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AI Adoption and Project Success in Housing Finance: Roles of Operational Efficiency and Absorptive Capacity

by

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Abstract

Artificial Intelligence (AI) has become an important technological innovation in the banking sector, enhancing operational processes, decision-making, and overall organizational performance. Although previous studies have extensively examined the relationship between AI adoption and outcomes such as organizational performance, digital transformation, customer service quality and operational productivity, comparatively limited research has investigated how AI adoption contributes to project success and operational productivity Moreover, the mediating role of operational efficiency and the moderating role of absorptive capacity have received insufficient attention. Grounded in the Resource-Based View (RBV), this study examines the impact of AI adoption on project success, while investigating the mediating role of operational efficiency and the moderating role of absorptive capacity. A quantitative cross sectional research design based on a positivist philosophy and deductive approach was adopted. Primary data were collected through a structured questionnaire from employees working in Pakistan's banking housing finance sector using a non-probability convenience sampling technique. The data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with Smart PLS. The findings indicate that AI adoption has a significant positive effect on project success and operational efficiency. Operational efficiency also significantly influences project success and mediates the relationship between AI adoption and project success. Furthermore, findings reveal a significant negative moderating effect of absorptive capacity on the relationship between AI adoption and project success, suggesting that benefits of AI adoption are not uniformly strengthened by higher absorptive capacity and may vary depending on organizational conditions. The novelty of this study lies in examining the relationship between AI adoption and project success while highlighting the roles of operational efficiency and absorptive capacity. It also provides empirical evidence from Pakistan's banking housing finance sector and offers practical insights for managers seeking to maximize project success through effective AI implementation.

Keywords: Artificial Intelligence Adoption, Project Success, Operational Efficiency, Absorptive Capacity

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Chapter 1

Introduction

1.1 Introduction

Artificial Intelligence has evolved into a pillar of digital transformation in the global banking industry that has transformed how financial institutions conduct business operations and risks, and service delivery, significantly reshaping employee roles, task performance, and interactions in modern organizational environments. (Jia et al., 2025). Use of machine learning algorithms, intelligent process automation, fraud detection systems, credit risk models, and intelligent customer interaction platforms based on AI is increasingly becoming common in the workplace, and banks are looking to leverage this power.

One of the first and most extensive uses of artificial intelligence has been in the banking industry because of the data-driven nature of the banking sector, the volume of transactions, and the imperative to achieve high levels of accuracy, speed, and risk control. The use of AI in banking is not experimental anymore but serving as a central component of operational efficiency, cost-cutting, and the quality of services so its effect on humans is a topic of critical concern (Zhao et al., 2025). According to recent data, the use of AI in banking not only improves operational effectiveness but also supports risk management procedures and the stability of the financial system, especially through sophisticated predictive analytics and automation (Kazmi et al., 2024).

Commercial banks across the world are increasingly integrating AI-driven technologies such as machine learning, predictive analytics, intelligent automation, fraud detection systems, and generative AI tools into their operational and strategic activities. AI adoption has become particularly important in banking because the industry operates in a highly competitive, technology-driven, and customer-oriented environment where operational efficiency and project execution are essential for organizational survival and growth (Ajili Ben Youssef et al., 2025).

The banking sector has experienced rapid digital transformation due to government-sponsored financing initiatives such as Mera Pakistan Mera Ghar, Mera Ghar Mera Ashiana (State Bank Of Pakistan housing Finance Schemes), these schemes require banks to process large amount of loans, housing finance and youth entrepreneurship applications efficiently and transparently.

Consequently, banks increasingly rely on artificial intelligence technologies to automate loan processing and improve customer service operations. The State Bank of Pakistan has also emphasized technological modernization and digital financial inclusion to strengthen operational capabilities within financial institutions. Since successful projects are a key component of profitability, customer satisfaction, operational stability, and organizational sustainability, project success has become one of the most important objectives of an organization. The traditional definition of project success is to achieve project goals within the defined time, cost, and quality constraints (Su and Ayob, 2025).

As projects in organizations become more complex, however, the focus has turned to technological capabilities that could enhance project execution, operational coordination, and the effectiveness of decisions (Marcus, 2025). AI technologies are therefore more and more considered as strategic tools capable of enhancing project success by supporting decision-making with intelligence and further optimizing the operation. The banking sector is quickly embracing digital technologies, with financial institutions increasingly allocating resources to fintech systems, AI-powered banking services, and digital financing methods.

Financial institutions are investing in fintech systems, AI banking services, and digital financing mechanisms, and Pakistan's banking sector is rapidly embracing

digital technology (Ahmed and Iqbal, 2025). SBP has been actively working towards digital banking reforms and the housing finance sector to enhance the access of the public to financial resources and support economic development. Due to this, commercial banks have been engaged in more and more housing financing and house loan projects, which necessitate efficient verification of the customers, risk analysis, documentation handling, and regulatory compliance.

The manual nature of documentation, customer screening, data handling, time-consuming verification processes, communication barriers, and compliance challenges are all operational hurdles that commonly confront employees in the house loan projects.

Inadequate efficiencies from traditional banking systems have adverse impacts on project timings, efficiencies, customer satisfaction and service quality. Bankers can take great advantage of AI-powered tools, which can help them streamline repetitive tasks, manage workflows more effectively, speed up verification processes, boost decision-making precision, and minimize operational delays (Kumar et al., 2025a).

Operational efficiency is widely recognized as one of the most important organizational capabilities through which AI creates value in project environments (Owusu, 2025a). AI technologies help organizations streamline workflows, reduce operational delays, improve information accuracy, enhance communication, and optimize resource utilization. In banking house financing projects, operational efficiency is particularly critical because project activities involve customer verification, loan processing, and risk assessment; therefore, organizations utilize AI technologies effectively to achieve higher operational efficiency and improved project outcomes.

Recent studies indicate that Artificial Intelligence significantly improves project execution capabilities by enhancing workflow coordination, predictive decision-making, automated monitoring, and operational responsiveness within banking environments (Dwivedi et al., 2021). AI-driven systems enable financial institutions to process complex project activities with greater accuracy, efficiency, and speed, particularly in technologically intensive operations such as housing finance

and digital banking services. In project-oriented environments, AI technologies support better resource allocation, reduce operational delays, improve compliance monitoring, and enhance project control mechanisms, thereby contributing to successful project implementation and organizational effectiveness (Dwivedi et al., 2021; Vergara et al., 2025; Marnewick et al., 2026).

The growing adoption of AI in banking institutions has significantly improved operational and project-related activities, particularly in the field of housing finance services. AI technologies help enhance workflow optimization, decision-making, operational efficiency, and project execution.

However, there is limited empirical evidence regarding how AI adoption contributes to project success through operational efficiency, particularly within banking and housing finance projects, and the role of absorptive capacity in strengthening or weakening the effectiveness of AI adoption has received limited scholarly attention in developing economies like Pakistan.

1.2 Gap Analysis

There are several gaps in the literature available on the topic of AI at work, despite the fact that the literature base has been on the rise in the recent past. The key issue is that the vast majority of studies are focused mainly on the technical implementation of AI or on the general performance indicator on the organizational level; they do not examine the results and processes through which AI adoption contributes to project success.

The implementation of AI brings about the enhancement of the performance analytics capacity (Faruk and Islam, 2023). However, limited studies have examined the underlying operational mechanisms through which AI adoption contributes to project success in banking institutions. Most existing studies primarily focus on organizational productivity, customer service quality, or technological innovation, while comparatively little attention has been given to operational efficiency as a mediating mechanism between AI adoption and project success. Furthermore, empirical evidence regarding the moderating role of absorptive capacity in

strengthening the effectiveness of AI-driven project environments remains limited, particularly within developing economies such as Pakistan (Rang et al., 2025a).

Artificial intelligence as producing a direct impact on project success without considering the pathways in the processes of work that AI transforms include the workflows, the coordination of tasks, and the compliance procedures (Soulami et al., 2024). Coherent integrating an empirical model that includes AI adoption, operational intermediate and is moderated by the absorptive capacity has relatively little empirical evidence.

As an example, (Marcus, 2025) is a review of the literature concerning AI in performance management, but does not test a full mediation-moderation model. Also, part of the existing research is context-based and in most of such instances, west or big business based. Previous studies have established positive relationships between AI adoption and outcomes such as organizational performance, project success innovation performance, and digital transformation.

However, limited empirical evidence exists regarding the impact of AI adoption on project success in Pakistan's banking sector, particularly within housing finance projects (Rang et al., 2025a). Most previous studies have focused on software firms, healthcare institutions, and manufacturing organizations rather than project-oriented banking operations (Kazmi et al., 2024).

Moreover, there is a significant contextual gap in the literature concerning banking institutions in emerging economies. Most AI-banking studies are conducted in developed financial systems, where digital maturity and training infrastructures are well established. Empirical evidence from countries like Pakistan remains limited, despite rapid AI adoption in local banks for digital payments, compliance automation, and customer service especially in the context of government-supported house loan projects and housing finance operations.

Therefore, a significant theoretical and empirical gap exists regarding how AI adoption contributes to project success through operational efficiency and under what conditions absorptive capacity strengthens this relationship within banking housing finance projects in Pakistan.

1.3 Problem Statement

Artificial intelligence has brought about a rapid change in the banking industry, automating routine operations, risk management, customer service delivery, and data-driven decision-making. Banks are increasingly using AI systems such as intelligent process automation, fraud detection algorithms, predictive analytics, and decision support tools to enhance operational efficiency and competitiveness (Soulami et al., 2024). Despite the growing implementation of AI technologies in banking institutions, limited empirical evidence exists regarding how AI adoption contributes to successful project execution in banking and housing finance operations. The operational mechanisms through which AI technologies improve project execution processes remain insufficiently explored in banking project environments, especially in emerging economies such as Pakistan.

Furthermore, existing studies have primarily focused on organizational performance, customer service improvement, and operational productivity outcomes associated with AI adoption. Comparatively less attention has been given to project success as a critical organizational outcome, particularly within banking and housing finance projects (Bah Esseme et al., 2025). The lack of empirical models incorporating operational efficiency as a mediating variable restricts the knowledge of the association of AI-driven process improvements translate into successful project outcomes. Another unresolved issue in the banking sector is the varying level of absorptive capacity among banking institutions and project teams (Chatterjee et al., 2024). Banking institutions and project teams differ significantly in their ability to acquire, understand, and apply new technological knowledge, which affects their effective utilization of AI systems within project environments

However, the issue of absorptive capacity is not commonly tested as a moderating variable that conditions the impact of AI adoption on project success. As a result, there remains a limited understanding of why AI implementation improves project outcomes in some banks while creating implementation challenges in others. These challenges are especially pronounced in emerging economies like Pakistan, where banks are just beginning to implement AI technologies, but have been faced with

limitations regarding training of employees, technological preparedness, and organizational culture (Kazmi et al., 2024). Conventional banking institutions often lead to inefficiencies, which have a detrimental impact on project timelines, operational efficiency, customer satisfaction, and service quality (Beyai and Imran, 2025a; Kumar et al., 2025a).

The limited context-specific empirical evidence leads to uncertainty for banking managers and also policymakers who are trying to balance between AI-driven operational improvements and successful project execution and organizational performance. Furthermore, limited research acts as a mechanism through which AI adoption contributes to project success in banking institutions. Therefore, there is a clear research problem regarding the need to empirically investigate how artificial intelligence adoption contributes to project success in banking housing finance projects through operational efficiency, and whether absorptive capacity strengthens this relationship.

1.4 Research Question

1.4.1 Question 1

Does the adoption/role of AI significantly influence the project success in Pakistan's banking projects?

1.4.2 Question 2

Does operational efficiency mediate the relationship between AI adoption and project success?

1.4.3 Question 3

Does absorptive capacity moderate the association between AI adoption and project success?

1.4.4 Question 4

Does absorptive capacity influence the strength of the indirect effect of AI adoption on project success through operational efficiency?

1.5 Research Objectives

i. To determine the direct influence of AI adoption on project success in banking institutions.

ii. To examine the mediating role of operational efficiency between AI adoption and project success in banking institutions.

iii. To investigate the moderating role of absorptive capacity in the relationship between AI adoption and project success.

iv. To estimate the conditional indirect effect of AI adoption on project success through operational efficiency at different levels of absorptive capacity.

1.6 Hypotheses

Based on the literature and the conceptual model, the hypotheses are the following:

H1: AI adoption positively impacts project success.

H2: AI adoption has a significant positive impact on operational efficiency.

H3: Operational efficiency has a significant positive impact on project success.

H4: Operational efficiency significantly mediates the relationship between AI adoption and project success

H5: Absorptive capacity significantly moderates the relationship between AI adoption and project success, such that the relationship becomes stronger at higher levels of absorptive capacity.

1.7 Significance of the Study

This study is significant because it contributes to the growing body of knowledge regarding Artificial Intelligence adoption and project management within banking institutions. The research specifically focuses on how AI technologies enhance project success through improved operational efficiency and organizational learning capabilities. As banking institutions increasingly adopt AI-driven systems for housing finance operations, understanding the operational and strategic value of AI has become critically important for improving project execution, workflow coordination, and service delivery effectiveness in technologically driven banking environments. This study contributes to understanding how AI adoption enhances project success in banking housing finance projects through operational efficiency and absorptive capacity. Existing studies frequently assume a direct relationship between AI adoption and project success, while overlooking the role of enhanced workflows, process coordination, and operational efficiency in translating AI investments into successful project outcomes (Soulami et al., 2024).

The study adds to the existing literature on Artificial Intelligence (AI) adoption and project management in the banking sector. The banking sector is increasingly leveraging AI technologies for their automation capabilities, predictive analysis, intelligent decision-making, and workflow streamlined features. Although there has been a rapid adoption of the AI systems, few empirical studies have explored the role of AI adoption in project success in banking institutions, especially in developing economies. Thus, this study offers academic significance regarding the relationship between AI usage and project success by exploring how operational efficiency acts as a mediating factor and how absorptive capacity is a moderating factor (Dwivedi et al., 2021; Cao, 2025). Another important aspect of the study is its contribution to the field of AI-powered project management by using the Resource-Based View (RBV) theory. This study extends the knowledge by introducing operational efficiency as an intervening variable and absorptive capacity as a moderating variable, lending the study a more complete understanding of the value creation of AI technologies in project environments (Mikalef and Gupta, 2021).

From a practical perspective, this study suggests important implications for banking managers, banking policy makers, and project professionals. The results will provide insights to banking institutions on the potential of AI technologies for enhancing workflow coordination, workflow efficiency, and project implementation processes. In addition, the study highlights the need to build absorptive capacity by training employees, providing technological training, and fostering knowledge sharing to ensure optimal gains from the use of artificial intelligence.

These insights can help bank organizations to develop their AI implementation strategies to ensure their projects perform optimally and the organization is competitive (Chatterjee et al., 2024).

Financial institutions are increasingly embracing AI technologies, so it's important to grasp the significance of operational efficiency and absorptive capacity to successfully implement projects and maintain growth. (Marnewick et al., 2026; Kumar et al., 2025a).

As AI projects in banking often involve complex regulatory requirements and cross-functional coordination, understanding the role of operational efficiency and absorptive capacity can help reduce implementation failures and improve the effectiveness of AI-enabled project execution in banking institutions (Soulami et al., 2024). From a theoretical perspective, this study extends the Resource-Based View by examining how AI adoption as a strategic technological resource contributes to project success through operational efficiency.

Furthermore, this study investigates absorptive capacity as an important organizational capability that may strengthen the effectiveness of AI adoption in project environments.

This study is particularly significant for emerging economies, such as Pakistan, where empirical research on the impact of AI adoption on project success in banking and housing finance projects remains limited. Banks in developing countries face unique challenges related to digital infrastructure, skill shortages, and organizational culture, which may influence the effectiveness of AI implementation and project success.

1.8 Theoretical Framework

Keeping in view the interrelatedness of study variables, the theoretical framework for this research is based on the Resource-Based View Theory:

1.8.1 Resource-Based View Theory

The Resource-Based View (RBV) theory, developed by Jay Barney, explains that organizations achieve superior performance and sustainable competitive advantage through valuable internal resources and organizational capabilities (Barney, 1991a). According to RBV, organizational success depends on how effectively firms utilize strategic resources such as technology, knowledge, operational systems, and employee capabilities. In modern organizations, Artificial Intelligence (AI) is considered a strategic technological resource because it enhances automation, decision-making, workflow management, and operational coordination. In the context of this study, AI adoption represents a strategic technological resource, operational efficiency reflects an organizational capability, and absorptive capacity enables organizations to maximize the value derived from AI investments. Together, these resources and capabilities can enhance project success within banking and housing finance.

1.8.2 RBV Theory and AI Adoption

According to RBV, AI adoption represents a valuable organizational resource that enables firms to improve operational and project performance. Organizations adopting AI technologies can automate repetitive activities, improve decision-making quality, optimize workflows, and enhance project coordination. In banking institutions, AI technologies support operational processes such as fraud detection, automated loan processing, predictive analytics, and customer relationship management, which improve organizational effectiveness and project execution. RBV suggests that organizations possessing advanced technological resources, such as

AI, are more capable of achieving superior project outcomes and competitive advantage compared to firms relying on traditional operational systems (Barney, 1991a).

1.8.3 RBV Theory and Project Success

RBV explains project success as an outcome of effectively utilizing organizational resources and capabilities. Project success is achieved when organizations strategically combine technological resources, operational systems, and employee capabilities to improve project execution and performance. In the context of this study, AI technologies improve project planning, communication, workflow coordination, and resource allocation, thereby increasing the likelihood of successful project completion. Banking institutions that effectively utilize AI-driven resources are more capable of achieving project objectives within planned time, cost, and quality requirements. Therefore, RBV supports the positive relationship between AI adoption and project success because technological capabilities contribute directly to improved organizational and project performance (Ika and Pinto, 2022).

1.8.4 RBV Theory and Operational Efficiency

Within the RBV framework, operational efficiency is considered an important organizational capability through which firms utilize resources effectively to improve performance outcomes. AI technologies enhance operational efficiency by streamlining workflows, reducing operational delays, improving communication, and optimizing resource utilization. Organizations with efficient operational systems are more capable of transforming AI technologies into improved project outcomes. In banking project environments, operational efficiency enables institutions to improve workflow coordination, reduce processing time, and enhance project implementation effectiveness. Therefore, RBV explains operational efficiency as a mediating capability through which AI adoption contributes to project success (Rane et al., 2023).

1.8.5 RBV Theory and Absorptive Capacity

RBV also supports the role of absorptive capacity as an important knowledge-based organizational capability. Absorptive capacity refers to an organization's ability to acquire, assimilate, transform, and apply new knowledge effectively (Cohen & Levinthal, 1990). Organizations with strong absorptive capacity are more capable of understanding and utilizing AI technologies within operational and project environments. In banking institutions, employees and project teams possessing higher absorptive capacity can better integrate AI systems into project activities, thereby improving project coordination and operational performance. RBV suggests that organizations possessing stronger learning and knowledge-utilization capabilities are more likely to derive greater benefits from AI adoption and achieve superior project outcomes (Zahra and George, 2002).

1.9 Definitions of Key Variables

1.9.1 Artificial Intelligence Adoption Role

For this study, AI adoption refers to the extent to which AI systems and tools (machine learning, automation, decision-support algorithms) are integrated into employees' work, and employees' perception of the role AI plays in their tasks. This definition aligns with studies such as (Bashir, 2023), which measured the AI role with items like "AI adoption has reduced the amount of time and effort required for certain tasks."

1.9.2 Project Success

Defined as the extent to which a project achieves its intended objectives, full fills stakeholder expectations, and delivers desired organizational expectations and delivers desired organizational benefits within the planned time, cost, and quality constraints. Modern literature views project success as a multidimensional concept

that includes project efficiency, stakeholder satisfaction, business value, and long-term organizational impact.

1.9.3 Operational Efficiency Mediator

Defined in this study as the ability of an organization or project to utilize resources effectively while minimizing resource wastage, reducing operational delays, and improving productivity to achieve project objectives.

1.9.4 Absorptive Capacity Moderator

Refers to the ability of an organization or project team to recognize the value of new knowledge, assimilate it, and apply it effectively to improve project performance and organizational outcomes.

Chapter 2

Literature Review

2.1 Introduction

Introduction of Artificial Intelligence adoption in the workplace has changed the workplace setup fundamentally, the mode of performance of the employees, and the overall productivity scene. AI incorporates intelligent computational instruments that can mimic the cognitive capabilities of human beings, such as learning, reasoning, and problem-solving (Morandini et al., 2023). Its implementation in industries has resulted in automating predictive analytics and decision support systems that help them improve precision in their operations and reduce human error (Väänänen, 2025). The Fourth Industrial Revolution has forced organizations to incorporate Artificial Intelligence (AI) into a variety of business processes, such as recruitment, performance appraisal and training, project management, workflow optimization, and so forth (Abdurrahim, 2025). In recent years, the banking sector has increasingly adopted AI technologies to modernize operational processes and improve project-related activities. Banking institutions are utilizing AI-driven systems in areas such as fraud detection, credit risk management, automated loan processing, cybersecurity, and workflow optimization. Not only are the routine processes automated using the AI tools, but the AI systems are co-intelligent to boost human capacity and strategic results. Artificial intelligence has emerged as a strategic technological capability that enables organizations to automate processes, improve decision-making, enhance data analytics, and optimize resource

utilization (Sadeghi, 2024). These capabilities have increased organizational interest in AI adoption as a means of improving operational efficiency and achieving superior project outcomes.

Project success has become one of the most critical goals of an organization, as a successful project directly affects profitability, customer satisfaction, operational stability, and organizational sustainability (Beyai and Imran, 2025a).

Traditionally, project success is judged based on the accomplishment of the project objectives within certain time, cost, and quality constraints. But due to the growing complexity of organizational projects, attention has been drawn toward the technological capabilities that can enhance the effectiveness of project execution, operational coordination, and decision making (Vergara et al., 2025). As a result, AI tools are increasingly seen as strategic assets that have the potential to enhance project outcomes by providing intelligent decision-making support and optimizing project operations. Nonetheless, the increase in performance will not happen by itself but must be implemented through the introduction of AI, and the degree of trust and acceptance of employees. The ineffectiveness in design of the AI systems or lack of proper training may lead to the performance decline, confusion, and resistance (Wang, 2024). The banking sector in Pakistan is on a rapid path of digitalization as financial institutions are rapidly investing in fintech systems, AI-powered banking services, and digital financial methods. SBP has been actively encouraging reforms in the digital banking sector and implementing housing finance initiatives to facilitate people to avail the financing opportunities for economic development. This has led commercial banks to process more housing finance and house loan applications where there is a need for effective customer verification, risk analysis, management of documents and regulations (Rang et al., 2025a).

For staff working on house loan projects, the difficulties with manual documentation, customer screening, data management, verification of documents, communication, and compliance are common. The process of traditional banking systems often introduces inefficiencies, which can have a detrimental impact on project timelines, effectiveness and efficiency, customer satisfaction, and service quality.

The use of AI-driven technologies can revolutionize the work of banking employees, helping to reduce some repetitive tasks, coordinate workflows, speed up verification processes, increase the accuracy of decision-making, and minimize delays in operations (Beyai and Imran, 2025a; Kumar et al., 2025a). The purpose of the current literature review is to integrate the theoretical and empirical studies in investigating the effect of AI adoption on project success when operational efficiency is the mediating variable, and on the other side, the absorptive capacity is the moderating variable. The study contributes to project management and banking literature by providing a deeper understanding of how AI-driven operational improvements and organizational learning capabilities influence successful project outcomes in modern banking environments.

The review is based on the hypotheses created above:

H1: AI adoption positively impacts project success.

H2: AI adoption has a significant positive impact on operational efficiency.

H3: Operational efficiency has a significant positive impact on project success.

H4: Operational efficiency significantly mediates the relationship between AI adoption and project success.

H5: Absorptive capacity moderates the relationship between AI adoption and project success.

2.2 Supporting Theory

2.2.1 Resource-Based View

The Resource-Based View (RBV) theory was developed by Jay Barney that clarifies the way organizations attain competitive advantage and superior performance by means of resources and capabilities that are valuable, uncommon, inimitable, and non-substitutable. RBV sets upon the importance of the internal resources, technological capabilities, knowledge assets, and operational competencies within

the organization to realize organizational success, in addition to the external market conditions. The value of AI technologies in today's organizations is growing because they are a strategic asset that can enhance organizational learning, automation, operational efficiency, and decision-making. But having AI technology is not enough to ensure project success. It is also crucial for organizations to build internal competencies to make a meaningful use of technological knowledge and embed AI systems into their project and operational workflows.

The theory holds significant importance for the present research since efficiency and absorptive capacity are perceived as organizational capabilities that affect the achievement of projects. Banks that are better equipped with strong operational systems and have higher absorptive capacity are likely to use AI technologies effectively, and project performance is better.

In this study, RBV accounts for the moderating role of absorptive capacity. AI-related knowledge can be acquired, understood, assimilated, and applied better in project environments in organizations with high absorptive capacity. Thus, the benefits of AI adoption for project success increase with absorptive capacity. In a similar manner, operational efficiency is an internal organizational ability that relies on the use of AI technologies to enhance the execution of projects and the performance of organizations.

The effective functioning of the processes will benefit banking institutions in minimizing delays, optimizing the use of resources, synchronizing processes, and improving the results of projects. From the RBV perspective, organizations achieve superior project outcomes when valuable technological resources are effectively combined with organizational capabilities and knowledge integration mechanisms.

In the present study, AI adoption represents a strategic technological resource, while operational efficiency reflects the organization's capability to transform technological resources into effective operational processes. Similarly, absorptive capacity functions as a dynamic learning capability that strengthens the organization's ability to understand, assimilate, and apply AI-related knowledge in project environments. Therefore, RBV provides strong theoretical support for explaining both the mediating role of operational efficiency and the moderating role of

absorptive capacity in enhancing project success outcomes (Barney, 1991a; Zahra and George, 2002).

organizational capabilities on the connection between AI adoption and project success.

The model is therefore explained holistically on the RBV theory:

i. AI Adoption represents a strategic organizational resource.

ii. Operational efficiency represents an internal operational capability.

iii. Absorptive capacity represents a knowledge and learning ability.

iv. Project success represents the organizational performance outcome.

2.3 Artificial Intelligence Vs Project Success

The hypothesis (H1) is that Artificial Intelligence is positively related to project success. The relationship is quite documented in the literature, with AI generally being considered as a productivity, innovation, and better work quality facilitator. Employees can work more efficiently with the help of AI systems that automate repetitive functions, increase analytical processes, and provide feedback in real-time (Väänänen, 2025). As an example, in the data-driven industries, AI helps in decision-making, reducing the cognitive load and enhancing the situational awareness for employees to focus on strategic or creative aspects of the work (Morandini et al., 2023).

They basically claim in their thorough study that the contribution of AI to the skills and the performance of employees is multi-dimensional. Although AI is automating routine things, there is also a new value of solving complex problems, flexibility, and digital literacy. Those workers who can work well with AI systems are more precise, manage their time better, and achieve better results than those who use human processing only. Artificial Intelligence (AI) has grown as one of the most significant technological advancements that is reshaping the way companies operate and manage their projects (Martínez et al., 2026).

In project-oriented banking environments, AI technologies contribute significantly to project success by improving operational control, workflow coordination, predictive analytics, and strategic decision-making. AI-powered systems enable project managers to monitor project activities in real time, optimize resource utilization, identify operational risks, and automate repetitive administrative tasks. These capabilities improve project efficiency, reduce operational delays, and enhance the likelihood of achieving project objectives within planned cost, time, and quality constraints (Marnewick et al., 2026; Kumar et al., 2025a). Recent studies suggest that AI-enabled project management tools improve project accuracy, resource allocation, risk prediction, and project monitoring capabilities. By providing real-time insights and predictive analytics, AI supports more informed decision-making throughout the project life cycle, thereby increasing the likelihood of achieving project objectives (Bah Esseme et al., 2025; Beyai and Imran, 2025b).

In the same manner, the article by (Boiko et al.,2024) on Frontiers in Artificial Intelligence has demonstrated that the employees that deals with the AI-based decision support systems show the objective performance quality improvement, since the AI improves the accuracy and consistency of the project. Human-AI collaboration improves task performance, decision quality,, especially when workers actively interact with intelligent systems, according to recent empirical research (Jaiswal et al., 2023). The other study by Luhana et al. (2023) proved that employees who used systems capable of AI in Project Management functions had improved coordination and reduced workload stress. The analytical skills of AI help in the data-driven decision-making process and reduce the biases and mistakes of people, which subsequently helps in improving the quality of performance (Wamba-Taguimdje et al., 2020).

In recent years, the financial sector has undergone a significant digital transformation, with financial institutions increasingly turning to AI technologies to enhance their operational processes and project activities (Dwivedi et al., 2021). AI-powered systems are used by banks to combat fraud, analyze credit risks, manage customer relations, monitor cybersecurity threats, automate loan processing, and perform predictive financial analysis. The technological developments have helped

the banking institutions to provide better quality service, lower operating costs, quick information processing, and better coordination of the workflows. AI has become an essential tool for managing complex banking projects and ensuring successful outcomes as banking activities become more technology-driven.

Project success is seen as multi-dimensional, in which stakeholders' expectations are met, and in which the project delivers the objectives within the stipulated time, cost, quality and performance requirements, creating value for the organization and delivering satisfaction to the stakeholders.

Although most of the project management literature has centered on the "iron triangle" of cost, time, and quality, more recent studies have paid attention to the other factors that are at play namely, operational effectiveness, customer satisfaction, strategic alignment, and the long-term business benefits (Ika and Pinto, 2022). In banking institutions, project success is crucial due to the technological integration, regulatory adherence, coordination, data security, and the efficiency of customer service that comes with financial projects (Haider et al., 2024b). Therefore, banking institutions are always looking for new technologies like AI to boost project performance and enhance their competitiveness.

The current body of knowledge indicates that AI usage has a positive impact on project success through better quality decision making, more effective operational coordination, fewer errors by humans and efficiency of operations (Bah Esseme et al., 2025). With AI systems, project managers can access real-time analysis of vast amounts of data, forecast potential project risks, automate repetitive tasks, and optimize project resources. These capabilities can enhance project monitoring and operational control, boosting the chances of successful project completion within established objectives (Marnewick et al., 2026). AI-powered automation can also help reduce delays and facilitate quicker communication and information exchange between project teams, enhancing overall project execution. In modern project management environments, AI technologies also support advanced project planning and forecasting capabilities. AI-driven analytical systems help project managers identify project risks, forecast delays, optimize schedules, and allocate resources more effectively through predictive analytics and real-time monitoring

tools. These capabilities improve project governance, enhance operational transparency, and strengthen project control mechanisms, increasing the likelihood of successful project completion within planned objectives (Ika and Pinto, 2022; Cao, 2025).

Several empirical studies have validated that the use of AI is correlated with successful project performance. In the case of technology-intensive organizations, (Marcus, 2025) showed that AI technologies made a significant contribution to the accuracy of project planning, operational efficiency, and project delivery performance. Likewise, (Väänänen, 2025) noted that the use of AI improves productivity, efficiency, and decision-making processes in project management within the organization.

The results show that companies that integrate AI technologies into their operations are more likely to be more efficient and successful in their projects. AI's use in the banking industry is particularly remarkable, enhancing project efficiency by boosting data precision, streamlining workflows, and augmenting decision-making. Artificial intelligence systems help financial institutions with financial automation, greater compliance monitoring, superior fraud detection capabilities, and more efficient workflows.

In digital banking, AI technologies revolutionize the way operations are coordinated and projects are executed by providing real-time data analysis and intelligent decision-support systems, which enhances operational efficiency and project effectiveness Likewise, (Kumar et al., 2025a) found that banks that implemented AI technologies have better operational control, faster project implementation, and better strategic project outcomes than banks that only used traditional project management systems. From the RBV theory perspective, a positive correlation between AI adoption and project success can also be attributed to the resource-leveraging function of AI. RBV says that superior performance in organizations comes from valuable internal resources and capabilities. AI technologies can be viewed as strategic technological assets that can be used to enhance the quality of project execution, operational efficiency, and decision-making within an organization. Banking institutions that successfully leverage AI systems in project

processes are better positioned to gain a competitive edge and achieve project success outcomes.

In this regard, AI implementation serves as a valuable organizational asset, enhancing project performance and operational efficiency. Furthermore, AI technologies enhance team collaboration, communication, and knowledge sharing. With the help of AI-powered systems, you can gain intelligent reporting, automated scheduling, predictive forecasting, and workflow optimization, which helps in the efficient project execution (Carbó-Valverde and Rodríguez-Fernández, 2025).

AI-based project management also enhances the accuracy of resource allocation, reducing project risks and boosting efficiency, which helps organizations complete projects more effectively and efficiently, as evidenced by other studies (Cao, 2025). As a result, companies implementing AI in project settings will be better positioned to deliver better project quality, satisfaction of stakeholders, and strategic business outcomes. Although AI technologies are more relevant, the current literature offers little empirical evidence of the direct effect of the adoption of AI on project success within banking institutions, specifically in the context of developing economies. Past research has tended to examine organizational productivity, employee performance, or the customer service outcomes and paid relatively little attention to project success as a performance outcome.

Moreover, the processes of how AI contributes to successful project implementation are still not fully studied in the banking project management literature (Bah Esseme et al., 2025). The disparity underscores the need for future research to explore the impact of AI adoption on improving project success in banking institutions. From the above discussion, it is seen that AI technologies bring improvement to the project management processes by optimizing the workflow, improving the quality of decisions made, automating, and operational coordination. These organizations are also more likely to make successful projects and achieve better project performance. Overall, the literature is very favorable to H1- AI positively influences project success when properly implemented through efficient operational processes and organizational support. AI makes work more efficient, more accurate, and innovative, but the benefits are achieved only when

organizations effectively utilize AI technologies and integrate them into project management practices.

H1: The Artificial Intelligence positively impacts project success.

2.4 AI Adoption and Operational Efficiency

The second hypothesis (H2) will assume the positive impact of Artificial Intelligence on operational efficiency. Artificial Intelligence (AI) is one of the most important technological advancements that has a huge impact on business operations and management across industries (Chatterjee et al., 2024). Intelligent technological systems that use advanced technologies like machine learning, robotics, natural language processing, and predictive analytics to perform cognitive and analytical tasks such as learning, prediction, automation, reasoning, and decision-making are known as AI. AI technologies are more widely implemented in organizations to boost operational efficiency, automate business processes, cut costs, and quality decision making. AI has become a strategic tool for enhancing business operations and efficiency in today's digital landscape (Carbó-Valverde and Rodríguez-Fernández, 2025). In the face of digitalization, a growing number of competitors and customer demands for speed and convenience in financial services, the banking sector has been undergoing significant technological change. In recent years, AI technologies have become more prevalent in banks for use in operations and projects, including in areas like fraud detection, credit scoring, customer service automation, compliance monitoring, risk analysis, and workflow management. AI systems can help banks enhance the efficiency of information processing, minimize human error, automate repetitive tasks, and streamline service delivery workflows. Hence, it is crucial to consider the impact of AI on operational efficiency in banking organizations.

Operational efficiency is defined as how well an organization utilizes the resources available and lowers the operational cost by limiting delays, improving flow coordination, increasing process quality, and productivity. From a banking perspective, operational efficiency is particularly important because project activities require

extensive coordination, regulatory compliance, and customer interaction (Ahmed and Iqbal, 2025). From project management and organizational perspectives, operational efficiency is the effectiveness with which activities are conducted to complete projects and organizations' activities as efficiently as possible while utilizing the most effective technology, finances, and human resources (Lee & Yang, 2011).

Efficiencies are higher in organizations with higher efficiencies, and they are more likely to be able to enhance performance, minimize waste, and attain the strategic objectives effectively. Past research indicates that AI usage has a positive impact on operational efficiency, including process optimization, real-time data analysis, intelligent decision-making, and automation. By automating repetitive tasks, optimizing communication channels, and facilitating precise predictions and operational planning, AI technologies streamline workflows and boost productivity.

AI systems can also streamline repetitive processes, reducing the reliance on human intervention and minimizing errors, which enhances process consistency. Rang et al. (2025a)state that AI-powered technologies have a significant impact on operational excellence by boosting process automation, operational responsiveness, and resource optimization within organizations.

Empirical evidence exists for the positive relationship between the adoption of AI and operational efficiency, as seen in several studies. AI in banking institutions, for instance, can boost operational efficiency by streamlining processes, cutting down on processing time, and optimizing customer service operations (Fathi, 2025). In a similar vein, (Martínez et al., 2026) found that AI technologies enable better operational coordination and streamline project workflows by leveraging intelligent scheduling, predictive analytics, and automated reporting systems. These technological strengths allow companies to optimize operations and gain better efficiency in the implementation of projects. For banking institutions, the operational efficiency is especially crucial due to their technologically complex processes, high transaction volumes, and strict regulatory requirements, coupled with the requirement for ongoing customer interactions. By leveraging AI-driven systems, banks can navigate these complexities effectively, ensuring smoother workflows,

faster transactions, better monitoring, and efficient resource utilization. The study shows that banks with AI technologies have an efficient operation, better service quality, and higher organizational productivity (Kumar et al., 2025a).

The positive correlation between AI adoption and operational efficiency could also be interpreted using the Resource-Based View (RBV) theory. RBV implies that the best use of valuable technological resources and organizational capabilities is how organizations perform better. In this context, AI technologies are valuable organizational assets that can increase the efficiency and capabilities of businesses.

Those that integrate AI systems into operational activities with success can better optimize their workflows, minimize operational inefficiencies, and make better organizational performance outcomes. Moreover, the implementation of AI enhances decision-making and collaboration in project settings. Advanced analytics systems with artificial intelligence can help project teams and managers obtain and analyze the vast amounts of data in real-time to uncover operational inefficiencies and make informed strategic choices. These capabilities help enhance organizational responsiveness and operational flexibility to the project so that companies can run project activities more efficiently.

Then, AI technologies play a major part in optimizing the efficiency of banking project management settings. Although AI technologies are gaining significance, current studies offer only some empirical evidence about the association between financial institutions' AI adoption and their operational efficiency, especially in developing economies (Naz et al., 2024). Previous research has largely concentrated on overall technological effects or organizational productivity, with fewer studies examining operational efficiency as a vital organizational attribute that is shaped by the use of AI. This disparity underscores the need to understand the impact of implementing AI on operational efficiency in banking projects (Idrees et al., 2024). From the above discussion, it can be concluded that AI technologies have significant improvements in operational efficiency due to workflow automation, improved decision-making, optimized resource utilization, and enhanced process coordination. AI systems will thus be more likely to be adopted by organizations that achieve better operational effectiveness and organizational performance.

Thus, in agreement with H2, the literature indicates that AI adoption positively improves operational efficiency when AI systems are effectively integrated into organizational processes supported through proper training coordination and technological infrastructure. However, the influence of this relationship is tamed by aspects like transparency, training, and employee involvement level on AI implementation. Companies that incorporate human-centered AI approaches in their management that are human-centered, AI approaches and successfully integrate AI into operational workflows are more likely to achieve a higher level of operational efficiency.

H2: The use of Artificial Intelligence has a significant positive effect on operational efficiency.

2.5 Operational Efficiency and Project Success

Operational efficiency is known as one of the essential organizational capabilities that help organizations attain their project goals by optimally using resources, effectively coordinating the workflow, making decisions on time, and improving processes (Owusu, 2025a). In a project management setting, operational efficiency will help with better project execution, minimizing delay, improving process quality, and lowering operational costs, plus optimizing resources. Operational systems that are efficient enable an organization to complete a project activity within its planned schedule, with the quality of work and satisfaction of project stakeholders. In banking housing finance projects, efficient operation is critical for the following reasons (Ika and Pinto, 2022). The activities of the projects are complex and involve multiple procedures, regulatory requirements, long and extensive documentation, risk assessment processes, and coordination among various departments.

Banking institutions can optimize processes, provide better customer service, save time, and boost project effectiveness through efficient operational processes (Haider et al., 2024a). Therefore, a project that has a higher operational efficiency will be more successful in terms of cost, time, quality, and satisfaction of the stakeholders. The operational efficiency and organizational performance outcomes have been

consistently reported as being positively related in previous studies. Operational efficiency helps to achieve organizational effectiveness by increasing productivity, optimizing the utilization of resources, and improving process performance, according to Lee and Yang. Likewise, Ika and Pinto identified that better project control, project coordination, and project execution effectiveness are possible, which also significantly increases project success when operational processes are efficient.

Recent findings indicate that organizations that excel at their operations have better chances of achieving successful project outcomes, thanks to optimized resource utilization and better workflow management (Ahmed and Iqbal, 2025; Kumar et al., 2025a). Project success is typically measured by the meeting of project goals and objectives in the areas of time, cost, quality, stakeholder satisfaction, and overall project effectiveness (Su and Ayob, 2025).

Operational efficiency is directly related to these dimensions as it ensures optimal use of project resources, better coordination of activities, and efficient project processes with minimal waste and delays. Efficient operational processes are crucial in banking and housing finance projects, as they allow for quicker loan processing, effective documentation management, compliance with regulatory standards, and better coordination among project stakeholders. The result is that operational efficiency boosts the chances of completing projects within scope, on time, and to a suitable quality, improving project success. According to the Resource-Based View (RBV) theory, operational efficiency is one of the important organizational capabilities that helps the firms convert valuable resources into improved performance. RBV is a theory that states organizations can gain a competitive advantage and perform better when they are using their internal resources and capabilities effectively (Barney, 1991a).

From the perspective of banking, a housing finance project, operational efficiency is a strategic capability for banks to transform technological and organizational resources into successful project outcomes. As a result, the organizations that have a higher operational efficiency will have better project performance and a higher project success rate. While there has been an abundance of studies associating operational efficiency with organizational performance, few studies have paid specific

attention to the impact of this operational efficiency on project success in banking housing finance projects in developing economies. The disparity underscores the need for exploring operational efficiency as a pivotal factor in the success of such projects in AI-driven banking systems.

H3: Operational Efficiency has a significant positive impact on project success.

2.6 Mediating Role of Operational Efficiency

The third hypothesis (H3) is an affirmation that operational Efficiency is an intermediate between Artificial Intelligence and project success. Operational efficiency takes center stage in the role of mediating. In today's era of digital transformation and the use of Artificial Intelligence (AI), operational efficiency is a crucial organizational skill in project management and banking.

Operational efficiency is the process of making the most of an organization's resources, avoiding operational delays, coordinating the flow of work, lowering expenses, and increasing the quality and speed of organizational processes (Kozhakhmetova et al., 2024). In the context of project management, operational efficiency is the degree to which project activities are carried out effectively to reach project objectives with the best use of technology, finances, and people resources. AI technologies are strongly influencing the efficiency of organizations. AI-powered systems can be used to automate repetitive tasks, improve data processing, optimize communication, minimize human error, and assist real-time decision-making processes. Such technological features can help organizations boost their workflow efficiency and optimize operational activities within project environments.

AI technologies are being applied across various sectors in banking institutions, such as automated loan processing, fraud detection, customer service management, predictive analytics, compliance monitoring, and workflow optimization. These changes enable banking entities to streamline the process of project execution and minimize operational complexities (Kim and Kim, 2024). There are existing references on how the implementation of AI technologies can lead to higher operational

performance in organizations, through an improvement of process automation, information accuracy, and decision-making speed. AI technologies play a vital role in enhancing operational coordination and streamlining project workflows, with features such as intelligent scheduling, automated reporting, and predictive forecasting systems.

(Marnewick et al., 2026) state that these attributes help transform project workflows and enhance operational coordination, a key objective of this study. These capabilities contribute to the successful implementation of this study, which aims to boost operational coordination and streamline project workflows, according to Likewise, (Ahmed and Iqbal, 2025) showed that in banking operations, using AI can boost efficiency by streamlining processing workflows, cutting down on manual tasks, and ensuring better responsiveness to the evolving nature of projects.

Operational efficiency is a key mediator between the adoption of AI and the success of projects. While AI technologies offer cutting-edge functionality, their benefits on project outcomes can be seen in the more efficient operation of processes and workflow performance.

By streamlining operational coordination, enhancing the speed of information sharing, optimizing resource allocation, and aiding quicker decision processes, AI systems enhance the implementation of projects. These operational efficiencies help organizations achieve projects more efficiently, which helps to increase the chances of project success. Mediation as a term in project management literature refers to the process of an independent variable affecting a dependent variable indirectly through an intermediary variable (Cheng et al., 2012). According to the current study, the process by which AI adoption influences project success is operational efficiency. In addition to directly enhancing the outcomes of projects, AI technologies can also contribute indirectly by improving operational processes in projects. The efficient operations help project teams to reduce delays, enhance communication, reduce risks, and optimize the use of project resources, which are important positive factors for successful project execution. The mediating effect of operational efficiency between technological adoption and organizational performance outcomes is supported by several empirical studies. For instance,

Yu et al.,2018 found that technology capabilities play a significant mediating role between digital technologies and organizational performance. Likewise, (Su and Ayob, 2025) also reported that advanced technologies play a critical role in improving organizational effectiveness and performance outcomes by improving the processes and operations while they are in action.

The results indicate that operational efficiency plays a vital role as an organizational competency in AI use and project success. Banking projects have many moving components, regulatory mandates to adhere to, technology integration challenges, and continuous client service demands, which make operational efficiency a vital consideration in banking institutions.

Operational monitoring in real time, process transparency, and the automation of routine tasks, all thanks to AI-powered systems, are increasing operational efficiency. As a result, banking organizations that are more efficient will be more likely to complete a project and meet strategic project goals. The Resource-Based View (RBV) theory can also be used to explain the mediating role of operational efficiency. RBV is a theory that states that organizations can be more successful when they take full advantage of their valuable internal resources and capabilities.

In this context, operational efficiency is a key organizational competency that can help companies achieve successful project results when leveraging AI. Efficient operational systems will better enable organizations to tap into AI-powered resources and enhance their project performance and competitive edge. While the operational efficiency has gained significant importance for technology-driven organizations, there is little research that has investigated operational efficiency as a mediator between the use of AI and project success in project management environments within banking (Zuberi, 2025a). Previous studies have addressed direct technology adoption/performance relationships, neglecting the internal operational processes that link technology capabilities to successful project performance. This gap highlights the importance of investigating operational efficiency as a mediating variable in the present study. From the discussion above, it is evident that the use of AI aids in the success of projects by streamlining operations, coordinating workflows, speeding up decisions, and optimizing resources.

Hence, the operational efficiency is an important mediating factor that influences the successful implementation of AI technologies in banking institutions.

In conclusion, operational efficiency serves as an important mechanism through which AI adoption contributes to project success. By improving workflow coordination, reducing delays, optimizing resource utilization, and enhancing decision-making processes. Operational efficiency enables organizations to transform AI capabilities into successful project outcomes. Therefore, operational efficiency mediates the relationship between AI adoption and project success in banking and housing finance projects.

H4: Operational efficiency mediates the relationship between Artificial Intelligence adoption and project success.

2.7 The Moderating Role of Absorptive Capacity

The concept of absorptive capacity has gained greater currency and significance in the literature on organizational learning, innovation management, and technology adoption, especially in fast-changing technological settings. Absorptive capacity is the organization or individual's ability to learn, internalize, modify, and use new knowledge to enhance the effectiveness of the organization and its outcomes (Chatterjee et al., 2024). When considering Artificial Intelligence (AI) adoption, the absorptive capacity represents the capacity of individual banking personnel, project teams, and their members to comprehend, learn, and effectively apply technologies and knowledge related to AI in project contexts. The successful implementation of AI technologies isn't just about the technological systems; it's also about the organization's ability to effectively integrate and use technological knowledge. In technologically intensive banking environments, employees and project teams must continuously learn and adapt to evolving AI systems, digital processes, and automated decision-support tools. Organizations possessing higher absorptive capacity are more capable of integrating AI-generated knowledge into

operational workflows and project activities. Consequently, absorptive capacity strengthens the effectiveness of AI adoption by enabling organizations to utilize AI technologies more efficiently and strategically within project management environments.

In banking housing finance projects, absorptive capacity enables employees and project teams to better understand, interpret, and apply AI-generated insights to project-related decisions (Flatten et al., 2011). Since housing finance projects involve complex regulatory requirements, risk assessments, and an extensive documentation process, the ability to effectively absorb and utilize AI-related knowledge becomes particularly important. Consequently, banking institutions with higher absorptive capacity are more likely to utilize the full benefits of AI adoption and achieve superior project outcomes (Ferraris et al., 2017).

The absorptive capacity of an organization is likely to be higher if it can see the benefits of new technology, flex the way they do things, and use AI systems to enhance the performance of its projects. On the other hand, businesses with lower absorptive capacity can face challenges in comprehending AI technologies, incorporating them into project processes, and realizing the anticipated operational results (Arcidiacono et al., 2022).

Absorptive capacity is significant in banking institutions, given that banking projects are frequently complex technological systems, regulatory mandates, operational coordination, and constant digital transformation endeavors.

The banking systems driven by AI demand employees and project teams to keep learning new technological processes, to adjust to varying working conditions, and to successfully implement the suggestions generated by AI in project-related work. This means that banks that are more absorptive are better placed to successfully implement AI technologies and have better project outcomes. Current research indicates that absorptive capacity also enhances technological innovation and organizational performance. Flatten et al. (2011) found that organizations with a high absorptive capacity are more likely to perform better on innovation, operational efficiency, and strategic flexibility because they are better able to leverage external technological knowledge.

Likewise, (Ferraris et al., 2017) have established that absorptive capacity is a critical factor that improves organizations' capacity to use advanced digital technologies to improve their operational and performance outcomes. The results show that absorptive capacity is an important factor in determining the successful transformation of technological investments in order to increase organizational performance (Biedenbach and Müller, 2012).

In the current research, the absorptive capacity is a moderating factor between the relationship of AI adoption and project success. A moderating variable affects the magnitude and/or the direction of the relationship between the independent and dependent variable(s). Absorptive capacity, in this sense, is the ability of AI to support the successful implementation of projects in banks.

High absorptive capacity can help organizations better capture, internalize, and leverage AI technologies into project settings, further enhancing the positive effects of AI adoption on project success. On the other hand, companies with low absorptive capacity might not be able to make the most of AI technologies, which can impact the effectiveness of project enhancements using AI (Zuberi, 2025b).

The Resource-Based View (RBV) theory can also explain the absorbing capacity as a moderating factor. According to RBV, organizations thrive when they can leverage their internal capabilities and knowledge-based resources in valuable ways. Absorptive capacity is an organizational strategy where companies can absorb and more effectively use technological knowledge than their competitors. However, when it comes to AI implementation, companies with higher absorptive capacity will be better equipped to leverage AI knowledge and turn it into successful project results and operational enhancements. Thus, the higher the absorptive capacity, the more the organization will be able to benefit from the use of AI technologies and enhance the performance of its projects (Owusu, 2025a). Moreover, absorptive capacity can facilitate the adaptability and technological learning of organizations within project management settings. AI systems are evolving, and employees/organizations must keep evolving in order to stay informed, adjust operations, and enhance the mechanisms of project coordination. The absorptive capacity is a characteristic of banking institutions that absorbs information

and changes quickly, which allows them to effectively incorporate AI systems into project workflow and operational processes (Zuberi, 2025a).

Therefore, the advantages of AI adoption increase in organizations with higher absorptive capacity.

Thus, the advantages of AI adoption grow in organizations with higher absorptive capacity. Although the concept of absorptive capacity has become more prominent in the field of technology adoption research, there is only limited empirical research that has explored its moderating effects between the adoption of AI and the success of a project in the banking project management environment.

Previous studies have tended to concentrate on direct technological outputs or organizational innovation performance, with comparatively less attention paid to the effects of the organizational learning capabilities on outcomes that are project-related. The findings suggest a need to explore the role of absorptive capacity in banking institutions in the context of AI technology adoption as a moderating factor.

From the above discussion, it can be concluded that the absorptive capacity plays an important role in the effectiveness of the adoption of AI in achieving successful project outcomes. Firms with better learning and knowledge utilization are more likely to successfully adapt AI technology to project environments and enhance project performance. Hence, the positive relationship between the adoption of AI and project success is bolstered in the banking institutions by absorptive capacity.

H5: Absorptive capacity significantly moderates the relationship between AI adoption and project success, such that the relationship becomes stronger at higher levels of absorptive capacity.

2.8 Research Framework

Research framework reflects variable relations: independent variable AI Adoption, Dependent variable –project success -mediator operational Efficiency, and moderator absorptive capacity

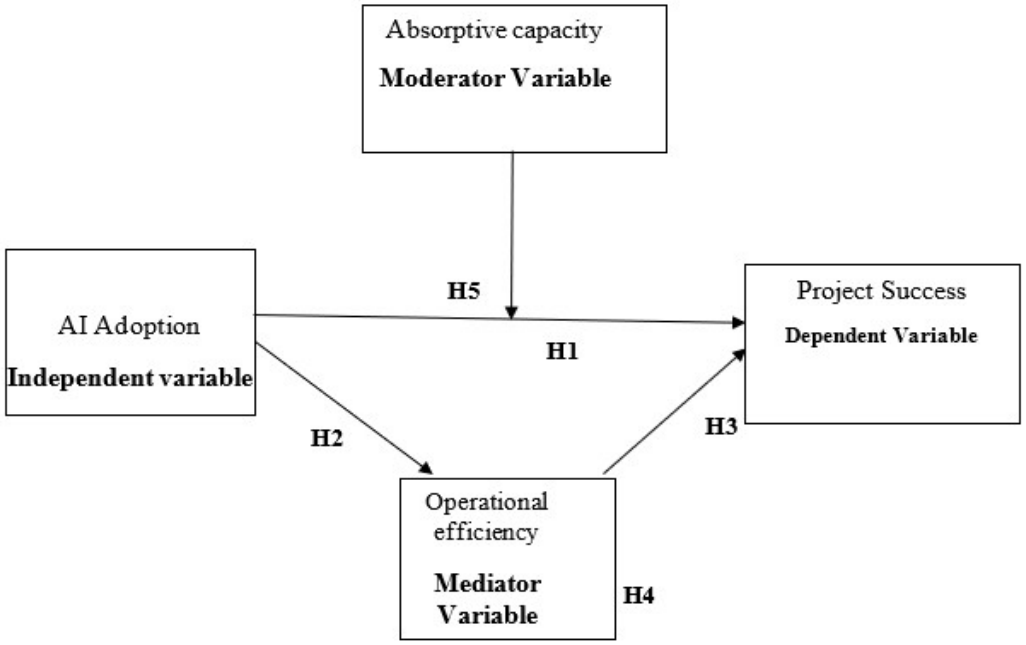

FIGURE 2.1: Conceptual Framework

Chapter 3

Research Methodology

3.1 Introduction

This chapter outlines the methodological procedures adopted to examine the impact of Artificial Intelligence (AI adoption) on project success, incorporating the mediating role of operational efficiency and the moderating role of absorptive capacity. The methodology explains the research design, target population, sampling procedures, unit of analysis, time horizon, measurement scales, and data collection approach.

The structure follows established empirical approaches used in previous studies investigating AI adoption and workplace outcomes (Bashir, 2023) Grover et al., 2022). The use of structured empirical models to investigate the interplay between technology, process, and human aspects is further supported by recent methodological studies in AI and workforce research (Egasmara et al., 2025).

3.2 Research Design

(Al Humdan et al., 2024) defines the research design as the researcher's intended approach for identifying and collecting data, as well as the steps taken in order to get the answers they need. A research design is commonly defined as an overall

plan, structure, and strategy developed to obtain answers to research questions and test hypotheses.

It acts as a blueprint that specifies how data will be collected, measured, and analyzed to ensure that the findings are valid, reliable, and logically derived.

The research is based on a hypothetico-deductive paradigm and a quantitative approach to examine the relationships between the AI adoption and project success of house loan projects of banking institutions mediated by the operational efficiency and moderated by absorptive capacity.

The research process involved the formulation of hypotheses based on the Resource-Based View (RBV), the collection of data using pre-designed instruments to measure the constructs of AI adoption, project Success, operational efficiency, and absorptive capacity, and the analysis of the data based on the use of the statistical procedures of regression, mediation, and moderation to test the hypothesized relationships empirically.

Similar AI-focused studies have successfully adopted cross-sectional surveys to measure employee perceptions and behavioral responses.

3.3 Philosophy Positivism

The research is based on the positivist philosophical approach, which is based on the fundamental assumption that reality can be seen, measured, and quantified with the help of objective facts and systematic assessment (Ali, 2024; Park et al., 2020).

This philosophy is particularly appropriate because the research aims at analyzing pre-defined hypotheses, which relate to cause-and-effect relationships that are more specific.

Positivist view demands that rigorous statistical methodological and validated measures are followed, ensuring that the empirical measurement and validation of the hypotheses are formatted, repeatable, and valid to the norms of empirical management research.

3.4 Population and Sampling

3.4.1 Target Population

The population comprises branch managers, operations managers, credit officers, housing financing officers, project teams, and senior employees working in the banking sector, dealing with house loan projects, particularly those exposed to AI-enabled systems such as:

i. automated decision-support tools

ii. operational automation

iii. customer-service AI platforms

Previous studies highlight these sectors as primary adopters of AI in South Asian contexts (Wamba-Taguimdje et al., 2020).

3.5 Unit of Analysis

Nowakowska-Siuta (2024) describes that the research goals and methods dictate the analytical unit. People, businesses, organizations, nations, groups, or even cultures may serve as the basis for an analysis.

The individual employee is the unit of analysis because employees involved in the housing finance project possess direct knowledge regarding AI adoption, operational efficiency, absorptive capacity, and project success within their respective banking institutions.

Branch managers were selected as unit of analysis because they directly responsible for supervising branch operations, overseeing housing finance activities, implementing AI-enabled banking systems and monitoring project performance. Their managerial responsibilities provide them with comprehensive knowledge of AI adoption, operational efficiency and project success, making them the most appropriate respondents of study.

3.6 Sampling Technique

The sample represents the target population of the research area, using two common sampling methods: probability and non-probability sampling (Shamsudin et al., 2024). A non-probability convenience sampling strategy will be used due to accessibility, feasibility, and the wide distribution of employees across sectors. Similar sampling has been used in prior workplace AI studies (Bashir, 2023). This research used a convenience sampling technique to select the participants possessing relevant knowledge and experience.

3.7 Sample Size

The G*Power software computes the sample size for the study based on the number of predictors, the intended effect size, and the probability of error. The G*Power 3.1.9.7 tool was used to determine the required sample size for this investigation. A minimum sample size of 77 individuals is necessary to achieve a power of 0.80, with a medium effect size (f2 = 0.15) and a significance level of 0.05. Figure 3.1 illustrates the G*Power of the minimum sample size and the acquired sample size.

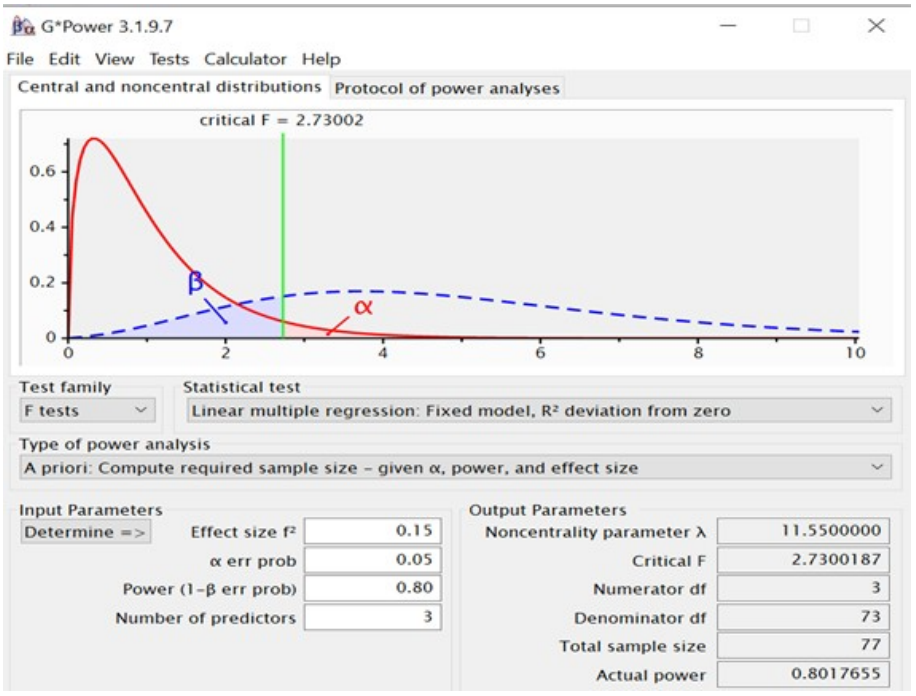

FIGURE 3.1: G* Power (power=0.80)

To demonstrate the number of participants, Figure 3.2 demonstrates that 119 are required based on G* Power analysis at 95% power, despite the fact that 77 persons were required to obtain 80% power. Nonetheless, over 500 respondents were contacted for the poll to ensure the most accurate results.

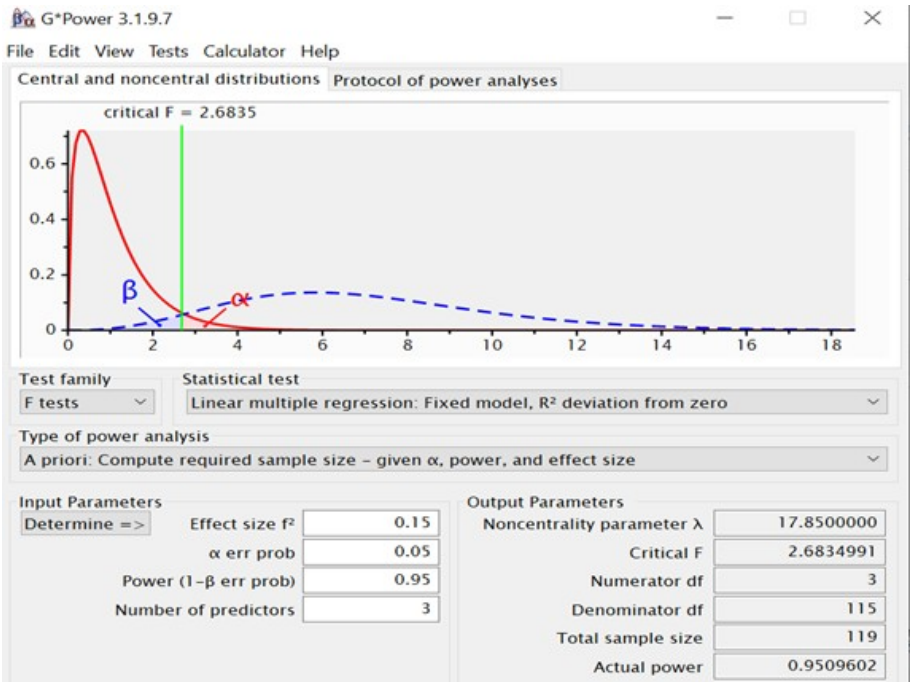

FIGURE 3.2: G* Power (power=0.95)

3.8 Time Horizon

A cross-sectional time horizon is used, where data are collected at a single point in time. This aligns with methodological practices in employee perception studies.

3.9 Ethical Issues

When doing a study, research ethics were of the utmost importance. Before data collection, the following significant measures were taken to handle ethical concerns.

i. Ethics approval (Ref: CUST/FMSS/REC/2026-8) was obtained from the CUST University Ethics Approval Committee after deliberately submitting the committee-provided checklist, questionnaire, and participants' consent form.

ii. Each participant was asked to provide "informed consent."

iii. Research instrument, ethics approval letter, and consent form are attached as an Appendix.

3.10 Data Collection

For data collection, a structured questionnaire was developed to collect data on the adoption of AI, project success, mediating effect, operational efficiency, and moderating effects of absorptive capacity. The questionnaire consists of closed-ended questions, enabling quantitative assessment of the different factors using a 5-point Likert scale. The questionnaire will be distributed online through Google Forms in order to facilitate participation and improve accessibility. This hybrid method will help to reach a wide range of employees in banking institutions dealing with house loan projects to contribute to the research.

3.11 Sample Characteristics

The questionnaire was distributed to 500 of the above survey respondents, but only 454 valid responses were received and used for further investigation. The demographics used in the surveys were gender, age, education, position, work experience, Experience with AI Tools, Project team size, and the tables below reflect the characteristics of the respondents from whose data was obtained.

3.11.1 Gender

Gender was included in the demographic part of the questionnaire, as it is an important attribute to describe the respondent profile and to improve the interpretation of the study findings. Gender is a crucial demographic element to include in organizational research since it can influence perceptions, attitudes towards technology adoption, and working experiences. A better understanding of

the gender composition of the respondents in the context of the banking and housing finance industry provides significant information on the workforce working on AI adoption and project-related activities. Table 3.1 shows that 40.5% of the respondents were males, while 59.5% were females. This implies that the workforce of the participating firms was largely female.

Table 3.1: Gender

Gender	Frequency	Percent	Valid Percent	Cumulative Percent
Male	184	40.5	40.5	40.5
Female	270	59.5	59.5	100.0
Total	454	100.0	100.0	

3.11.2 Age

Age is another key demographic element, as it might indicate the experience and maturity of the respondents, which can influence their opinion of AI adoption and project-related behaviors.

Table 3.2: Age

Age	Frequency	Percent	Valid Percent	Cumulative Percent
18-30 Years	130	28.6	28.6	28.6
31-42 Years	312	68.7	68.7	97.4
43-54 Years	12	2.6	2.6	100.0
55 and above	0	0.0	0.0	100.0
Total	454	100.0	100.0	

Respondents' age was asked in preset age categories, not their specific age, to protect respondents' confidentiality and comfort. Table 3.2 Respondents' age dispersion. This reveals that 28.6% of the respondents are in the age group 18 to 30 years, 68.7% are in the age group 31 to 42 years, 2.6% are in the age group 43 to 54 years, and 0% are 54 years and above. The analysis reveals that most

respondents fell into the 31–42 years age group. This indicates that the majority of the participants were at a stage in their careers where they had sufficient professional experience to provide informed opinions regarding AI adoption, operational efficiency, absorptive capacity, and project success in the banking and housing finance sector.

3.11.3 Education

Education is an important demographic variable since it represents the respondents' academic background, knowledge, and professional competence that may influence their comprehension and adoption of developing technologies such as artificial intelligence. Employees in the banking housing finance sector may have diverse educational qualifications, leading to distinct technical skills and analytical talents that improve operational efficiency and project success. Table 3.3 shows the educational qualifications of the respondents. The data show that the majority of the respondents have a Bachelor's degree (51.8%), and the next group has a Master's degree (45.2%). A tiny minority of the respondents had completed Matric/Intermediate (1.1%), and 2.0% had a PhD degree. The findings indicate that the sample was largely made up of highly educated professionals, which suggests that the respondents were qualified enough to express informed opinions on the adoption of AI, operational efficiency, absorptive capacity, and project success in the banking and housing finance industry.

Table 3.3: Education

Education Level	**Frequency**	**Percent**	**Valid %**	**Cumulative %**
Matric/ Intermediate	5	1.1	1.1	1.1
Bachelor	235	51.8	51.8	52.9
Master	205	45.2	45.2	98.0
PhD	9	2.0	2.0	100.0
Total	454	100.0	100.0	

3.11.4 Position

Position is a significant demographic variable because it shows the respondent's level of involvement in decision making, operational processes, and project implementation, and his/her duties within the organization. Employees working in different jobs may have differing levels of exposure to artificial intelligence adoption, operational efficiency initiatives, and project management methods in the banking and housing finance sector. Table 3.4 shows the distribution of the respondents by their job positions. The data suggest that the majority of the respondents (31.3%) were Housing Finance Officers, followed by Operation Managers (28.9%), Branch Managers (20.7%), and Credit Analytics and Risk Officers (19.2%). The distribution of the respondents shows that the study sampled respondents in a range of management and operational roles, thereby providing varied viewpoints on the adoption of AI, operational efficiency, absorptive ability, and project success in the banking and housing finance industry.

Table 3.4: Position

Position	**Frequency**	**Percent**	**Valid %**	**Cumulative %**
Branch Manager	94	20.7	20.7	20.7
Operation Manager	131	28.9	28.9	49.6
Credit Analytics and Risk Officer	87	19.2	19.2	68.7
Housing Finance Officer	142	31.3	31.3	100.0
Total	454	100.0	100.0	

3.11.5 Work Experience

Work experience is an essential demographic variable because it indicates respondents' professional exposure, practical knowledge, and familiarity with organizational processes. Employees with more experience are likely to have a better awareness of technology developments, operational procedures, and project management activities, and can therefore provide informed thoughts on AI adoption

and project success. Table 3.5 provides a summary of the job experience of respondents in the banking and housing finance sector. The results show that the majority of the sample had 3–5 years of work experience (46.9%). This was followed by 29.7% of respondents with 6–10 years of experience, 22.7% with less than 3 years of experience, and 0.7% with more than 10 years of experience.

The results indicate that most of the respondents had adequate professional expertise to provide valid and informed views on AI adoption, operational efficiency, absorptive ability, and project success in the banking and housing finance industry.

Table 3.5: Work Experience

Work Experience	**Frequency**	**Percent**	**Valid %**	**Cumulative %**
Less than 3 Years	103	22.7	22.7	22.7
3-5 Years	213	46.9	46.9	69.6
6-10 Years	135	29.7	29.7	99.3
10 Years and Above	3	0.7	0.7	100.0
Total	454	100.0	100.0	

3.11.6 Experience with AI Tools

Experience with AI tools was added as a demographic variable since it reflects respondents' familiarity and practical exposure to artificial intelligence technologies. Employees who have more experience with AI technologies are more likely to comprehend their applications, benefits, and limitations, allowing them to deliver more educated replies about AI adoption and its impact on operational efficiency and project success. Table 3.6 summarizes the respondents' experiences with AI tools. According to the findings, 41.2% of respondents had 1-2 years of experience using AI technologies, which accounts for the majority of the sample. This was followed by 30.6% of respondents with 3-5 years of experience, 27.8% with less than a year of experience, and 0.4% with 5 years or more of experience. The findings indicate that the majority of respondents had experience with AI tools, putting

them in a good position to assess the impact of AI adoption on operational efficiency, absorptive capacity, and project success in the banking and housing finance industry.

Table 3.6: Experience with AI Tools

Experience with AI Tools	**Frequency**	**Percent**	**Valid %**	**Cumulative %**
Less than 1 Year	126	27.8	27.8	27.8
1-2 Years	187	41.2	41.2	68.9
3-5 Years	139	30.6	30.6	99.6
5 Years and Above	2	0.4	0.4	100.0
Total	454	100.0	100.0	

3.11.7 Project Team Size

We included project team size as a demographic variable since it shows how big the project is and how complicated it is to execute in the banking housing finance industry. The operational efficiency and project success can be impacted by factors such as team size, which in turn affects communication, coordination, knowledge exchange, and the inclusion of AI-driven processes.

Table 3.7: Project Team Size

Project Team Size	**Frequency**	**Percent**	**Valid %**	**Cumulative %**
Less than 5 members	152	33.5	33.5	33.5
5-10 members	220	48.5	48.5	81.9
11-20 members	54	11.9	11.9	93.8
20 members and above	28	6.2	6.2	100.0
Total	454	100.0	100.0	

Based on the size of the project teams in which they participated, Table 3.7 displays the respondent distribution. Teams with five to ten members accounted for

the largest number of respondents (48.5% of the total) in this study. After this, 33.5% of people said they worked in teams with less than 5 members, 11.9% in teams with 11-20 members, and 6.2% in teams with 20+ members.

3.12 Measurement Instrument and Scale Development

A structured questionnaire with five-point Likert scales ranging from 1 to 5:

1= Strongly Disagree. 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree was used. All measurement items are adapted from validated and widely accepted scales.

3.12.1 Artificial Intelligence Adoption Independent Variable

i. AI adoption will be measured using items adapted from (Bashir, 2023), who evaluated AI's role in performance and satisfaction. In a study on AI adoption in Vietnamese organizations, they used a 5-point Likert scale (1 = strongly disagree to 5 = strongly agree) for items related to AI adoption, job anxiety, and organizational factors.

ii. Another survey on organizational AI adoption used a 5-point scale for AI adoption: "1 = strongly disagree" up to "5 = strongly agree."

3.12.2 Project Success Dependent Variable

Project success was measured using 6 items adapted from (Fathi, 2025), covering time, cost, quality, and stakeholder satisfaction dimensions using a 5-point Likert Scale.

3.12.3 Operational Efficiency Mediating Variable

Operational efficiency will be measured using 5 items adapted from Kozhakhmetova et al. (2024), focusing on speed, productivity, and resource use. Responses are measured on a 5-point Likert scale.

3.12.4 Absorptive Capacity Moderating variable

i. Absorptive capacity will be assessed using items adapted from the (Flatten et al., 2011), which is a well-known, validated absorptive capacity scale.

ii. The scale measures an organization's ability to acquire, assimilate, transform, and apply new knowledge effectively. Items are assessed using a 5-point Likert scale ranging from strongly disagree to strongly agree.

TABLE 3.8: Research Instruments

Variables	**Items**	**Sources**
Artificial Intelligence	6	Fathi (2025) Bashir (2023)
Operational efficiency	5	Kozhakhmetova et al. (2024)
Project success	6	Fathi (2025)
Absorptive capacity	5	Flatten et al. (2011)

Chapter 4

Data Analysis and Results

This chapter summarizes the study's empirical findings, which were generated from quantitative data collected via structured questionnaires. The chapter is divided into three major sections. Section 4.1 describes the data filtering technique used to ensure the quality and reliability of the dataset before analysis. This entails systematically reviewing collected responses to identify incomplete, inconsistent, or biased entries that could jeopardize the integrity of the results. Only responses that met the predefined inclusion criteria were kept for further analysis.

Section 4.2 provides a full examination of both the measurement and structural models. The measurement model assessment looks at the reliability and validity of the study's constructs, whereas the structural model assessment looks at the hypothesized links between them. Together, these judgments form a solid platform for extracting meaningful conclusions from the data.

Section 4.3 wraps up the chapter by providing a consolidated summary of the hypothesis testing outcomes. Each hypothesis is re-examined in light of the empirical evidence, and the results are thoroughly documented to aid interpretation and discussion in the following chapter.

4.1 Data Screening

Data screening is an essential preparation phase conducted before any formal statistical analysis in quantitative research. Data collection rarely yields information that is immediately suitable for statistical analysis; thus, effective management of quantitative data is crucial before the analysis, presentation, and interpretation of study results. Quantitative data quality assurance is the systematic methodology employed to guarantee the accuracy, consistency, reliability, and integrity of data during the research process. Effective quality assurance facilitates the identification and rectification of errors, mitigates biases, and ensures that the data adheres to the requisite standards for analysis and reporting (Slater and Hasson, 2025). Data screening is particularly significant in the context of PLS-SEM-based research. The PLS-SEM analysis methodology comprises three main stages: data screening and diagnostic tests, evaluation of the measurement model, and evaluation of the structural model. The data screening process first verifies the dataset's appropriateness for multivariate analysis by addressing missing data and outliers. A crucial yet often neglected aspect of management research, especially in poor countries, is the necessity for an initial assessment of multivariate assumptions, as PLS-SEM is a multivariate regression technique and is consequently subject to fundamental multivariate regression assumptions (Haji-Othman et al., 2024; Shela et al., 2023). The current study implemented a systematic and stringent data screening methodology to guarantee the dataset's accuracy, completeness, and suitability for further multivariate analysis.

4.1.1 Data Cleaning

Data cleaning is the process of identifying and correcting mistakes, inconsistencies, and anomalies in the raw dataset to ensure that it is accurate, comprehensive, and suitable for analysis. Data cleaning is the process of identifying and fixing dirty data. It is a common way of enhancing data quality before statistical processing. It is the foundation of data analysis and management. Incomplete, noisy, and inconsistent data can result in data anomalies that can have a major impact on

data quality, bias model parameter estimations, and lead to poor evidence-based judgments. In the current study, the data cleaning process includes the removal of incomplete questionnaires, straight-lined responses, and logically inconsistent responses. The retained responses were validated for accuracy after the cleaning procedure and were sent into the analysis software for the measurement and structural model evaluation (Guo et al., 2023; Sharifnia et al., 2026).

4.1.2 Missing Values and Outliers

One of the most frequent problems in survey research is the occurrence of missing values, which have to be dealt with before any statistical analysis can be undertaken. Missing data is a major threat to the precision and reliability of PLS-SEM results from survey-based research, and missing data in any study can introduce bias, reduce statistical power, and distort model estimations, leading to inaccurate or unreliable conclusions (Liu et al., 2025). The type and level of missingness, i.e., whether missing completely at random (MCAR), missing at random (MAR), or not missing at random (NMAR), is crucial in deciding on a method for addressing missing data. The literature review on PLS-SEM in the context of PLS-SEM shows that the most preferred strategies to handle missing data are listwise deletion and mean imputation (Amusa and Hossana, 2024). Data points that significantly differ from the overall pattern of the dataset are known as outliers, and they can significantly impact the results of statistical analysis. Because outliers can drastically change the outcomes and inferences made from a dataset, finding them is an essential part of data analysis. It is necessary to evaluate multivariate and univariate outliers in multivariate research. Inconsistent measurements across multiple variables can lead to multivariate outliers. When working with multivariate data, using univariate methods to detect extreme values can miss important inter-variable relationships. To effectively detect multivariate outliers, you can use distance-based, depth-based, clustering-based, or distribution-based techniques (Lakshmi and Sajesh, 2025). The present study had neither outliers nor missing values in the data.

4.2 Results

Organizational and management researchers frequently use partial least squares structural equation modeling (PLS-SEM), a variance-based statistical technique, to analyze complicated theoretical models with several characteristics and hypothesized linkages. Structural equation modeling is a powerful tool for investigating complex causal structures since it integrates several statistical methods into a single framework to examine the link between observable and latent variables. An evaluation of the measurement model was conducted by empirically testing the associations between the latent constructs and their indicators. The second step involved evaluating the structural model that represented the study's hypotheses (Choudhuri et al., 2025; Subhaktiyasa, 2024). The Smart PLS software was utilized for these PLS-SEM studies. In order to ensure that the data acquired was free from common method bias, which can occur in survey-based research when all respondents use the same instrument, we checked the data for CMB before evaluating the measurement model. In order to identify common method bias, the most popular tool is Harman's single-factor test, which uses exploratory factor analysis. According to this test, common method bias is present if, after analyzing the unrotated solution with all measured items, one factor accounts for more than 50% of the variance (Aguirre-Urreta and Hu, 2019). In this study, a one-way ANOVA test was performed to check group differences across respondents. To find statistically significant differences, this statistical method examines the variability both within and across separate groups (France et al., 2023).

4.2.1 Harman's Single Factor Test

Common method bias (CMB) is a major methodological problem in the field of survey-based quantitative research. CMB occurs when data collection techniques, often self-report surveys, falsely increase or decrease correlations between variables, resulting in distorted findings and potentially misleading conclusions about the links among study constructs. Given that the present study used a single-source self-administered questionnaire, it was crucial to statistically examine the degree

to which CMB may have influenced the findings (Polas, 2025). In the present study, all items were analysed by an unrotated exploratory factor analysis using SPSS. The findings revealed that the first factor explained 43.078% of the total variance, which is less than the generally recognized criterion of 50%. The first principal component is below the frequently accepted criterion of 50%, indicating that the first unrotated factor does not account for the bulk of item variance, suggesting that common method bias is unlikely to be a substantial concern in the study (Baumgartner et al., 2021). Thus, it can be stated that common technique bias was not a danger to the validity of the findings of the present investigation, and the data were considered suitable for further analysis.

TABLE 4.1: Harman's Single Factor Test

Test	**First factor variance**	**Threshold**	**Result**
Harman's single-factor test	43.078%	<50%	No common Method Bias

4.2.2 Covariates

A one-way Analysis of variance (ANOVA) test was carried out to examine whether there were any statistically significant differences between the groups of respondents in terms of their demographic profiles, such as age, gender, education, position, work experience, experience with AI tools, and project team size. A one-way ANOVA is a statistical test that allows researchers to test whether there are any significant differences between the means of two or more independent groups. This test is especially useful for determining whether demographic subgroups in a sample differ from each other in some systematic way. This test is frequently used in survey-based research on demographic variables to see if any of those variables should be included as a control variable in the analysis – if there is a significant effect of a demographic characteristic on the dependent variable, then that characteristic must be controlled to avoid confounding the main study relationships (Bevans, 2022). The one-way ANOVA results of the present study showed that none of the demographic variables, such as age, gender, education, position, work

experience, experience with AI tools, and project team size, caused statistically significant differences among the respondent groups ($p > 0.05$).

Hence, it was not required to incorporate any of the demographic factors as a control variable in the structural model, and the data were considered appropriate to continue with the measurement and structural model assessments.

TABLE 4.2: Covariates

Covariate	**Mean square**	**F value**	**P value**
Gender	0.005	0.017	0.896
Age	0.705	2.609	0.075
Education	0.483	1.782	0.150
Position	0.111	0.406	0.749
Work Experience	0.055	0.200	0.897
Experience with AI tools	0.346	1.272	0.283
Project Team Size	0.224	0.823	0.482

4.2.3 Measurement Model Assessment Outer Model

The measurement model evaluation is the initial phase of the PLS-SEM analysis, and is carried out before the structural model assessment, with the primary objective of determining the reliability and validity of the constructs employed in the study. The first stage in PLS-SEM analysis is to evaluate the measurement model to check the validity and reliability of the constructs in the research. Two ways may be used for this purpose, reflecting measurement models and formative measurement models. These two approaches are based on distinct measurement criteria. The evaluation of reflective constructs includes four main dimensions: indicator reliability, internal consistency reliability, convergent validity, and discriminant validity. Reflective measurement models are assessed using standard criteria, including indicator reliability, internal consistency reliability, and convergent validity. Each criterion is assessed by applying specific matrices and cut-off points Becker et al. (2023).

4.2.3.1 Convergent Validity and Construct Reliability

Convergent validity is the extent to which a construct converges to explain the variance of its related indicators. It checks if the items measuring a given construct are truly capturing the same underlying concept (Hair et al., 2021). The metric used for assessing the convergent validity of a construct is the Average Variance Extracted (AVE) of all indicators on each construct. The AVE is the grand mean value of the squared loadings of the indicators associated with the construct. The AVE value of 0.50 or above is the general cutoff point, which indicates that the construct explains the variance of the items by at least 50 percent. Construct validity, on the other hand, deals with the internal consistency of the indicators used to measure a hidden variable. PLS-SEM has become a well-established multivariate analysis technique, and the constructs used in the study are measured with sufficient consistency and accuracy in the assessment of measurement models (including reliability and convergent validity) before hypothesis testing (Magno et al., 2024). Internal consistency was assessed using Cronbach's alpha and composite reliability (CR), and values greater than 0.70 were judged adequate. Composite reliability (CR) is the most generally reported metric of internal consistency in PLS-SEM research, but Cronbach's alpha is also widely employed. Both serve to establish the extent to which the indicators of a construct are correlated and measure the same underlying phenomenon (Demir and Uşak, 2025). The results of the present study indicated that all Cronbach's alpha values were above 0.70 and all AVE values were greater than the minimum threshold of 0.50, which suggested that the constructs had acceptable construct reliability and convergent validity, and the items were properly measuring their underlying concepts.

Table 4.3: Convergent validity and Construct Reliability

Constructs	**CA**	**CR (rho-a)**	**CR (rho-c)**	**AVE**
AC	0.905	0.908	0.930	0.725
AIA	0.882	0.886	0.911	0.631
OE	0.900	0.905	0.926	0.715
PS	0.827	0.836	0.874	

4.2.3.2 Outer Loadings

Outer loadings are used to assess indicator reliability by determining how well each observable indication represents the underlying latent construct. Higher outer loading values imply that an indicator's variation is more closely related to the construct being measured. According to Hair and Alamer (2022), Standardized outer loadings of 0.708 or higher are acceptable because they suggest that the construct accounts for at least 50% of the indicator's variance.

Indicators with loadings ranging from 0.40 to 0.70 may be kept if their removal does not increase composite reliability or the average variance extracted (AVE), and they add to the construct's content validity. In contrast, indications with loadings less than 0.40 should normally be eliminated from the measurement model. Table 4.4 shows the findings of the convergent validity assessment for the reflective constructs examined in this study.

Table 4.4: Outer Loadings

Constructs	**Items**	**Outer loadings**	**Constructs**	**Items**	Outer loadings
AC	AC1	0.839	**OE**	OE1	0.839
	AC2	0.863		OE2	0.831
	AC3	0.836		OE3	0.823
	AC4	0.872		OE4	0.849
	AC5	0.848		OE5	0.885
AIA	AIA1	0.854	**PS**	PS1	0.803
	AIA2	0.820		PS2	0.749
	AIA3	0.827		PS3	0.709
	AIA4	0.740		PS4	0.613
	AIA5	0.781		PS5	0.724
	AIA6	0.737		PS6	0.787

4.2.3.3 Discriminant Validity

Discriminant validity was assessed to determine whether each construct in the measurement model was empirically distinct from the others. Establishing discriminant validity guarantees that indicators of one construct are not more strongly associated with other constructs than with their own construct, validating each latent variable's uniqueness. According to Afthanorhan et al. (2021), Discriminant validity is a critical requirement in structural equation modeling, as it confirms the distinctiveness of the constructs being measured. In this study, discriminant validity was assessed using the Fornell-Larcker criterion and the Heterotrait-Monotrait (HTMT) ratio, both of which are extensively used to assess construct distinctiveness in PLS-SEM. According to the Fornell-Larcker criterion, the square root of the average variance extracted (AVE) for each construct should be greater than its correlations with all other constructs, although HTMT values below the required level imply adequate discriminant validity (Sarstedt et al., 2020). Table 4.5 shows the findings of the discriminant validity assessment using the Fornell-Larcker criterion.

Table 4.5: Discriminant Validity through Fornell-Larcker Criterion

Constructs	**AC**	**AIA**	**OE**	**PS**
AC	0.852			
AIA	0.441	0.794		
OE	0.359	0.688	0.846	
PS	0.442	0.721	0.641	0.734

The Heterotrait-Monotrait (HTMT) correlation ratio was also employed to examine discriminant validity because it is regarded as one of the most rigorous methods for evaluating the distinctiveness of latent items in PLS-SEM.

The HTMT criterion compares correlations between indicators of distinct constructs to correlations among indicators of the same construct, allowing for a more sensitive assessment of discriminant validity than standard techniques (Henseler et al., 2015).

According to Rasoolimanesh (2022), HTMT values less than 0.90 indicate that the notions are empirically distinct, but values at or beyond the threshold imply a lack of discriminant validity.

Similarly, (Sarstedt et al., 2020) said that HTMT has become the primary method for measuring discriminant validity in variance-based structural equation modeling due to its greater reliability and accuracy. As shown in Table 4.6, all reported HTMT values are less than the suggested threshold of 0.90, indicating adequate discriminant validity among the reflective constructs.

These findings show that the constructs are empirically distinct, which supports the measurement model's suitability for further structural model analysis.

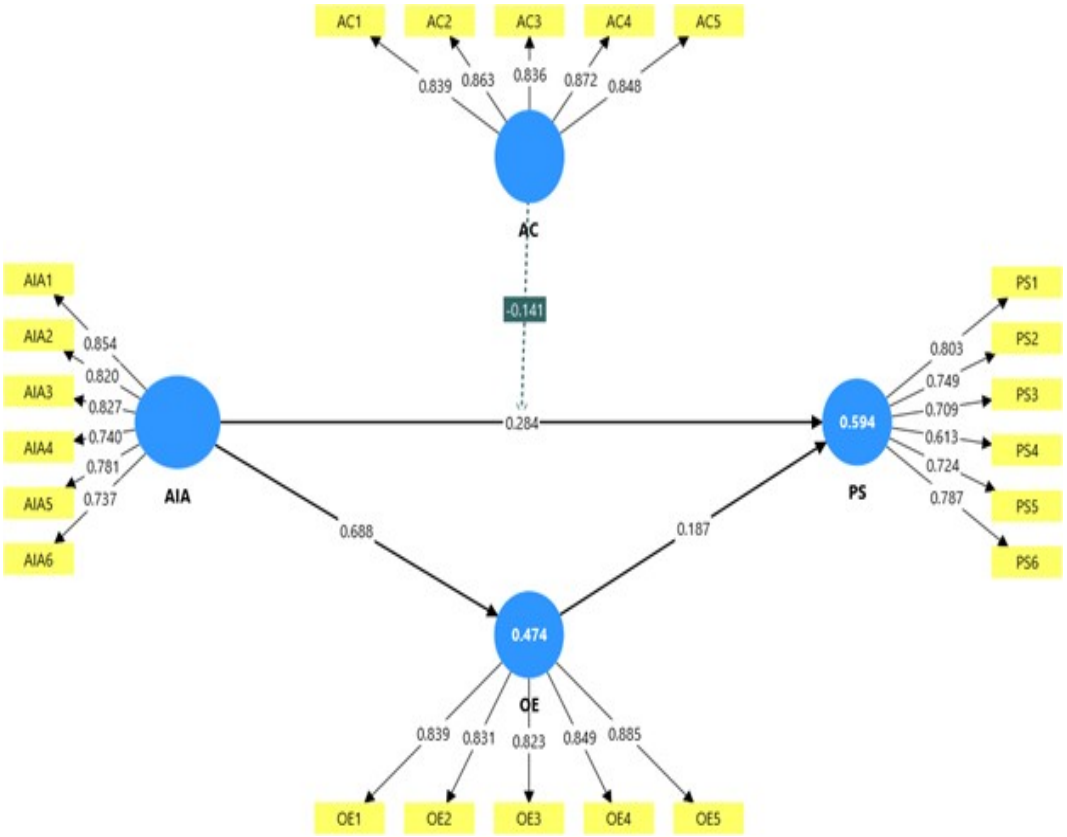

FIGURE 4.1: Measurement Model Analysis

Table 4.6: Discriminant Validity through HTMT

Constructs	**AC**	**AIA**	**OE**	**PS**
AC				
AIA	0.492			
OE	0.395	0.768		
PS	0.507	0.839	0.733	

4.2.4 Structural Model Assessment Inner model

Structural model assessment studies the links between the latent constructs and assesses the explanatory and predictive power of the proposed research model. The structural model is assessed based on the strength, direction, and relevance of the hypothesized links between the constructs. The evaluation of the structural model in PLS-SEM is commonly done by analyzing the path coefficients (β), the coefficient of determination (R2), the effect size (f2), the predictive relevance (Q2), and the statistical significance of the hypothesized relationships by means of the bootstrapping procedure. The measurements give evidence for the model's predicted performance and the practical significance of the postulated links. The second phase of PLS-SEM analysis was undertaken in the present study to evaluate the structural model and to test the hypotheses put forward. The study specifically investigated the direct influence of AI Adoption on Project Success, the mediating effect of Operational Efficiency, and the moderating effect of Absorptive Capacity between AI Adoption and Project Success. The results of the structural model provide empirical evidence on the predictive and explanatory power of the proposed framework in the banking and housing finance industry.

4.2.4.1 Coefficient of Determination and Predictive Usefulness

The structural model evaluation was performed based on the calculation of the determination coefficient (R2), the adjusted determination coefficient (Adjusted R2), the predictive relevance (Q2predict), root mean square error (RMSE), and mean

absolute error (MAE). Together, these indices measure the explanatory strength, predictive relevance, and prediction accuracy of the proposed study model (Sarstedt et al., 2023). Table 4.7 shows that the R^2 value of 0.474 indicates that AI adoption accounts for 47.4% of the variance in operational efficiency. Similarly, the R2 value of 0.594 indicates that the combined effect of AI adoption, operational efficiency, and the interaction effect of absorptive capacity explains 59.4% of the variance in project success. These results indicate that the model has a modest explanatory power for both endogenous constructs.

Moreover, the Adjusted R^2 values of 0.473 for operational efficiency and 0.590 for project success are very near to their respective R^2 values, showing that the structural model is stable and free from severe overfitting.

The predictive relevance of the model was further tested using Q^2predict. The Q2 predicted values obtained for operational efficiency and project success are 0.462 and 0.560, respectively, which are greater than zero, showing that the proposed model has sufficient predictive relevance (Lin and Huynh, 2024).

Moreover, the somewhat larger Q^2predict value for project success shows better out-of-sample prediction ability for this endogenous construct. For additional evaluation on prediction accuracy, RMSE and MAE values were evaluated.

The RMSE and MAE scores were 0.750 and 0.402 for operational efficiency and 0.677 and 0.415 for project success, respectively. The comparatively low prediction error values imply that the proposed structural model has an acceptable level of predictive accuracy (Sternad Zabukovšek et al., 2022). In general, the results indicate that the model has acceptable explanatory and predictive power to explain operational efficiency and project success in the context of AI adoption in the banking and housing finance sector.

TABLE 4.7: Coefficient of Determination

Constructs	**R-square**	**R-square adjusted**	**Q^2predict**	**RMSE**	**MAE**
OE	0.474	0.473	0.462	0.750	0.402
PS	0.594	0.590	0.560	0.677	

4.2.4.2 Direct Relationship Analysis

We used a bootstrapping approach with 5,000 subsamples and a two-tailed test to test the significance of the hypothesized direct links by assessing the path coefficients, t-values, p-values, confidence intervals, and effect sizes. The results shown in Table 4.8 support the notion that AI adoption has a positive and significant effect on project success ($\beta = 0.284$, t = 3.480, p = 0.001), providing evidence for H1. By keeping all other variables constant, a one-unit increase in AI adoption is associated with a 0.284-unit increase in project success. Also, the 95% confidence interval [0.145, 0.461] does not contain zero, supporting the robustness and statistical importance of this association.

The related impact size ($f^2 = 0.047$) shows a small effect of AI adoption on project Success. Moreover, the findings demonstrate that AI adoption has a favorable and statistically significant effect on operational efficiency ($\beta = 0.688$, t = 9.987, p <0.001), and H2 is supported. This suggests that a one-unit increase in AI Adoption will generate a 0.688-unit gain in operational efficiency, ceteris paribus. The 95% confidence interval [0.541, 0.806] does not include zero, thereby providing further proof of the stability of the relationship. Furthermore, the effect magnitude ($f^2 = 0.900$) implies a high practical effect, demonstrating that AI adoption is a strong predictor of operational efficiency. Lastly, Operational efficiency is positively and significantly related to project success ($\beta = 0.188$, t = 2.544, p = 0.011), supporting H3. In particular, a one unit increase in Operational Efficiency is associated with an increase of 0.188 units in Project Success, other variables held constant. The association is statistically significant since the 95% confidence interval [0.055, 0.342] does not include zero. The effect size (f2 = 0.039) indicates that operational efficiency has a small effect on project success.

4.2.4.3 Mediation Analysis

A bootstrapping approach with 5,000 subsamples was used to investigate the indirect effect of operational efficiency on the connection between AI adoption and project success. Table 4.9 presents the results of the mediation analysis.

Table 4.8: Direct Relationship Analysis

Hyp.	Hypotheses Relationship	β	M	STDEV	t values	P values	f^2 values	2.5% LLCI	97.5% ULCI	Remarks
					Direct Effect					
H1	AIA ->PS	0.284	0.289	0.082	3.480	0.001	0.047	0.145	0.461	Supported
H2	AIA ->OE	0.688	0.688	0.069	9.987	0.000	0.900	0.541	0.806	Supported
H3	OE ->PS	0.188	0.189	0.074	2.544	0.011	0.039	0.055	0.342	Supported

Table 4.9: Mediation Analysis

Hyp.	Hyp. Relationship	β	M	STDEV	t value	P values	2.5% LLCI	97.5% ULCI	Remarks
H4	AIA ->OE ->PS	0.129	0.131	0.056	2.317	0.021	0.036	0.254	Supported

Table 4.10: Moderation Analysis

Hyp.	Hypotheses Relationship	β	M	STDEV	t values	P values	f2 values	2.5% LLCI	97.5% ULCI	Remarks
					Moderation Effect					
H5	AC x AIA ->PS	-0.140	-0.136	0.042	3.332	0.001	0.046	-0.211	-0.047	Not Supported

AI adoption positively impacts project success by improving operational efficiency (β = 0.129, t = 2.317, p = 0.021). This suggests that the favorable impact of AI adoption on project success is partly conveyed through increased operational efficiency. Furthermore, the 95% confidence interval [0.036, 0.254] excludes zero, demonstrating the indirect effect's significance and stability. As a result, Operational efficiency plays a major mediating role in the relationship between AI adoption and project success, supporting Hypothesis 4.

4.2.4.4 Moderation Analysis

A bootstrapping approach with 5,000 subsamples was used to investigate the moderating role of absorptive capacity in the connection between AI adoption and project success. The moderation analysis findings are shown in Table 4.10. The study found that the interaction term (Absorptive Capacity × AI Adoption) negatively impacts project success (β = -0.140, t = 3.332, p = 0.001). This suggests that larger levels of absorptive capacity reduce the positive link between AI adoption and project success. Furthermore, the 95% confidence interval [-0.211, -0.047] excludes zero, indicating that the moderation effect is statistically significant and robust. The effect magnitude (f^2 = 0.046) suggests a small moderating influence. Hypothesis 5 is not supported since the theorized link predicted a positive moderating effect, while the empirical results show a significant negative moderation.

To better appreciate the moderating effect, Figure 4.2 depicts a basic slope analysis of absorptive capacity on the link between AI adoption and project success. The graphic depicts three levels of absorptive capacity: low AC (-1 SD), mean AC, and high AC (+1 SD). The red line depicting low absorptive capacity (-1 SD) is the steepest, demonstrating that the positive association between AI adoption and project success is most pronounced when absorptive capacity is low. The slope analysis indicates that AI adoption has the strongest impact on project success at low absorptive capacity (-1 SD) (coefficient of 0.424), followed by the mean level of absorptive capacity (coefficient of 0.284), and lowest at high absorptive capacity (+1 SD) (coefficient of 0.143). Although AI adoption is positively related to project success at all three levels of absorptive capacity, the slope flattens out

as absorptive capacity increases. This pattern shows that increasing absorptive capacity reduces the positive impact of AI adoption on project success.

As a result, the slope analysis provides pictorial support for absorptive capacity's negative and statistically significant moderating influence on the connection between AI adoption and project success, which is consistent with the moderation findings in Table 4.11.

TABLE 4.11: Conditional Direct Effect of AC on AIA and PS

	AIA ->PS
AC at +1 SD	0.143
AC at -1 SD	0.424
AC at Mean	0.284

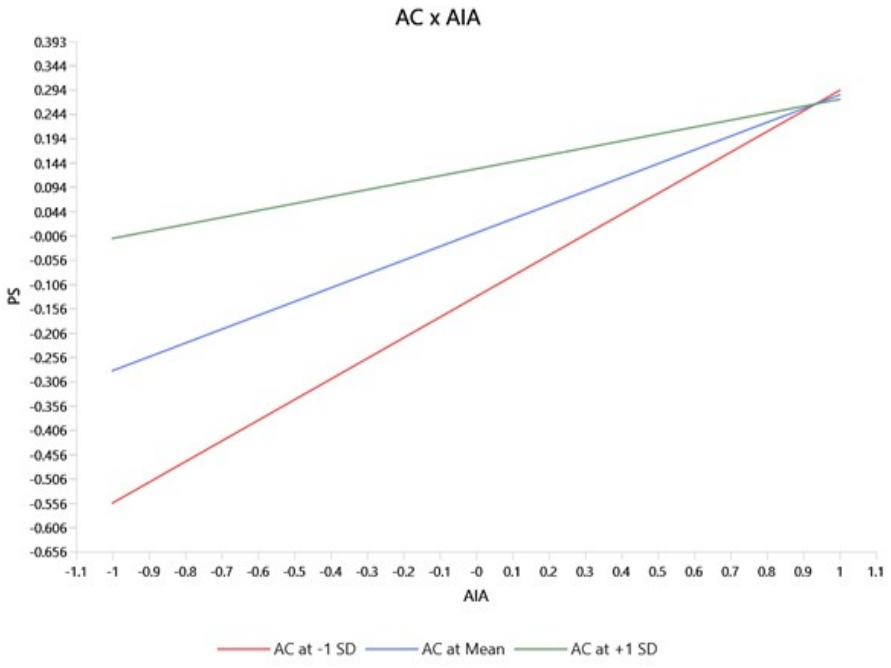

FIGURE 4.2: Moderation Analysis

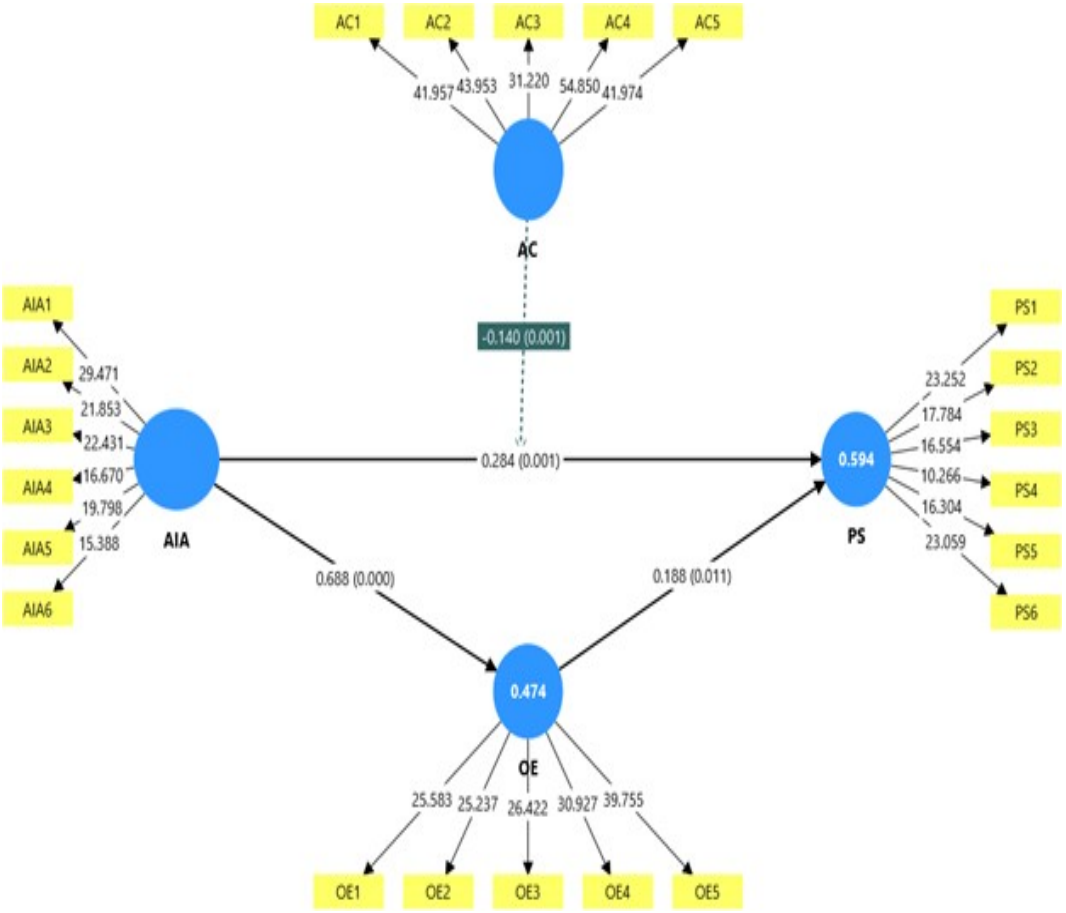

FIGURE 4.3: Structural Model Analysis

TABLE 4.12: Hypothesis Result Summary

Hyp.	**Statement**	**Result Decision**
H1	AI adoption positively impacts project success.	Supported
H2	AI adoption has a significant positive impact on operational efficiency.	Supported
H3	Operational efficiency has a significant positive impact on project success.	Supported

Table 4.12 continued from previous page

Hypotheses	Statement	Result Decision
H4	Operational efficiency significantly mediates the relationship between AI adoption and project success	Supported
H5	Absorptive capacity significantly moderates the relationship between AI adoption and project success, such that the relationship becomes stronger at higher levels of absorptive capacity.	Not Supported

Chapter 5

Discussion and Conclusion

5.1 Introduction

This chapter will elaborate on the results of the study in terms of the research objectives, hypotheses, Resource-Based View (RBV) theory, and previous empirical studies. This chapter aims to provide a detailed explanation of how the findings help to understand the influence of Artificial Intelligence (AI) adoption on project success in banking housing finance projects in Pakistan. In particular, it will explore the direct relationship between AI adoption and project success, the role of AI adoption on operational efficiency, the role of operational efficiency on project success, the mediating role of operational efficiency, and the moderating role of absorptive capacity. The results are explored and compared to previous empirical studies and theoretical arguments to arrive at a conclusion as to whether or not the findings support or disprove previous studies and theories. The findings indicated that the use of AI has a significant impact on the success of projects, as it can improve operational processes and contribute to effective project execution in banking institutions. Additionally, AI adoption was identified to have a significant effect on operational efficiency, suggesting that AI technologies can assist employees to execute their jobs more accurately, decrease processing time, coordinate workflow, and boost decision-making quality. Additionally, operational efficiency was found to be a key factor in project success, highlighting the importance of efficient organizational processes in ensuring project success. The mediation analysis

further revealed that operational efficiency is an important mechanism that links AI adoption to project success.

But there was a fascinating result to the moderation analysis. The absorptive capacity had a significant negative moderating effect on the relationship between AI adoption and project success, and contradicted the proposed hypothesis. This finding indicates that while absorptive capacity is still crucial in organizational capabilities, the direct impact of absorptive capacity on project success in banking housing finance projects may diminish as levels of absorptive capacity increase. A likely reason is that companies with higher absorptive capacity might be more likely to use employee knowledge instead of AI technologies, or to utilize existing skills and expertise within their operations more than AI, thereby lessening the direct impact of the use of AI technologies on project outcomes. This study contributes updated empirical evidence to the existing body of work and expands on this body of work by capturing that the relationships between organizational learning capabilities and AI-performance might be counterintuitive in certain contexts, such as emerging economies where the implementation of AI is still evolving. This chapter gives a detailed interpretation of each hypothesis by comparing the results of the research with the results of previous studies and explaining the theoretical and practical implications. The chapter also provides the theoretical implication, practical implication, limitations of the study, future research directions and overall conclusion.

5.2 Hypotheses Discussion

5.2.1 Artificial Intelligence has a Positive Impact on Project Success

The results indicate that the extent of the adoption of artificial intelligence (AI) systems has a significant positive effect on project success ($< \beta = 0.284$, t = 3.480, p <0.05). The findings of this research study revealed that hypothesis 1 is supported, which means the introduction of Artificial Intelligence (AI) has a

positive and statistically significant impact on the success of the projects in the banking and housing finance industry in Pakistan. The discovery indicates that more widespread use of AI technologies leads to better project planning, decision-making, workflow coordination, risk management, resource usage, and project execution. By using AI technologies, banking institutions can automate repetitive tasks, enhance the precision of operational choices, lower human mistakes, and speed up project processes, which boosts the likelihood of meeting project deadlines, budgets, and quality requirements.

The results suggest that AI is emerging as a valuable organizational asset, contributing to the efficiency of projects and the competitiveness of organizations. This positive correlation between AI use and project success aligns with the Resource-Based View (RBV) theory of (Barney,1991), which posits that organizations can attain high performance by leveraging valuable, rare, inimitable, and well-organized resources.

The current research demonstrates the importance of AI as a technological tool for banking institutions to enhance their operational efficiency and achieve better results for the projects they undertake. The results validate RBV as they show that organizations that invest in AI technologies are more likely to have a successful AI project implementation due to the AI's benefits in information processing, decision quality, integration with workflows, and operational responsiveness. This means that the use of AI provides competitive advantages that directly influence project success. The results are in line with the findings of earlier empirical research. For instance,

Dwivedi et al. (2021) found that AI technologies can greatly enhance the execution of projects by leveraging improved data-driven decision-making, predictive analytics, and the automation of processes. Likewise, Marnewick et al. (2026) found that AI implementation is beneficial to project performance in the facilitation of effective planning, monitoring, communication, and control of projects. Similarly, Verma et al. (2025) discovered that within the context of technology-driven organizations, AI-driven project management tools boost project effectiveness, minimize operational uncertainty, and maximize project results. Similarly, Kumar et al.

(2025a) showed that AI enhances organizational productivity and project implementation by automating workflows and delivering intelligent decision support systems.

The current research aligns with prior studies demonstrating the ability of AI technologies to enhance the operational process and project performance. The findings also support the study undertaken by the banking sector. Kazmi et al. (2024) reported that AI tools in the banking sector can enhance customer verification, fraud detection, loan processing, compliance with regulations, and accuracy, ensuring the successful implementation of the project.

Likewise, Soulami et al. (2024) found that AI can be leveraged to enhance financial institutions' project operations by implementing intelligent automation and making real-time decisions, which leads to increased project success rates. In addition, AI-powered banking systems enhance the flexibility, coordination, and quality of the banking services provided to the project, which ultimately improves overall project performance, as suggested by Ajili Ben Youssef et al. (2025).

The findings are especially significant in the light of the banking housing finance sector in Pakistan, which has complex implementation of projects along with loan verification, documentation, regulatory compliance, and customer coordination requirements. AI technologies make these complex processes much easier by automating repetitive tasks, streamlining communication among project teams, minimizing operational delays, and enhancing the precision of decisions regarding projects (Lazo and Ebardo, 2023). This means that with AI, banking institutions can carry out housing finance projects more effectively, enhance customer fulfillment, and organizational performance. The results overall demonstrate the significance of AI adoption as a strategic tool for banking institutions. The organizations maximizing project success by embedding AI technologies into their project management practices will benefit from increased operational efficiency, decision making capabilities, and organizational capabilities. Thus, Hypothesis 1 is accepted and empirical evidence is found that the use of AI has a significant contribution towards the success of projects in the housing finance sector of banking industry in Pakistan.

5.2.2 AI Adoption has a Significant Positive Impact on Operational Efficiency

The use of Artificial Intelligence (AI) is seen as having a high positive effect on operational efficiency ($< \beta = 0.688$, t = 9.987, p <0.05). The results of this study revealed that the effect of Artificial Intelligence (AI) adoption on operational efficiency in the banking housing finance project is positive and statistically significant, hence supported Hypothesis 2. The discovery indicates that banks with more AI solutions are more effective in operational tasks like customer verification, document processing, loan evaluation, compliance checks, workflow management, and resource utilization. AI-driven systems help remove human intervention, cut down on human error, speed up decision-making, and enhance the quality and speed of organizational processes. Therefore, the use of AI helps banks streamline their services, cut down on costs and processing time, and deliver more efficient services. The Resource-Based View (RBV) theory strongly supports the positive correlation between the adoption of AI and operational efficiency.

Organizations can develop value and get a competitive edge through the efficient use of valuable internal resources and organizational capabilities (Barney, 1991a). In this research, adoption of AI is seen as a strategic technological resource, and operational efficiency as an organizational capability that is built from the effective use of that resource. The results show how effectively AI technologies can be integrated into banking operations to improve workflow integration, coordination, and organizational performance. This further supports the RBV premise that the value created by technological resources is in enhancing the internal organizational capabilities of the firm. The results are similar to another empirical research. In an article published in 2023, (Rane et al.,2023) identified how AI can play a crucial role in boosting operational efficiency, automating mundane tasks, optimizing business processes, and improving overall organizational productivity. Likewise, Dwivedi et al. (2023) found that AI can also help organizations optimize workflows, boost data processing precision, and aid in quicker decision-making while improving overall organizational efficiency. Additionally, Owusu (2025a) revealed that AI technologies have a positive impact on operational responsiveness, as they

facilitate better communication, alleviate unnecessary delays, and optimize resource allocation in organizational processes. These results align with those of Kumar et al. (2025a) who found that automation with AI is a great solution for boosting the efficiency of financial institutions by cutting down on manual work hours, avoiding human mistakes, and delivering top-tier services. Similarly, Verma et al. (2025) found that AI systems have the potential to enhance organizational efficiency by fostering better project coordination and management, monitoring operations in real-time, and enabling timely decision-making. From the findings, it is evident that AI technologies have the ability to automate repetitive tasks but also enhance the efficiency of organizational operations.

In the banking industry, AI usage can boost efficiency, streamline loan processing times, bolster fraud prevention measures, boost customer service quality, and facilitate regulatory adherence, as highlighted by Kazmi et al. (2024). Likewise, Ajili Ben Youssef et al. (2025) indicated that the use of AI technologies in banks results in higher processing accuracy, fewer operational risks, and better coordination between employees.

The present study results are in line with these findings, in banking housing finance projects, where speed and efficiency are vital to process a large number of customers' applications on time and accurately. Operational efficiency plays a crucial role in the banking and housing finance sector, especially since housing finance projects involve multiple interconnected activities. In the banking housing finance sector, operational efficiency is crucial, particularly because housing finance projects involve multiple interconnected activities, such as customer screening, income verification, legal documentation, property evaluation, credit assessment, and regulatory compliance. These activities are typically time-consuming and labor-intensive, and are traditionally done manually, which consumes significant organizational resources.

The results indicate that AI technologies significantly boost these operations by streamlining repetitive tasks, minimizing documentation inaccuracies, improving communication within project teams, and facilitating better decision-making accuracy. This allows banking institutions to more easily complete housing finance

projects efficiently, and to enhance customer satisfaction and organizational performance. Overall, the results suggest that the use of AI has a clear and positive impact on the operational efficiency of banking institutions. The findings reveal that AI is a valuable technological asset that helps organizations to streamline their operational processes, coordinate the workflow, minimize process time, and make optimal use of organizational resources.

5.2.3 Operational Efficiency has a Significant Positive Impact on Project Success

The operational efficiency of the project has a significantly positive influence on project success ($< \beta = 0.188$, t = 2.544, p <0.05). The influence of operational efficiency positively and significant impact on project success in banking housing finance projects. The results indicate that the more efficient (in terms of operational efficiency) the banking institutions, the better equipped they are to complete projects successfully by enhancing the coordination in project workflows, minimizing project operational delays, making effective use of the organizational resources, and timely completion of project activities. By optimizing the way that things are done, employees can complete their tasks more accurately, reduce unnecessary expenses, communicate more effectively with project teams, and boost the quality of the services they provide, which in turn can increase the chances for project success. The results are congruent with the Resource-Based View (RBV) theory that focuses on the role of organizational capabilities in converting valuable assets into better organizational results (Barney, 1991b).

Operational efficiency is an important organizational capability in the context of this study, as it could help banks use technological resources effectively to accomplish project goals. RBV claims that firms with effective operations systems are better able to pull their resources together, streamline their operations, and establish sustainable competitive advantages. The current study supports this theoretical position by proving that the efficiency in operations affects the successful implementation of the project in banking housing finance projects directly. The

results are consistent with the prior empirical research. Vuković et al. (2025) found that project performance is enhanced when the operational processes are efficient, as they enhance project planning, communication, monitoring, and execution. Likewise, Verma et al. (2025) found that high operational efficiency of an organization creates high project success as operational efficiency increases the quality of decision-making, resource management, and project coordination. According to their results, project effectiveness is improved through effective organizational processes, as it reduces project uncertainty.

Similarly, Owusu (2025b) reported that operational efficiency helps organizations to lower processing time, avoid operational delays, and enhance the responsiveness of the organization, which enhances the success of projects.

Similarly, Kumar et al. (2025b) found that organizations that employ highly efficient operational processes tend to be more productive, have faster service delivery speed, and higher project completion rates due to the efficient use of their resources.

This is similar to the findings of the present study, where it has been confirmed that operational efficiency is a crucial factor in the successful completion of projects. In the banking industry, operational efficiency plays a crucial role in improving banking performance, including streamlining loan processing time, minimizing documentation errors, enhancing regulatory adherence, and boosting customer relationship management. The banking sector, in particular, is significantly affected by operational efficiency, which includes speeding up loan processing times, minimizing documentation errors, ensuring regulatory compliance and improving customer relationship management. In the same way, Lawal et al. (2024) concluded that financial institutions with efficient operational systems attain better organizational performance since operational capabilities allow the employees to perform their tasks accurately and efficiently. The present study's findings are further supported by the findings of the above study in the banking sector relating to their housing finance project, as in this industry, operational efficiency is crucial to process customer applications, perform credit assessment, check legal papers and meet regulatory requirements.

The findings also revealed that the operational efficiency is especially critical in the banking and housing finance sector in Pakistan, as the projects are composed of various operations, which call for coordination amongst various departments. Customer verification, documentation, and communication and/or regulatory approval delays can have a negative impact on project completion and customer satisfaction. The findings indicate that the greater efficiency in the operational process, the more the banks are capable of managing project timelines, increasing the quality of services and decreasing the unnecessary operational costs, and also the more successfully the banks can implement housing finance projects. Hence, operational efficiency is a vital organizational capability that directly affects project success. In general, the results give empirical evidence that operational efficiency plays an important role in the project success of banking institutions. Effective operations processes help organizations execute projects better, use resources efficiently, coordinate workflows more effectively, and accomplish project goals.

5.2.4 Operational Efficiency Significantly Mediates the Relationship between AI Adoption and Project Success

This hypothesis was tested to validate the significant mediation of operational efficiency between the variables, Artificial Intelligence (AI) adoption, and project success. The results of this study showed that Hypothesis 4 was confirmed, which means that the operational efficiency significantly affected the relationship between the use of AI and the success of the projects ($< \beta = 0.129$, t = 2.317, p <0.05). This finding indicates that the positive impact of AI on project success is not just due to the direct effect of the technology, but also stems from the indirect effect of AI on operational efficiency, which in turn affects project outcomes. In other words, operational efficiency is an important instrument, which means that AI technologies add value to banking and housing finance projects. The results reveal that banks implementing AI technologies are more successful in their projects as

AI bolsters their operational processes, enhances workflow coordination, mitigates delays, and allows better use of organizational resources Putri and Werdini (2025).

The mediation outcome offers a greater understanding of the impact of AI on project success. Although the majority of previous studies focus on the direct relationship between AI and organizational performance, the present research results show that the value contribution of AI to organizations is carried out in the first place by improving its internal operating capacity.

They eliminate repetitive tasks, improve data quality, speed up decision-making, increase collaboration between project teams, and minimize waste of time and complexity in work processes. These enhancements, in turn, boost efficiency in operations and result in greater project success.

Thus, operational efficiency is an explanation of the process through which AI adoption leads to successful project implementation. The results are consistent with the Resource-Based View (RBV) theory, which suggests that it is not a resource per se that creates competitive advantage but the organizational capabilities built on valuable resources that do (Barney, 1991a).

In the current research, AI adoption is a strategic technological resource, and operational efficiency is an organizational capability that converts technological resources into better project results. The findings thus expand RBV theory by empirically proving that operational efficiency is an important capability that bridges between the adoption of AI and project success in banking housing finance projects. The findings of the present study are in agreement with the previous empirical studies. Bahoo et al. (2024) advocated that AI technologies are valuable to the organization only if they are of assistance in enhancing the way that the organization operates.

Likewise, Rang et al. (2025b) found that AI not only impacts the performance of organizations by facilitating technology adoption, but also by creating better business processes, optimizing workflows, and enabling better operational coordination. Their results align with the notion that the way in which AI affects the organization is mainly through improvements in its operations. The findings are also consistent with Mikalef and Gupta (2021), who found that AI-driven skills

add value to the organization through knowledge utilization, internal processes, and operational efficiency. Similarly, Chatterjee et al. (2024) found that the adoption and effective use of AI tools in project success can be significantly influenced by an organization's capacity to integrate the technology into productive workflows. Likewise, the study by Owusu (2025a) demonstrated that organizations that are efficient in their operations tend to deliver better project results due to the fact that efficient working processes contribute to better resource utilization, operational time saving, and effective project execution. In the banking sector, AI technologies have been shown to enhance banking operations by streamlining loan processing, bolstering compliance processes, assisting in fraud detection, and streamlining customer service. Kazmi et al. (2024) Such operational improvements then lead to improved organizational and project performance.

Similarly, Kumar et al. (2025a) identified operational efficiency as one of the key organizational mechanisms that can boost the productivity and project implementation of AI technologies. The results of the present study are thus in line with the findings reported in the literature and provide an extension to previous studies by empirically supporting operational efficiency as a mediator in the context of banking housing finance projects in Pakistan. This mediation finding is important because it focuses on one of the key research gaps uncovered in this study. The previous studies mainly focused on the linkage between the use of AI and organizational performance, without explaining how AI affects project success. This study offers a more comprehensive understanding of how the use of AI leads to project success by adding operational efficiency as a mediating variable. The results thus make a theoretical and practical contribution: They show that financial institutions not only need to invest in AI technologies but also need to work on optimizing their processes in order to be able to optimize the added value for the organization through AI.

The results highlight that simply implementing AI technologies is not enough for the successful completion of a project, from a managerial standpoint. Banking managers need to make sure that the AI systems are properly incorporated into the organizational processes, decision-making, project coordination, and operational

processes. Integrating employee training, process redesign, workflow automation, and organizational coordination is also a key investment to ensure the successful adoption of AI, as it enhances operational efficiency and maximizes the gains from the technology. Overall, the results offer robust empirical support for the role of operational efficiency as a significant mediator of the link between AI use and project success.

Absorptive capacity moderates the relationship between AI adoption and Project Success.

Absorptive capacity significantly moderates the relationship between Artificial Intelligence (AI) adoption and project success. The results of this study show that there was a negative, not positive, moderating effect as originally hypothesized, but the effect was statistically significant ($< \beta$ = -0.140, t = 3.332, p <0.05). This finding indicates that absorptive capacity significantly alters the association between AI adoption and project success, but rather than reinforcing, it dampens the direct positive association between AI adoption and project success. Hence, despite the moderating effect, the direction is a different one from the proposed hypothesis. This is an interesting finding since the literature mostly takes the notion that absorptive capacity reinforces the advantages of technology adoption. In banking housing finance projects in Pakistan, however, the findings indicates that as absorptive capacity increase4s, the positive effect of AI adoption on project success becomes weaker. This does not imply that organizations with lower absorptive capacity achieve greater project success. Rather, it suggests that organizations with higher absorptive capacity rely more on existing knowledge, employee expertise and established organizational routines, there by reducing the incremental contribution of AI to project success Thus, while AI is still playing an important role in all the projects to be successful, its impact becomes relatively lower in companies with good absorptive capacity.

The results imply that absorptive capacity can serve as a substitute for, not an add-on to, some of the AI-powered capacities in project contexts. According to the Resource-Based View (RBV) theory, absorptive capacity is a valuable organizational capability, which is important because it allows firms to learn from, or

integrate, external knowledge, and then use that knowledge to enhance organizational performance Barney (1991a). With a few exceptions, the research results reported here are consistent with the RBV's premise that complementary organizational resources might be used to enhance value from technological resources, but the results indicate that this connection is not as simple as first thought. At a bank that has absorbed a significant amount of knowledge, employees have access to more corporate knowledge, job skills, and patterns for decision-making, which may lead them to rely more on these prior assets than on the recommendations provided by AI tools. This means that AI is no longer a primary driver of project success, and the link between AI adoption and project success is not as strong as it could be.

The findings partially differ from previous empirical studies. According to Zahra and George (2002), absorptive capacity increases organizational innovation and more efficiently utilizes technological resources. In a similar way, Mikalef and Gupta (2021) argued that if an organization has good knowledge management, it will benefit more from the use of digital technologies, as employees will be able to better incorporate technological innovations in organizational processes. Similarly, Chatterjee et al. (2024) found that, on the whole, the absorptive capacity of an organization has a positive association with the outcomes of digital transformation by enabling knowledge absorption and technology usage. The studies were anticipating a positive moderating effect, but the present study found that there was a significant negative interaction. Yet, there is some recent evidence that indicates that the relationship between technology and performance in an organization may not always be enhanced by organizational ability. Excessive dependence on human expertise and organizational knowledge, however, can result in decreased dependence on AI-generated recommendations, especially in complex decision-making scenarios where the employees would rather apply their own professional judgment alongside AI-driven insights (Raisch & Krakowski, 2021).

Likewise, (Dwivedi et al., 2023) highlighted that the effective implementation of AI requires a combination of human expertise and intelligent technologies, not just one or the other. If an organization already has employees with a lot of knowledge

and an established organizational learning system, then the incremental value of AI could be less, as much of the operational improvement can be achieved by the capabilities of people. In the Pakistani banking housing finance sector, this explanation seems a lot more applicable. The regulatory, legal, client management, credit, and risk management aspects of housing finance projects demand significant professional skill and institutional knowledge. Higher-absorptive capacity banking institutions may rely more, therefore, on expert staff and proven organizational processes to succeed with a project.

While AI is enhancing and improving operational activities, the added value it can provide is becoming smaller due to the fact that there are very strong internal assets (Kalyani and Gupta, 2023). As a result, absorptive capacity reduces the direct impact of AI adoption but is still a valuable asset for the organization. Another possible explanation is related to the level of implementation of AI in the banking sector in Pakistan. However, AI implementation is still relatively new in many financial institutions and organizations that have a higher absorptive capacity may still be using AI to augment their existing operational systems as opposed to making all decisions based on AI. However, human experts are still the main contributors to project success, as employees can review the implications of AI suggestions prior to their application. Future research could report other moderating effects as the AI technologies evolve and organizations gain more experience with AI.

The negative moderating does not mean that absorptive capacity is negative or destructive. Rather, it shows how the ability of an organization to learn affects the way AI can contribute to project success. Instead of consolidating AI's direct impact, absorptive capacity emphasizes the importance of organizational knowledge, employee skills, and institutional expertise. Thus, the banking institutions need to keep investing in the absorptive capacity and, at the same time, ensure the proper integration of AI technologies into the banks' knowledge systems rather than into separate ones. The overall findings contribute to the theory and practice, as they show that the relationship between the adoption of AI and project success is moderated by absorptive capacity in a negative direction. The outcome builds

on the literature by showing that the impacts of AI technologies are not necessarily amplified by the organizational learning capability, especially in developing economies and project-based banking contexts.

5.3 Implications

5.3.1 Theoretical Implications

This study provides several important theoretical contributions to the current body of literature on Artificial Intelligence (AI) adoption, project success, and the Resource-Based View (RBV) theory. First, this study broadens the application of RBV, showing that the use of AI is a valuable organizational resource that contributes to project success in both direct and indirect ways. The distinctiveness of a firm's VRI resources is key to sustainable competitive advantage, according to RBV (Barney, 1991). This is backed by the present findings, which indicate that the adoption of AI leads to an increase in the organizational capabilities and, ultimately, better outcomes for projects in a banking housing finance project. Secondly, this study is a representative contribution to the burgeoning body of literature on the issue of AI adoption, which has been limited in studies with respect to the banking and housing finance sector in Pakistan. Previous literature has focused on the use of AI in developed economies or on more general organizational performance. This research builds on the literature on AI adoption, since it extends the context in which AI adoption literature applies to project-based banking operations in a developing country, and shows that AI technologies can create value in emerging financial markets.

Thirdly, this research helps the project management field by pinpointing operational efficiency as a crucial mediating factor between the use of artificial intelligence and project success. Researchers in the past have mostly focused on how AI adoption affects organizational performance instead of understanding how AI contributes to project success. The results illustrate how AI can positively influence project outcomes by boosting operational efficiency and offering a more

holistic understanding of the link between technological resources and project performance. Another important theoretical development is the concept of the moderating function of absorptive capacity. The findings of the previous literature generally suggest the reinforcement effect of absorptive capacity in positive aspects of technology innovation on organizational performance. This study, however, reveals that the absorptive capacity has a significant negative interaction effect on the relationship between the use of AI and project success. This discovery also builds upon the prevailing theory, as it implies that the technology-performance relationship is not necessarily improved by organizational learning capabilities.

However, in some organizational settings, greater absorptive capacity can lead to less reliance on AI as workers build on their previous knowledge, experiences, and organizational practices. This discovery opens a new theoretical lens for future research on the implementation of AI in project settings. Lastly, it develops and validates an integrated research model that merges the combined approach of AI adoption, operational efficiency, absorptive capacity, and project success in a single model. The direct, mediating, and moderating relationships help to give a more holistic understanding of AI in project management than previous studies examining these variables separately. Thus, the present work adds to the theoretical literature on AI adoption, providing a holistic account of the value creation of AI in banking and housing finance projects.

5.3.2 Practical Implications

The results of this study are relevant to the following practical considerations: banks, project managers, policy makers, and technology practitioners who are involved in housing finance projects. The correlation between AI adoption and project success suggests that banking institutions should push forward with their investments in AI technologies to gain benefits in terms of project planning, decision-making, customer service, risk assessment, fraud prevention, and operational coordination. Incorporating AI technologies can enhance project management processes, boost organizational competitiveness, and optimize outcomes. Second, the importance of the relation between the adoption of AI and operational

efficiency indicates that AI should be used in the daily operational activities of organizations, not just in isolated business activities. The operational processes of banks need to be reimagined to harness the potential of AI features such as document verification, decision support systems, predictive analytics, and intelligent automation. This integration can have a tremendous impact on the efficiency of the process, service quality, and the productivity of the organization. Third, the operational efficiency's mediation suggests that having AI is not enough to ensure successful projects. The managers should make efforts to streamline organizational processes, optimize the coordination of workflows, train employees to use AI, and manage resources effectively to fully harness the advantages of AI implementation. Efficient operations will help companies to translate technological investments into tangible gains in project success.

The results of the study on absorptive capacity also have managerial implications. Absorptive capacity impeded the direct link between AI adoption and project success, so banks must make sure their organizations are not only using AI but are also leveraging organizational knowledge and AI technologies in tandem. Employers should not solely depend on AI recommendations or human judgment but encourage staff to use the AI-generated insights in conjunction with their professional skills. Balanced collaboration between technology and human skills will help organizations to realize the maximum performance of their projects. Last but not least, policy-makers and all regulatory bodies, namely financial regulators, should foster the implementation of AI in banking institutions through the creation of enabling policies, the issuance of guidelines for technology adoption, the promotion of digital transformation action, and training staff. Such efforts will consolidate the banking sector in Pakistan and facilitate its effective execution in implementing techno-driven housing finance projects.

5.4 Limitations

Despite making important theoretical and practical contributions, this study has several limitations that should be acknowledged. First, this study was conducted

exclusively in banking housing finance projects in Pakistan. Therefore, the findings may not be generalizable to other sectors such as commercial banking, manufacturing, healthcare, telecommunications, or public organizations, where AI adoption and project management practices may differ. Second, this study employed a cross-sectional research design, where data were collected at a single point in time. Consequently, the study was unable to examine changes in AI adoption, operational efficiency, and project success over time or establish strong causal relationships among the study variables. Third, the study relied on self-administered questionnaires completed by employees and managers. Although established measurement scales were used, self-reported data may be affected by common method bias, social desirability bias, and respondents' personal perceptions.

Fourth, the study collected data from employees working in banking housing finance projects only. The views of senior executives, customers, IT specialists, regulators, and other stakeholders were not included. Their perspectives may provide additional insights into AI implementation and project success. Fifth, the study examined operational efficiency as the only mediating variable and absorptive capacity as the only moderating variable. Other important organizational factors, such as organizational culture, digital leadership, technological readiness, innovation capability, top management support, employee AI competency, and organizational agility, were beyond the scope of this research and may also influence project success. Finally, the study was grounded in the Resource-Based View (RBV) theory. Although RBV provided a strong theoretical foundation, other theories, such as the Dynamic Capabilities Theory, Technology–Organization–Environment (TOE) framework, Technology Acceptance Model (TAM), or Unified Theory of Acceptance and Use of Technology (UTAUT), may provide additional perspectives for understanding AI adoption and project success.

5.5 Future Directions

While this study makes a valuable contribution to the field of AI adoption and project management, there are opportunities for further research. This study was

confined to banking housing finance projects of Pakistan only. Further research on other industries, including commercial banking, Islamic banking, healthcare, manufacturing, education, telecommunications, and public organizations, should be carried out to explore if there are comparable relationships in various other industries. The second one was that the present study was a cross-sectional research design. Longitudinal studies are recommended for future research to explore the long-term effects of AI adoption in terms of operational efficiency and project success. Longitudinal studies would yield more insights into the changes in organizational capabilities after the implementation of AI.

Third, future research can explore other intervening factors like organizational learning, innovation capability, digital transformation, knowledge sharing, employee engagement, or organizational agility to understand the impact of AI on project success. Lastly, future studies can explore other moderators, including digital leadership, organizational culture, technological readiness, top management support, employee AI competency, change management capability, or organizational resilience.

These factors could offer more clues on the conditions where AI adoption can lend a helping hand for successfully executing projects. Finally, cross-country or cross-regional comparisons would yield insights into the impact of economic, technological, regulatory, and cultural differences on the uptake of and success of AI projects. This could enhance the generalizability of the literature on AI adoption and contribute to the theoretical understanding of AI adoption in various organizational contexts.

5.6 Conclusion

The effect of Artificial Intelligence (AI) adoption on project success, with operational efficiency as a mediator and absorptive capacity as a moderator in the context of banking housing finance projects in Pakistan, was explored in this study. The results show that project success is indeed significantly increased with the use of AI, and operational efficiency is also a positive factor in project success. In

addition, operational efficiency was determined to be an important moderator between AI adoption and project success, suggesting that AI brings organizational value through its impact on internal operational capabilities. Additionally, the study found that the relationship between AI adoption and project success is significantly negatively moderated by absorptive capacity. This result offers new empirical evidence by suggesting that organizations with greater organizational learning capabilities are less reliant on AI technologies, as employees are increasingly using the knowledge they have accumulated and their professional expertise. This unexpected discovery is an extension of the literature and offers new directions for theoretical and empirical studies. In conclusion, this study adds to the existing literature by elaborating the Resource-Based View theory, through the validation of an integrated research framework, and by empirical evidence provided from the banking housing finance sector in Pakistan. The results highlight the importance of not just investing in tech but also optimizing operational workflows and ensuring that organizational knowledge is effectively incorporated with AI tools. Therefore, for banking institutions that want to be successful in running these projects, they should have a balanced strategy that will foster technological innovation, operational excellence, and organizational learning to gain sustainable competitive advantages.

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Appendix-A

QUESTIONNAIRE

Impact of Artificial Intelligence adoption on project success in banking housing finance projects: mediating role of operational efficiency and moderating role of absorptive capacity

Demographics- Please tick ✓ ☐ the relevant box.

Gender

☐ Male ☐ Female

Age.

☐ 18-30 years ☐ 43-54 years

☐ 31-42 years ☐ More than 55 years

Education level

☐ Matric/intermediate ☐ Bachelor

☐ Master ☐ Above Master

Work Experience.

☐ Less than 3 years ☐ 6-10 years

☐ 3 to 5 years ☐ >10 years

Position.

☐ Branch Manager ☐ Relationship Manager

☐ Customer Service Officer (CSO) ☐ HR and finance staff

☐ Legal and documentation staff ☐ Operations Officer

1= Strongly Disagree, 2= disagree, 3 = Neutral, 4= Agree, 5= Strongly Agree

Artificial Intelligence adoption:

Sr. No		**1**	**2**	**3**	**4**	**5**
1	AI tools in my workplace help minimize the time required to complete routine activities.					
2	AI improves decision-making accuracy in housing financing approvals					
3	AI systems enhance the quality and consistency of project operations.					
4	AI tools improve customer profiling and credit assessment accuracy					
5	AI systems help support effective project planning and monitoring activities					
6	AI tools are effectively integrated into housing finance workflows					

Project success (Dependent Variable)

Sr. No		**1**	**2**	**3**	**4**	**5**
1	Housing finance Projects achieve their objectives within planned timelines					
2	Housing finance Projects are completed within the allocated operational budget					

3	Customers are satisfied with housing finance project outcomes					
4	House financing projects achieve their intended objectives effectively					
5	Risk in housing finance operations is effectively managed through AI systems					
6	Project execution has become more reliable because of AI integration					

Absorptive Capacity(moderator):

Sr. No		**1**	**2**	**3**	**4**	**5**
1	Our bank effectively identifies new AI knowledge related to housing finance services					
2	Employees quickly adapt to new AI technologies used in housing finance operations					
3	The bank effectively understands AI-generated insights for housing finance decisions					
4	AI insights are transformed into practical solutions for projects					
5	Employees actively share and apply AI-related knowledge across project activities					

Operational Efficiency (Mediator)

Sr.no		**1**	**2**	**3**	**4**	**5**
1	AI reduces the time required to process housing finance applications					
2	AI improves coordination between departments involved in house financing					

3	AI reduces operational costs in finance services					
4	Housing finance workflows become more streamlined through AI integration					
5	AI improves utilization and human resources in housing finance operations.					

Appendix-B

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Date: 3rd June,2026

RESEARCH ETHICS COMMITTEE CERTIFICATE OF REVIEW AND SUPPORT

This is to certify that Project titled: ***"Impact of AI adoption on project success in housing finance projects in banks" The mediating role of operational efficiency and moderating role of absorptive capacity"*** submitted by MS scholar ***Fajr Naeem /MPM 241007,*** and/ supervised by: ***Dr. Syed Arslan Haider*** reviewed by the Research Ethics Committee of Faculty of Management and Social Science, meets the requirements of the American Psychological Association's Ethical guidelines for Human Research and is **REVIEWED** and **APPROVED** by Research Ethics Committee of Faculty of Management and Social Sciences.

It is the Scholar's responsibility to ensure that all researchers associated with this project are aware of the conditions of approval and which documents have been approved.

The Scholar is required to notify the Research Ethics Committee in case of any amendment in the project, specifically:

- Any significant change to the project and the reason for that change, including an indication of ethical implications (if any)
- Serious adverse effects on participants and the actions taken to address those effects
- Any other unforeseen events or unexpected developments that merit notification
- The inability of the Principal Investigator to continue in that role, or any other change in research personnel involved in the project
- A delay of more than 12 months in the commencement of the project
- Termination or closure of the project.

Dr. Zunnoorain Khan

Convener, Research Ethics Committee
Faculty of Management and Social Sciences
Capital University of Science and Technology
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