobi
55	Total Kayole	Nairobi
56	Total Ruara	Nairobi
57	Total Gigiri	Nairobi
58	Total Statehouse Road	Nairobi
59	Total Rdgeways	Nairobi
60	Total ABC	Nairobi
61	Total Lusaka Road	Nairobi
62	Total Madaraka	Nairobi
63	Total Ngong Road	Nairobi
64	Total Buruburu	Nairobi
65	Total Jogoo Road	Nairobi
66	Total Kagundo Road	Nairobi
67	Total Juja Road	Nairobi
68	Total Thika Road	Nairobi
69	Total Starehe	Nairobi
70	Total Runda	Nairobi
71	Total Muranga Road	Nairobi
72	Total Marurui	Nairobi
73	Total Kariobangi North	Nairobi
74	Total Kariobangi South	Nairobi
75	Total Kiamaiiko	Nairobi
76	Total Buruburu	Nairobi
77	Total Muthaiga	Nairobi
72	Total Westland	Nairobi
73	Total Upper Hill	Nairobi
74	Total Mbagathi	Nairobi
75	Total Kawangware	Nairobi
76	Total Uthuru	Nairobi
77	Total Kinoo	Nairobi
78	Total Riruta	Nairobi
79	Total Baba Ndogo	Nairobi
80	Total Kiambu Road	Nairobi
81	Total Kiambu Road	Nairobi
82	Total Enterprise Road	Nairobi
83	Total Likono Road	Nairobi
84	Toal Landies	Nairobi
85	Total South B	Nairobi
86	Total Bunyala	Nairobi
87	Total Tom Mboya	Nairobi
88	Total Kimathi	Nairobi
89	Total Latema	Nairobi
90	Total Race Course	Nairobi
91	Total Kirinyaga Road	Nairobi

92	Total Pipeline	Nairobi
93	Total Kibera	Nairobi
94	Total Ronald ngala	Nairobi
95	Total Donhorm	Nairobi
96	Total Mayanja Road	Nairobi
97	Total Savana	Nairobi
98	Total imara	Nairobi
99	Total Kbanas	Nairobi
100	Total Outring Road	Nairobi
101	Total Park road	Nairobi
102	Total Kagemi	Nairobi
103	Total Lunga Lunga	Nairobi
104	Total Kibera	Nairobi
105	Rubis Langata Road	Nairobi
106	Rubis Mombasa Raod	Nairobi
107	Rubis South C	Nairobi
108	Rubis South B	Nairobi
109	Rubis Hurlingham	Nairobi
110	Rubis Ngong Road	Nairobi
111	Rubis Amboseli	Nairobi
112	Rubis Madaraka	Nairobi
113	Rubis Ngara	Nairobi
114	Rubis Koinange	Nairobi
115	Rubis Hailesalise	Nairobi
116	Rubis Ojijo Road	Nairobi
117	Rubis Marurui	Nairobi
118	Rubis Kiambu Road	Nairobi
119	Rubis Rosslyne	Nairobi
120	Rubis United nation Ave	Nairobi
121	Rubis Imara	Nairobi
122	Ola Limuru Road	Nairobi
123	Ola Ojijo Road	Nairobi
124	Ola Westland	Nairobi
125	Ola Waiyaki Way	Nairobi
126	Ola Kahawa West	Nairobi
127	Ola Langata	Nairobi
128	Ola Jogoo Road	Nairobi
129	Ola Thika Road	Nairobi
130	Ola Runda	Nairobi
131	Ola Ruruta	Nairobi
132	Ola Enterprise Road	Nairobi
133	Ola Samburu	Nairobi
134	Ola Kilimani	Nairobi
135	Ola Race course	Nairobi
136	Ola Kilimani	Nairobi

137	Ola Kirinyanga	Nairobi
138	Ola Chiromo	Nairobi
139	Ola Otienda	Nairobi
140	Ola Utawala	Nairobi
141	Ola Utawala	Nairobi
142	Ola Ngumo	Nairobi
143	Ola Jamhuri	Nairobi
144	Ola Peponi	Nairobi
145	Ola cabanas	Nairobi
146	Shell Airbase	Nairobi
147	Hashi Wairunge	Nairobi
148	Delta Kawaha	Nairobi
149	Delta Wayaiki	Nairobi
150	Delta NW	Nairobi
151	Petro city Mombasa Road	Nairobi
152	Petro City Karen	Nairobi
153	Petro city Kiambu Road	Nairobi
154	Petro city survey	Nairobi
155	Lake Oil Langata	Nairobi
156	Lake Oil Outering Road	Nairobi
157	Lake Oil Kasarani	Nairobi
158	Lake Yaya Centre	Nairobi
159	Lake Oil Likoni Rd	Nairobi
160	Hass Karen	Nairobi
161	Hass Easleigh	Nairobi
162	Hass Rongai	Nairobi
163	Hass Ngara	Nairobi
164	Luqman Mlolongo	Nairobi
165	Luqman Mbagathi	Nairobi
166	Luqman Langata Road	Nairobi
167	Luqman Fedha	Nairobi
168	Luqman Lavington	Nairobi
169	Luqman Kyumbi	Nairobi
170	Tosha Mlolongo	Nairobi
171	Tosha Soykimau	Nairobi
172	Tosha Thika Road	Nairobi
173	Astrol Lenana Road	Nairobi
174	Astrol Thika Road	Nairobi
175	Astrol Dennis brit	Nairobi
176	Astrol Ridgeway	Nairobi
177	Astrol Rhunda	Nairobi
178	Astrol Utawala	Nairobi
179	Astrol Mombasa road	Nairobi

Appendix IV: NACOSTI Permit

 REPUBLIC OF KENYA	 NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
Ref No: 130546	Date of Issue: 15/April/2025
RESEARCH LICENSE	
	
This is to Certify that Mr.. ABDULLAHI Abdi ABDI of Strathmore University, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: Organizational Factors Influencing the Adoption of Artificial Intelligence by Petroleum Companies in Nairobi County for the period ending : 15/April/2026.	

License No: NACOSTI/P/25/4172799	
130546 Applicant Identification Number	 Director General NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY & INNOVATION
	Verification QR Code 
NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.	
See overleaf for conditions	

Appendix V: SU-ISERC Authorization



15th April 2025

Mr Mohamed Abdullahi,
abdullahi.mohamed21@strathmore.edu

Dear Mr Mohamed,

RE: Organizational Factors Influencing the Adoption of Artificial Intelligence by Petroleum Companies in Nairobi

This is to inform you that SU-ISERC has reviewed and **approved** your above **SU-masters** proposal. Your application reference number is **SU-ISERC2858/25**. The approval period is from **15th April 2025 to 14th April 2026**.

This approval is subject to compliance with the following requirements:

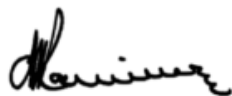
- i. Only approved documents including (informed consents, study instruments, MTA) will be used.
- ii. All changes including (amendments, deviations, and violations) are submitted for review and approval by SU-ISERC.



- iii. Death and life-threatening problems and serious adverse events or unexpected adverse events whether related or unrelated to the study must be reported to SU-ISERC within 72 hours of notification.
- iv. Any changes anticipated or otherwise that may increase the risks or affected safety or welfare of study participants and others or affect the integrity of the research must be reported to SU-ISERC within 72 hours.
 - v. Clearance for the export of biological specimens must be obtained from relevant institutions.
- vi. Submission of a request for renewal of approval at least 60 days prior to the expiry of the approval period. Attach a comprehensive progress report to support the renewal.
- vii. Submission of an executive summary report within 90 days of completion of the study to SU-ISERC.

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

Yours sincerely,



**Mr Ambrose Rachier,
Chairperson; SU-ISERC**

