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Impact of Agile Leadership on Project Performance: The Sequential Mediation Effect of Value Co-Creation and Stakeholder Satisfaction, with Moderating Role of Stakeholder Management in Construction Companies

by

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I want to dedicate this achievement to my parents, teachers and friends who always encourage and support me in every crucial time

CERTIFICATE OF APPROVAL

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Abstract

The purpose of this research study is to examine the Impact of Agile leadership on Project Performance with Sequential Mediating Role of Value Co-Creation and Stakeholder Satisfaction and Moderating Role of Stakeholder Management in Construction Companies. The sample was drawn by using non-probabilistic, convenience sampling technique. The data were collected from project-based organizations of twin cities of Pakistan i.e., Rawalpindi and Islamabad. The data was analyzed by using Smart PLS.

The findings suggest that there is a positive and significant relationship between Agile leadership and Project Performance. Value Co-Creation and Stakeholder Satisfaction sequentially mediates the relationship between Agile leadership and Project Performance. Results indicated that Stakeholder Management moderates the relationship in such a way that the relationship between Agile Leadership with Project Performance will be stronger when Stakeholder Management is high.

Keywords: Agile Leadership, Project Performance, Value Co-Creation, Stakeholder Satisfaction, Stakeholder Management.

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Chapter 1

Introduction

1.1 Background of the Study

Agile leadership plays a pivotal role in shaping the project performance within construction companies (Wilson, 2021). As these organizations are inherently dynamic, dealing with complex and evolving projects, Agile leadership principles offer a valuable framework for navigating the challenges and optimizing project outcomes. Agile leadership is a management philosophy that aligns with the principles of Agile methodology, which originated in software development but has since been successfully applied in various industries, including construction companies (Neto, Penha, da Silva, & Scafuto, 2022).

Agile leadership goes beyond traditional command-and-control approaches, emphasizing adaptability, collaboration. In construction companies, where success is contingent on delivering projects efficiently and effectively, Agile leadership provides a strategic advantage (Modi & Strode, 2020). It fosters a culture that values flexibility, iterative progress, and quick response to changing project requirements Agile leadership promotes adaptability in the face of evolving project requirements. This flexibility allows teams to respond to changes swiftly, ensuring that the project remains aligned with organizational goals and stakeholder expectations (Zulkifli, Omar, Ariffin, Mahadi, & Yaakop, 2021). Agile leadership encourages collaborative work environments and empowers project teams to make decisions collectively. This not only enhances communication but also increases team morale

and fosters a sense of ownership, ultimately contributing to improved project performance (Pontillo, Di Lauro, & Antonelli, 2022). Agile leadership places a strong emphasis on understanding and fulfilling customer needs. This focus ensures that the project outcomes align with client expectations, by extension, project performance. Agile methodologies, underpinned by Agile leadership, promote iterative development cycles and continuous improvement. Regular feedback loops and retrospective analyses help identify areas for enhancement, leading to higher project performance over time (Naslund & Kale, 2020). Agile leadership emphasizes delivering increments of value in short cycles. This approach accelerates time-to-market for project outcomes, and eventually companies get competitive edge by swiftly responding to market changes (Moe, Stray, & Hoda, 2019).

Stakeholder management acts as a moderator in this relationship, playing a crucial role in facilitating communication, collaboration, and the alignment of objectives (Gerlak et al., 2023). Agile leaders prioritize open and transparent communication. They encourage regular interactions within and outside the team to ensure that everyone is on the same page. Actively involving stakeholders in the process ensures that their perspectives, expectations, and concerns are understood. Effective communication facilitated by stakeholder management helps Agile leaders tailor their approach to meet stakeholder needs (Kujala, Sachs, Leinonen, Heikkinen, & Laude, 2022). Agile methodologies promote frequent iterations and feedback loops. This iterative approach allows for continuous improvement based on ongoing input from team members and stakeholders. Managing stakeholders throughout the project ensures that their feedback is integrated into the development process (Hasan, Singh, & Kashiramka, 2024). This iterative feedback loop facilitated by stakeholder management contributes to the refinement of project outcomes, aligning them more closely with stakeholder expectations (Deviney, Grieger, Merck, Classen, & Marshall, 2023). Agile leaders focus on delivering value to customers through flexible and responsive project management. They prioritize adapting to changing requirements to maximize the overall project impact. Actively involving stakeholders helps in aligning project objectives with broader organizational goals. Engaged stakeholders are more likely to contribute to the value co-creation; as it provides insights that resonate with organizational

strategies and priorities (M. U. Shah & Guild, 2022). Agile methodologies emphasize collaborative work environments where cross-functional teams collaborate to deliver incremental value. Regular stakeholder management provides Agile leaders with insights into evolving needs and expectations (Modi & Strode, 2020). This proactive approach enables Agile teams to adjust their strategies and deliver value that aligns with the dynamic nature of stakeholder requirements. The co-creation process often involves iterative feedback loops, where stakeholders contribute to refining project outcomes (Prejean, Kilcoyne, Liao, & Parker, 2019).

In construction industry, stakeholder satisfaction is an important component to measure project performance. The satisfaction of stakeholders including employees, clients, suppliers, investor and community shows the effectiveness of project management strategies and it's alignment of project outcomes with stakeholder expectations (Klaus-Rosińska & Iwko, 2021; Abbasi & Ruf, 2020). Ensuring high level of stakeholder satisfaction is very important in construction industries due to greater number of stakeholders and their diverse requirements (Hwang & Ng, 2013). Utilization of value co-creation principles positively effects stakeholder satisfaction as it continuously involves stakeholders in different phases of project lifecycle, as stakeholders are involved in decision making, it promotes sense of collaboration and ownership (Prahalad & Ramaswamy, 2004).

1.2 Gap Analysis

In Construction companies, A study gap in the context of research on agile leadership refers to areas where there is a lack of comprehensive research, limited understanding, or unanswered questions related to the topic of agile leadership (Thompson & Matkin, 2020). Identifying study gaps is essential for researchers, as it helps guide future research efforts and contributes to a deeper understanding of the subject. Agile leadership may have different implications in various cultural and organizational contexts. First and foremost, this examination examines how agile leadership affects project performance. The gap in the study of Agile leadership within construction companies lies in the limited exploration of its specific impact on project outcomes (Heimicke, Krüger, Ng, Bursac, & Albers,

2020). While Agile principles are widely recognized for their effectiveness, there is a distinct need to delve deeper into how Agile leadership practices, or their absence, directly influence project performance. The existing literature often falls short in providing a comprehensive understanding of the nuances surrounding Agile leadership within the unique context of construction companies (Oyewusi, 2023). Closing this gap will provide valuable insights into the intricacies of Agile leadership and its implications for project management in dynamic and rapidly evolving environments (Stray, Memon, & Paruch, 2020).

Secondly, the research gap in examining value co-creation and stakeholder satisfaction as sequential mediators and project performance as a dependent variable within construction companies is evident (Saha, Mani, & Goyal, 2020). While both concepts have garnered attention independently, there is a scarcity of studies exploring the mediating effect of value co-creation and stakeholder satisfaction in the association of agile leadership and project performance. The existing literature often lacks a nuanced understanding of how value co-creation, stakeholder satisfaction, involving stakeholders' management in collaborative efforts, contribute to the enhancement of project performance (Stegmann, Nagel, & Ströbel, 2023). Bridging this gap is essential for shedding light on the mechanisms through which value co-creation and stakeholder satisfaction influences the effectiveness of project outcomes. Closing this research void will provide organizations with actionable insights to refine their strategies, emphasizing the importance of collaborative value creation for superior project performance in the dynamic and challenging environment of construction companies (Bresciani, Ciampi, Meli, & Ferraris, 2021).

1.3 Problem Statement

Construction Projects in Pakistan often experience poor performance in terms of cost overruns, quality defects, delay and time (Aftab, Sarwar, Sarwar, & Amin, 2016). The absence of; Agile leadership, robust stakeholder management, stakeholder satisfaction and value co-creation has resulted in significant challenges. The lack of leader's active involvement and communication with stakeholders has led to

a disconnect between project outcomes and stakeholder's satisfaction. The urgent need for Agile leadership in this context becomes evident to ensure the organization's ability to thrive in a dynamic and rapidly changing business landscape.

1.4 Research Question

Based on the problem statement following are research questions:

RQ1: Does agile leadership positively influences the project performance?

RQ2: Does value co-creation and stakeholder satisfaction separately or sequentially mediates the relationship between agile leadership and project performance?

RQ3: Does stakeholder management moderates the sequential mediation relationship of value co-creation and stakeholder satisfaction between agile leadership and project performance?

1.5 Research Objectives

The objectives of the research are to examine:

1. RO1: Agile leadership positively influences project performance?
2. RO2: The separate or sequential mediation of value co-creation and stakeholder satisfaction between the relationship of agile leadership and project performance
3. RO3: To probe the moderating effect of stakeholder management on separate or sequential mediation of value co-creation and stakeholder satisfaction between agile leadership and project performance.

1.6 Significance of the Study

Understanding the impact of Agile leadership on project performance is crucial for optimizing project performance (Cinnioğlu, 2020). By identifying the mediating effect of value co-creation, the study aims to enhance project outcomes

by fostering collaborative efforts and iterative improvements, Investigating the moderating role of stakeholder management is essential for cultivating strong relationships with stakeholders (S. H. H. Shah, Lei, Ali, Doronin, & Hussain, 2020). Proactively involving stakeholders throughout the project lifecycle contributes to better decision-making, reduced misunderstandings, and increased alignment with organizational objectives. By ensuring that projects meet or exceed customer expectations. This study aids in operationalizing the principles of Agile leadership within construction companies. Insights into how Agile leadership influences value co-creation and interacts with stakeholder management and innovation provide actionable strategies for organizational leaders (Prejean et al., 2019). The study contributes to guiding project management practices in the specific context of construction companies. It offers valuable insights into creating a conducive environment for Agile methodologies, thereby improving adaptability, communication, and overall project performance (Verma & Mehta, 2022). By exploring the relationships between Agile leadership, value co-creation, stakeholder management, and innovation, the study contributes to building organizational resilience (Abadir, Halkias, Batsa, & Neubert, 2019). This is particularly important in dynamic environments where adaptability and responsiveness are essential for sustained success. In summary, the significance of this study lies in its potential to inform organizational strategies, and ultimately contribute to the overall success and resilience of construction companies in the context of Pakistan (Jahan, Ali, & Al Asheq, 2020). The findings are anticipated to offer actionable insights that can be applied to enhance project performance and stakeholder relationships in an ever-evolving business landscape.

1.7 Supporting Theory

1.7.1 The Supporting Theory for the Current Research

Contingency theory posits that there is no universal or one-size-fits-all approach to managing projects. Instead, the effectiveness of project management practices is contingent upon various factors such as the unique characteristics of the

project, the organization's structure, the attributes of the tasks, and the external factors (Abedin, 2022). Contingency theory recognizes that the success of leadership styles, such as Agile leadership, can differ depending on the particular conditions within construction companies. Agile leadership, with its emphasis on adaptability and collaboration, is well-suited for dynamic and complex projects (Lee, Hong, Kim, & MacPherson, 2022). Contingency theory acknowledges that different projects have varying requirements, complexities, and uncertainties. The choice of project management approaches and leadership styles should be contingent upon the specific characteristics of each project. Wilbur and Cameron (2020), For instance, a large-scale, complex project may require a different management approach than a small, routine project. The structure of the organization can influence the success of project management practices. Contingency theory suggests that the organization's structure should align with the demands of the project (Spasojević & Mihajlović, 2023).

Contingency theory recognizes that the relationship between Agile leadership and project performance may be influenced by intervening variables. In this case, value co-creation acts as a mediator, indicating that the positive impact of Agile leadership on project performance is partially realized through the collaborative and iterative process of creating value (Waters, 2020). In a construction companies, the structure may need to be adaptable and flexible, allowing for dynamic team formations and resource allocation based on project needs. Contingency theory highlights the importance of considering the level of uncertainty associated with project tasks. High levels of uncertainty may necessitate more flexible and adaptive project management approaches (Deshwal & Ali, 2020). Contingency theory suggests that the effectiveness of Agile leadership may depend on the level of stakeholder management. If stakeholder management is high, it moderates and strengthens the relationship between Agile leadership and value co-creation. Active stakeholder management ensures that Agile practices are well-aligned with the project's contextual needs (Torres, 2024).

Agile methodologies, which are well-suited for dynamic and uncertain environments, may be more effective in certain projects compared to traditional, plan-driven approaches. The theory recognizes that the choice of leadership style should

be contingent upon the project context. (Imbrogiano, 2021), In construction companies, where projects can vary significantly, leaders may need to adapt their leadership styles. For instance, a transformational leadership style may be suitable for inspiring and motivating teams in innovative projects, while a more transactional approach may be effective in projects with well-defined tasks (Prakash, Besiou, Charan, & Gupta, 2020). The external environment, including market conditions, regulatory changes, and stakeholder dynamics, can impact project performance. Contingency theory emphasizes the need for project managers to be aware of and adapt to changes in the external environment (N. M. Hassan & Abbasi, 2021). Projects that operate in dynamic and uncertain external environments may require more adaptive project management practices. The availability and nature of technology and resources can influence project management approaches (Demartini & Taticchi, 2022).

Projects that heavily rely on cutting-edge technology may benefit from Agile practices that accommodate iterative development and quick adaptations to technological changes. Contingency theory recognizes the significance of aligning project management practices with client and stakeholder expectations. (Stegmann et al., 2023), The level of stakeholder involvement and communication strategies should be contingent upon the expectations and preferences of those involved in or affected by the project. Similarly, innovation serves as another moderating factor in contingency theory. The success of Agile leadership and value co-creation may be contingent on how satisfied customers are with the project outcomes (Jamalnia, Gong, & Govindan, 2023). High innovation reinforces the positive impact of Agile leadership on project performance. Agile leadership may be particularly effective in contexts where projects are characterized by uncertainty, changing requirements, and a need for rapid adaptation (Agana, Zamore, & Domeher, 2023).

The moderating role of stakeholder management underscores the importance of actively involving stakeholders in Agile projects. High stakeholder management enhances the effectiveness of Agile leadership and the successful mediation of value co-creation. Recognizing the moderating role of innovation emphasizes the importance of not only meeting project goals but also ensuring that end-users are satisfied with the outcomes (Murimi, Wadongo, & Olielo, 2021). Innovation reinforces

the positive impact of Agile leadership and value co-creation on overall project performance. contingency theory provides a lens through which to understand the contextual nuances that influence the relationship between Agile leadership, value co-creation, stakeholder management, innovation, and project performance in a construction companies (Ruiz-Martín & Díaz-Garrido, 2021). The effectiveness of Agile practices may vary depending on the unique characteristics and demands of the project environment.

Chapter 2

Literature Review

2.1 Agile Leadership and Project Performance

Agile leadership represents a dynamic and adaptive strategy for directing teams and organizations within the contemporary, fast-paced, and constantly shifting business environment. Rooted in the principles of Agile methodologies, this leadership style prioritizes adaptability, collaboration, and customer-centricity (Susanto, Wiguna, & Tukiran, 2023). Agile leaders foster a culture that encourages continuous learning, embraces change, and values individuals and interactions over rigid processes and tools. Unlike traditional hierarchical models, Agile leadership promotes decentralized decision-making, empowering teams to self-organize and make informed choices based on real-time feedback (Layik, 2021). Agile leaders act as facilitators of open communication and transparency, fostering an environment in which team members are empowered to express ideas, share insights, and actively contribute to the collaborative process. The emphasis on iterative progress and incremental delivery allows Agile leaders to respond swiftly to shifting priorities and emerging challenges (Ng, Maqsood, Khalfan, & Rahmani, 2023). They recognize the importance of delivering value to customers and stakeholders, driving teams to focus on outcomes that align with organizational goals. By fostering a mindset of continuous improvement, Agile leaders enable teams to learn from experiences, adapt to changing circumstances, and enhance their performance over time (Yusuf, Menhat, Abubakar, Ogbuke, et al., 2020).

Project performance is a comprehensive evaluation of a project's success in meeting its objectives and delivering desired outcomes. It encompasses various dimensions, including adherence to timelines, budget constraints, and the attainment of quality standards (Ingle & Mahesh, 2022). A key indicator of project performance is the ability to fulfill stakeholder expectations, ensuring that the project aligns with organizational goals and requirements. Effective project performance goes beyond completing tasks on schedule; it involves the strategic management of resources, efficient communication, and the adaptability to changes in project scope or external factors (Favoretto & Carvalho, 2021). The assessment of project performance also considers the quality of deliverables, the level of innovation, and the overall impact on the organization, recognizing that successful projects contribute to improved operational efficiency, enhanced team capabilities, and positive organizational outcomes (Chukwu & Zubairu, 2023). As projects become increasingly complex, evaluating, and optimizing project performance becomes crucial for ensuring sustained success and the ability to respond to dynamic business environments (Emere, Musonda, & Okoro, 2020). Agile leadership plays a transformative role in construction companies, where the success of projects hinges on adaptability and responsiveness to changing requirements. Agile leadership principles, inspired by Agile methodologies, guide leaders in creating an environment that prioritizes collaboration, iterative progress, and quick decision-making (Yongliang & Sharon, 2022). Unlike traditional top-down approaches, Agile leadership empowers teams to self-organize, fostering a culture of accountability and innovation. This approach is particularly relevant in construction companies where the nature of work is dynamic, and projects often encounter unforeseen challenges (Shpilka & Žižlavskỳ, 2020). The impact of Agile leadership on project performance is evident in its ability to enhance team dynamic and project outcomes. Agile leaders promote open communication, transparency, and a customer-centric mindset, aligning the team's efforts with the overall goals of the organization. By encouraging frequent feedback loops and adapting to changes in real-time, Agile leaders enable project teams to navigate complexities efficiently (NINDL, 2022). This proactive and iterative approach not only accelerates project delivery but also ensures that the final outcomes meet or exceed customer expectations, contributing to overall improved project performance (Johanes & Arviansyah, 2021). In construction

companies, where each project presents unique challenges, Agile leadership serves as a guiding force in creating an organizational culture that values continuous improvement (Okello & Muma, 2023). The principles of Agile leadership, such as embracing change, fostering collaboration, and prioritizing innovation, empower teams to deliver high-quality projects in a dynamic and unpredictable environment (Cooper & Sommer, 2018). As a result, the integration of Agile leadership practices in construction companies not only enhances project performance but also positions the organization to thrive in an ever-evolving business landscape. Agile leadership is not merely a set of practices; it embodies a philosophy that values flexibility, collaboration, and innovation (Almeida & Espinheira, 2021) Agile principles underpin a mindset that is well-suited to navigate the complexities of modern work environments and drive sustained success (Bukari, Kheni, Boateng, Owusu-Ansah, & Gyenfie, 2023). Agile leadership exerts a positive and transformative influence on project performance (Johari & Hendra, 2023). Agile leadership principles, derived from Agile methodologies, are designed to adapt to the rapidly changing dynamics of construction companies work. One of the key strengths lies in its emphasis on flexibility and responsiveness. Agile leaders foster a collaborative environment that encourages open communication, shared decision-making, and continuous feedback loops within project teams. (Klünder, Hohl, Prenner, & Schneider, 2019), The iterative and incremental approach advocated by Agile leadership allows for quicker responses to evolving project requirements and external changes. This adaptability results in reduced project risks, improved problem-solving capabilities, and ultimately, more successful project outcomes (Vaipulu, Lal, & Thorpe, 2023). Furthermore, Agile leaders empower their teams to self-organize, promoting a sense of ownership and accountability among team members.

H1: Agile leadership has positive and significant impact on project performance.

2.2 Agile Leadership and Value Co-Creation

Chiarini (2020), In construction companies, value co-creation represents a collaborative approach that involves the active participation and management of

stakeholders, including project teams, clients, and end-users, throughout the entire project lifecycle. Unlike traditional project management models where value creation is often seen as a one-way process, value co-creation acknowledges the collective and interactive nature of creating value in a project setting (Pandey, Nayal, & Rathore, 2020). In a construction companies, value co-creation is facilitated through ongoing collaboration, transparent communication, and the integration of diverse perspectives. This approach recognizes that stakeholders bring unique insights, experiences, and requirements to the project, and their active involvement is essential for delivering meaningful and relevant outcomes (Tueanrat, Papagiannidis, & Alamanos, 2021). Value Co-Creation encourages the participation of stakeholders in various project phases, from defining requirements to providing feedback on deliverables.

Value Co-Creation fosters a culture of collaborative decision-making. Project teams work closely with stakeholders to make decisions collectively, ensuring that choices align with the overall project goals and contribute to the creation of value for all involved parties (Hollebeek et al., 2022). The process of value co-creation is iterative, allowing for continuous feedback loops. Regular feedback from stakeholders enables project teams to adjust, address concerns, and refine project deliverables, ultimately improving the overall quality of outcomes (Moro Visconti & Morea, 2020).

Agile leadership coupled with value co-creation forms a potent synergy in construction companies, fostering a collaborative and adaptive environment. Agile leadership, inspired by Agile methodologies, promotes a flexible approach to project management, emphasizing iterative progress and quick responsiveness to changing requirements (Ehmig-Klassen & Schallmo, 2021). When integrated with value co-creation, which involves actively involving stakeholders in the creative process, the result is a dynamic and inclusive framework for project performance. In this collaborative paradigm, Agile leaders facilitate the co-creation of value by engaging stakeholders, including end-users, throughout the project lifecycle (Ollonqvist, 2018). The principles of Agile leadership, such as open communication, team empowerment, and adaptability, align seamlessly with the principles of value co-creation. Teams working under Agile leadership are encouraged to iterate, learn

from experiences, and incorporate stakeholder feedback continuously (Plotnikov, Demiryürek, & Amiri, 2022).

Agile leadership exerts a positive influence on value co-creation within organizations. Agile leadership, inspired by Agile methodologies, emphasizes flexibility, collaboration, and customer-centricity (Naslund & Kale, 2020). These principles align seamlessly with the objectives of value co-creation, creating a synergistic relationship that enhances the collaborative process. Agile leaders prioritize adaptability and flexibility in responding to changing circumstances. This aligns with the dynamic and iterative nature of value co-creation, where adjustments and refinements are made based on ongoing feedback (Iannotta, Meret, & Marchetti, 2020). The ability of Agile leaders to embrace change contributes to a more fluid and responsive co-creation process. Agile leadership encourages open and transparent communication within project teams. This communication style is crucial for effective value co-creation, as it ensures that all stakeholders, including team members and clients, have a shared understanding of goals, expectations, and feedback (Denning, 2019). Agile leaders facilitate a culture of collaboration where ideas and insights flow freely.

H2: Agile leadership has positive and significant impact on value co-creation.

2.3 Value Co-Creation and Stakeholder Satisfaction

The involvement of stakeholders in value co-creation ensures that the project outcomes align with the diverse needs and expectations of stakeholders (Wezel et al., 2020). The goal of value co-creation is to deliver value to customers. By actively involving customers and end-users in the project development process, organizations can ensure that the final deliverables meet or exceed customer expectations, leading to higher satisfaction. Value Co-Creation embraces adaptability and flexibility (Li, Lyu, Wang, Chen, & Zheng, 2021). Projects are seen as dynamic processes

where changes are expected, and the ability to adapt to evolving requirements is a crucial aspect of creating value that truly resonates with stakeholders.

In construction industry, different stakeholders with diverse requirements are involved, therefore utilizing value co-creation processes is very important to facilitation better communication, understanding stakeholder requirements and alignment of project objectives with stakeholders to ensure higher stakeholder satisfaction (Pellicano, Calabrese, Loia, & Maione, 2018). Active management of stakeholders in value co-creation processes positively effects stakeholder satisfaction as they feel that their inputs are valued and integrated into project management (Dai & Wells, 2004).

H3: Value Co-Creation has positive and significant impact on stakeholder satisfaction.

2.4 Stakeholder Satisfaction and Project Performance

Stakeholder satisfaction is an important factor that contributes to project performance in construction companies. Numerous researches proves that satisfied stakeholders including clients, suppliers, investors, employees and community plays significant role in improving project outcomes, hence positively effecting project performance (Hwang & Ng, 2013). High stakeholder satisfaction plays important role in overcoming challenges throughout project lifecycle and improves project performance (Hwang & Ng, 2013). Abbasi and Ruf (2020) concluded positive relationship between stakeholder satisfaction and project performance in construction companies utilizing agile project management principles.

Building upon this, the positive relationship between stakeholder satisfaction and project performance is further reinforced by recent studies that highlight the mechanisms through which satisfaction impacts project outcomes. For example, a study by (Hwang & Ng, 2013) emphasizes that high levels of stakeholder satisfaction contribute to better project coordination and smoother conflict resolution, which directly enhance project efficiency and effectiveness. Additionally, research by

(Harold, 2021) illustrates that stakeholder satisfaction not only influences immediate project performance but also affects long-term project sustainability and client loyalty. These findings suggest that satisfied stakeholders are more likely to offer continued support and resources, thereby fostering a more stable project environment and facilitating the achievement of project objectives. Therefore, enhancing stakeholder satisfaction is crucial for optimizing project performance, particularly in the dynamic and complex field of construction management.

H4: Stakeholder satisfaction has positive and significant impact on project performance.

2.5 Agile Leadership, Value Co-creation and Stakeholder Satisfaction

(Susanto et al., 2023), The combined approach of Agile leadership and value co-creation contributes to enhanced project outcomes. It ensures that project teams are not only responsive to changing requirements but also deeply connected to the needs and expectations of stakeholders. This collaborative model not only accelerates project delivery but also maximizes the value delivered to customers. As a result, construction companies benefit from increased adaptability, improved stakeholder relationships, and a higher likelihood of meeting or exceeding project objectives (Frangos, 2022). The synergy between Agile leadership and value co-creation creates a holistic and customer-centric approach to project management in which the process of creating value becomes a collaborative journey shared by both the project team and stakeholders (Pontillo et al., 2022). Agile leaders maintain a strong customer-centric mindset, prioritizing the satisfaction of end-users and stakeholders. This focus on customer value aligns with the goals of value co-creation, where the aim is to create solutions that resonate with the needs and expectations of the customers (Gunasekaran et al., 2019). Agile leaders guide teams to consistently deliver value that meets or exceeds customer requirements.

H6: Agile leadership has positive and significant impact on stakeholder satisfaction.

Agile leaders empower cross-functional teams to self-organize and make decisions collectively. This team empowerment aligns with the collaborative spirit of value co-creation, allowing diverse perspectives and expertise to contribute to the generation of innovative ideas and solutions. Agile leaders foster an environment where everyone feels valued and included in the co-creation process (Oyewusi, 2023). The iterative and incremental delivery approach advocated by Agile leadership complements the value co-creation process. Agile leaders prioritize delivering incremental value to stakeholders throughout the project lifecycle. This iterative approach allows for continuous improvements based on stakeholder feedback, ensuring that the co-created value is aligned with evolving expectations.

H7: Value Co-Creation moderates the relationship between Agile Leadership and stakeholder satisfaction.

2.6 Value Co-Creation, Stakeholder Satisfaction and Project Performance

Value Co-Creation ensures that project outcomes are aligned with the diverse needs and expectations of stakeholders. When stakeholders actively participate in the co-creation process, there is a higher likelihood that the final deliverables will meet their requirements, ensuring greater stakeholder satisfaction (Salvador et al., 2021).

This alignment contributes to positive project performance by reducing the risk of misunderstandings and enhancing stakeholder satisfaction. Value Co-Creation fosters an iterative and feedback-driven approach to project development. Stakeholder involvement throughout the project allows for continuous feedback loops, enabling project teams to make timely adjustments and improvements (Kliestik, Zvarikova, & Lăzăroiu, 2022). This iterative process contributes to higher project quality and overall performance. Collaborative value co-creation encourages the exchange of ideas and perspectives among stakeholders. This diversity of thought can lead to increased innovation and creativity in problem-solving. The integration of innovative solutions enhances project outcomes, making them more robust,

adaptable, and ultimately contributing to greater stakeholder satisfaction and improved project performance (Turnhout, Metze, Wyborn, Klenk, & Louder, 2020).

Value Co-Creation promotes adaptability by recognizing that project requirements and circumstances may evolve. Stakeholder management allows project teams to respond more effectively to changes in scope, priorities, or external factors (Yin, Ming, & Zhang, 2020). This adaptability enhances the project's resilience and its ability to navigate uncertainties, contributing to improved project performance. The active involvement of end-users and clients in the co-creation process ensures a customer-centric approach to project development. By delivering incremental value that aligns with customer expectations, value co-creation contributes to higher levels of innovation. Satisfied stakeholders are more likely to perceive the project as successful, positively impacting overall project performance (Tueanrat et al., 2021). Value Co-Creation reinforces a culture of teamwork and collaboration within project teams. When team members actively engage with stakeholders in the co-creation process, it fosters a sense of shared responsibility and accountability. This strengthened collaboration positively impacts team dynamics and, consequently, project performance (Wezel et al., 2020).

H5: Value Co-Creation has positive and significant impact on project performance.

Hollebeek et al. (2022), Value Co-Creation ensures that project outcomes align closely with the diverse needs and expectations of stakeholders. By actively involving stakeholders, including project teams, clients, and end-users, in the co-creation process, there is a higher likelihood of meeting their requirements. This alignment reduces misunderstandings and enhances stakeholder satisfaction, positively influencing project performance (Moro Visconti & Morea, 2020). The iterative and feedback-driven nature of value co-creation fosters continuous improvement. Regular management of stakeholders allows for ongoing feedback loops, enabling project teams to make timely adjustments and refinements (Abou Samra, 2021). This iterative process contributes to higher stakeholder satisfaction, project quality, efficiency, and adaptability, positively impacting overall project performance. Value Co-Creation encourages the exchange of ideas and perspectives among stakeholders. This diversity of thought leads to increased innovation and creativity in

problem-solving (Makebo, 2020). The incorporation of innovative solutions enhances project outcomes, making them more robust and adaptable, thereby positively influencing project performance. The customer-centric approach inherent in value co-creation ensures that project deliverables align with the expectations of end-users and clients, hence ensuring high stakeholder satisfaction. This focus on innovation contributes to a positive perception of the project's success (McCorkindale, n.d.). Satisfied customers are more likely to view the project as high performing, further enhancing overall project performance. Value Co-Creation recognizes the dynamic nature of project requirements. The active involvement of stakeholders allows project teams to respond effectively to changes in scope, priorities, or external factors (Q. Zhang, Hao, & Chung, 2023)). This adaptability contributes to the project's resilience and its ability to navigate uncertainties, positively impacting project performance.

H8: Stakeholder satisfaction mediates the relationship between value co-creation and project performance.

2.7 Value Co-Creation, Stakeholder Satisfaction, Agile Leadership, and Project Performance

Value co-creation emphasizes the collaborative engagement of stakeholders, including project teams, clients, and end-users, throughout the entire project lifecycle. This collaborative effort ensures that the project's outcomes align with stakeholder expectations, fostering a sense of shared ownership and accountability (Saha, Goyal, & Jebarajakirthy, 2022). The iterative and feedback-driven nature of value co-creation promotes continuous improvement and innovation, positively influencing project quality and adaptability. The combined influence of value co-creation and Agile leadership significantly increases stakeholder satisfactions and impacts project performance (Fan & Luo, 2020). Stakeholder satisfaction achieved through value co-creation ensures that the project meets diverse expectations, while Agile leadership contributes to effective project planning, adaptability to changing requirements, and iterative progress. The customer-centric approach of

both value co-creation and Agile leadership enhances stakeholder satisfaction, positively influencing the overall success and performance of projects (Abrar et al., 2019).

H9: Value Co-Creation mediates the relationship between agile leadership and project performance.

The proposition that value co-creation & stakeholder satisfaction sequentially mediates the relationship between Agile leadership and project performance suggests a dynamic and interconnected framework within construction companies. In this scenario, Agile leadership, with its focus on adaptability, collaboration, and caustomer-centricity, sets the stage for a collaborative environment conducive to value co-creation (Wiguna, 2023). The mediating role of value co-creation implies that the positive impact of Agile leadership on stakeholder satisfaction and eventually on project performance is channeled through the collaborative process of creating value with stakeholders. Agile leadership creates a foundation for effective project management by promoting flexibility, open communication, and iterative progress (Craddock, 2023).

Vaszkun and Sziráki (2023), Agile leaders empower teams, foster a culture of continuous improvement, and prioritize innovation. These principles contribute to improved project planning, team dynamics, and adaptability essential elements for achieving greater stakeholder satisfaction and high project performance (El Mounla, Beladjine, Beddiar, & Mazari, 2023). Value Co-Creation, operating as a mediator, signifies that the positive effects of Agile leadership on project performance are, in part, realized through collaborative stakeholder management (Cummings & DeChant, 2023). The iterative and feedback-driven nature of value co-creation ensures that project outcomes align closely with stakeholder expectations, reducing the risk of misunderstandings and enhancing the overall quality of deliverables (Moro Visconti & Morea, 2020). The goal is to enhance project performance. In this context, project performance is influenced not only by the direct impact of Agile leadership but also by the sequential mediating effect of value co-creation & stakeholder satisfaction (Taboada, Daneshpajouh, Toledo, & de Vass, 2023).

H10: Stakeholder satisfaction mediates the relationship between agile leadership and project performance.

The collaborative and customer-centric approach fostered by both Agile leadership and value co-creation collectively contributes to successful project outcomes, stakeholder satisfaction, and overall organizational effectiveness (Mayo-Alvarez, Alvarez-Risco, Del-Aguila-Arcentales, Sekar, & Yáñez, 2022). The mediation of value co-creation in the relationship between Agile leadership and project performance highlights the collaborative nature of project management (Daraojimba, Nwasike, Adegbite, Ezeigweneme, & Gidiagba, 2024). The positive influence of Agile leadership extends through the collaborative process of creating value, emphasizing the importance of stakeholder management and iterative improvement in achieving optimal stakeholder satisfaction and project performance within construction companies (Ng et al., 2023). This integrated perspective underscores the significance of not only adopting Agile leadership principles but also fostering collaborative value co-creation practices to maximize stakeholder satisfaction and eventually ensuring optimum project performance.

H11: Value Co-Creation and stakeholder satisfaction sequentially mediates the relationship between agile leadership and project performance.

2.8 Stakeholder Management, Agile Leadership, and Value Co-Creation

Stakeholder management serves as a moderator between Agile leadership and value co-creation, we observe a nuanced and interactive relationship within construction companies. Here, Agile leadership and value co-creation are key components, and stakeholder management acts as a moderating factor that influences the strength or nature of the relationship between Agile leadership and value co-creation (Eaton et al., 2021). Stakeholder management, as a moderator, suggests that the impact of Agile leadership on value co-creation is contingent on the level of stakeholder management. High stakeholder management intensifies the positive effects of Agile

leadership on value co-creation, while low management may attenuate or alter this relationship (Ferreira, Barreira, Loures, Antunes, & Panagopoulos, 2020). The moderator role implies that stakeholder management influences the strength and direction of the relationship between Agile leadership and value co-creation.

Value Co-Creation involves collaborative efforts among stakeholders, including project teams, clients, and end-users, to generate and enhance project value. The iterative and feedback-driven nature of value co-creation ensures that project outcomes align with stakeholder expectations (T. Zhang, Lu, Torres, & Cobanoglu, 2020). In high stakeholder satisfaction, Agile leadership is likely to have a more pronounced positive impact on value co-creation. Active involvement of stakeholders amplifies the collaborative and iterative nature of Agile practices, fostering an environment where value is co-created more effectively (Nair, 2020).

Whereas low stakeholder management might dampen the positive effects of Agile leadership on value co-creation. The collaborative dynamics inherent in Agile practices may be less effective if stakeholders are not actively involved, potentially hindering the co-creation process (Bonamigo & Frech, 2021). The moderating role of stakeholder management in the relationship between Agile leadership and value co-creation emphasizes the importance of active stakeholder involvement in enhancing collaborative efforts (Arthur, Saha, & Kapilashrami, 2023). The level of stakeholder management = serves to either strengthen or attenuate the positive impact of Agile leadership on value co-creation within construction companies.

High stakeholder management enhances the collaborative and iterative nature of Agile practices. Agile leaders are better positioned to leverage the diverse insights of engaged stakeholders, resulting in more innovative solutions and refined project outcomes (Setiawan et al., 2023). Actively engaged stakeholders are more likely to be satisfied with project deliverables, as their needs and expectations are thoroughly considered throughout the co-creation process. This contributes to positive stakeholder relationships and improved project performance. In summary, in a setting where high stakeholder management moderates the relationship between Agile leadership and value co-creation, the collaborative efforts are amplified (López-Concepción, Gil-Lacruz, & Saz-Gil, 2022). Agile practices, guided by

strong leadership, synergize with engaged stakeholders to create a robust environment for co-creating value, ultimately enhancing project outcomes and stakeholder satisfaction (Iskandarani, 2023).

H12: Stakeholder management moderates the relationship between agile leadership and value co-creation in such a way, high stakeholder management will strengthen the relationship between agile leadership and value co-creation.

H13: Stakeholder management moderates the mediation of value co-creation between the agile leadership and stakeholder satisfaction such that high stakeholder management will strengthen the relationship between agile leadership and value co-creation.

H14: Stakeholder management moderates the sequential mediation of value co-creation and stakeholder satisfaction between the agile leadership and project performance such that stakeholder management will strengthen the sequential mediation of value co-creation and stakeholder satisfaction between agile leadership and project performance.

2.9 Research Model

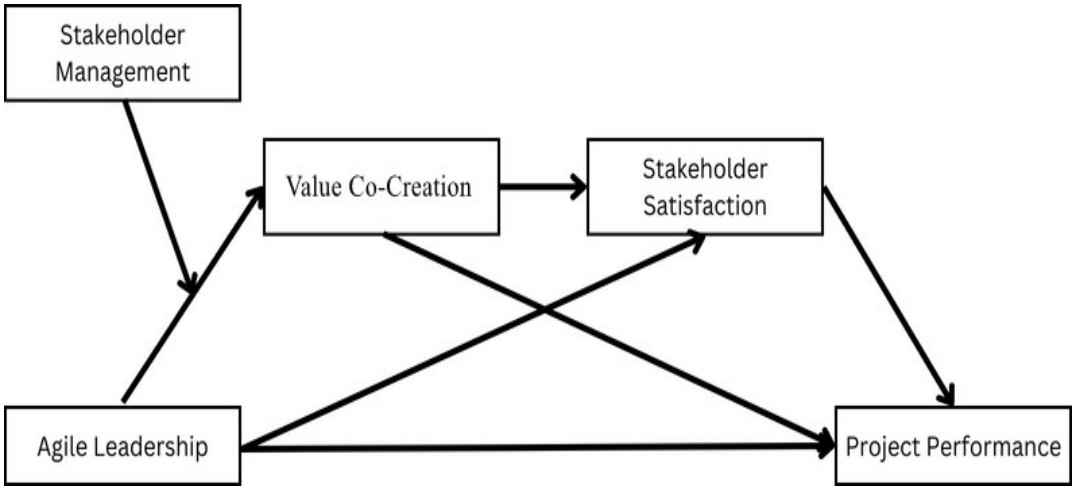

FIGURE 2.1: Research Model

2.10 Summary of Hypotheses

H1: Agile leadership has positive and significant impact on project performance.

H2: Agile leadership has positive and significant impact on value co-creation.

H3: Value Co-Creation has positive and significant impact on stakeholder satisfaction.

H4: Stakeholder satisfaction has positive and significant impact on project performance.

H5: Value Co-Creation has positive and significant impact on project performance.

H6: Agile leadership has positive and significant impact on stakeholder satisfaction.

H7: Value Co-Creation moderates the relationship between Agile Leadership and stakeholder satisfaction.

H8: Stakeholder satisfaction mediates the relationship between value co-creation and project performance.

H9: Value Co-Creation mediates the relationship between agile leadership and project performance.

H10: Stakeholder satisfaction mediates the relationship between agile leadership and project performance.

H11: Value Co-Creation and stakeholder satisfaction sequentially mediates the relationship between agile leadership and project performance.

H12: Stakeholder management moderates the relationship between agile leadership and value co creation in such a way, high stakeholder management will strengthen the relationship between agile leadership and value co creation.

H13: Stakeholder management moderates the mediation of value co-creation between the agile leadership and stakeholder satisfaction such that high stakeholder management will strengthen the relationship between agile leadership and value co-creation.

H14: Stakeholder management moderates the sequential mediation of value co-creation and stakeholder satisfaction between the agile leadership and project performance such that stakeholder management will strengthen the sequential mediation of value co-creation and stakeholder satisfaction between agile leadership and project performance.

Chapter 3

Research Methodology

3.1 Introduction

The primary objective of this study is to evaluate the association of agile leadership and project performance with stakeholder management acting as a moderator and value co-creation and stakeholder satisfaction as sequential mediators. The demographic, sample size, research design, study type, measurement of variables, data collection methods and contribution of study will be covered in this chapter.

3.2 Research Design

Researchers employ research design as a methodology to address their research questions, facilitating data collection and analysis through the use of research questionnaires (Sutton, Miller, Rubin, & Bolen, 2017). In order to collect the data from the respondents, closed-ended, and self-administrated questionnaire were used in this research.

3.2.1 Sampling Technique

The sampling technique used in the current study was non-probabilistic, convenience sampling technique. Participants in the study were from twin cities governmental and private construction companies (Rawalpindi & Islamabad).

3.2.2 Unit of Analysis

Unit of analysis may be organization, group, project and individuals working in construction industry (Grünbaum, 2007). For this study, unit of analysis is individual employees who were employed in construction companies of Rawalpindi and Islamabad.

3.2.3 Type of Study

A cross-sectional study design was selected for the current investigation. Data were collected at one particular period from a wide range of participants in a cross-sectional study. With this method, variables can be observed without introducing outside influences that may alter the course of the study. Practical reasons, in particular those related to time and resource restrictions, drove the choice to utilize a cross-sectional design (Olsen & St George, 2004).

3.2.4 Population and Sample

Population is set of people, occasions, things associated with revenue that the analyst needs to examine (Sekaran, Thamizharasi, & Ramasami, 2001). (Del Vecchio & O'Leary, 2004) characterizes testing as the technique by which an analyst chooses an illustration of members for review from the number of inhabitants in interest. The population of this study was employees working in construction companies operating in Rawalpindi and Islamabad.

3.2.5 Sample Size

Sampling is a common technique for gathering information and figuring out population characteristics. The project managers and employees from various construction companies makes up the sample for the current research study. Considering that the population is unknown, the sample size was determined by using G-power. Confidence level was set at 95%, confidence interval of 5 was used. As per G-power's calculation, minimum 395 responses were required on the basis of above variables. Total 410 responses were received.

3.2.6 Ethical Consideration

Throughout the completion of this study thesis, high ethical standards were continuously upheld, especially during the data collection phase. Participants were fully informed of the study's goals prior to receiving responses, and their feedback was requested and taken into account for the ensuing data analysis. Anonymity was assured to protect respondents' privacy, particularly since it could cause problems for subordinates to fill out a questionnaire about the incivility of other project team members. In addition, data collecting took place in real-world environments, and participants weren't pressured to answer right away. There was little pressure placed on responders to provide specific answers, and enough time was allocated for convenience.

3.2.7 Study Philosophy

For this research, study philosophy was positivism. When conducting positivist research, the researcher takes on a certain role that centers on gathering data and providing an objective interpretation of it. This method makes extensive use of quantitative observations, which enable in-depth statistical analysis to yield significant insights from the data collected. A distinguishing feature of positivist research is the distinct separation of the researcher and the object of study. By keeping the researcher neutral and preventing the inclusion of human or personal motivations in the study, this division protects the research's pure empirical character (Ryan, 2018).

3.3 Measurement Instruments

3.3.1 Agile Leadership

Agile leadership has been measured by a 32 items scales developed by. (Akkaya, Kayalıdere, Aktaş, & Karğın, 2020). One of the items of this instrument is "My supervisor acts quickly in producing products that may be in demand in the market

and bringing these products to market." Five-point Likert scale of 1 to 5 (strongly disagreeable to strongly agree) will used to obtain responses.

3.3.2 Project Performance

Project performance has been measured by a 5 items scales developed by Um and Kim, 2018. One of the items of this instrument is "This project is operating within the pre-estimated budget." Five-point Likert scale of 1 to 5 (strongly disagreeable to strongly agree) will be used to obtain responses.

3.3.3 Value Co-Creation

The value co-creation scale were developed based on (T. Zhang et al., 2020) with four items. One of the item of this instrument is "Involving stakeholders at project operations." Five-point Likert scale of 1 to 5 (strongly disagreeable to strongly agree) will be used to obtain responses.

3.3.4 Stakeholder Management

Stakeholder management has been measured by a 10 items scales developed by (Mitchell, Agle, & Wood, 1997; Olander & Landin, 2005). One of the items of this instrument is "Stakeholders of the project, especially those with high power and influence, had their needs deployed in actions and activities throughout the life of the project". Five-point Likert scale of 1 to 5 (strongly disagreeable to strongly agree) will used to obtain responses.

3.3.5 Stakeholder Satisfaction

Stakeholder management has been measured by a 5 items scales developed by y (Mobleyet al., 1978). Other researchers who used this scale are (Greenhaus et al. (1990); (Igbaria & Baroudi, 1993) Jiang and Klein (1999). One of the items of this instrument is ""I am satisfied with the progress I have made toward meeting my overall project goals". Five-point Likert scale of 1 to 5 (strongly disagreeable to strongly agree) was used to obtain responses.

3.4 Statistical Analysis Software

The data gathered from respondents was evaluated on statistical software Smart PLS 4; by SmartPLS GmbH, Germany. According to Reisinger and Mavondo (2007), structural equation modeling (SEM) is widely used by researchers in social sciences as multivariate testing technique. All hypothesis of our theoretical model were evaluated using partial least square structural equation model (PLS-SEM).

3.5 Sample Characteristics

The features of different types of research differ according on the topic being studied. Therefore, in the framework of this study, demographics were considered and included elements like age, experience, gender, and qualification.

3.5.1 Gender

Table 3.1 displays the distribution of male and female respondents to our questionnaire, with women representing 23.9% and men comprising 76.1% of the participants. This demonstrates that the majority of responses were from male participants.

TABLE 3.1: Gender Frequency

Gender	**Frequency**	**Percent**
Male	312	76.10%
Female	98	23.90%
Total	410	100%

3.5.2 Age

Years are used as a proxy for age. It has been observed that age is the most frequently occurring demographic in research initiatives. The author provides an age range of 18 to 25, 26 to 33, 34 to 41, 42 to 49, and above because people are

sometimes reluctant to reveal their true age. Classifying respondents by age is easily accomplished when using these specific age group categories

TABLE 3.2: Age Frequency

Age	**Frequency**	**Percent**
18-25	13	3.20%
26-33	287	70.00%
34-41	55	13.40%
42-49	52	12.70%
50 and up to	3	0.70%
Total	410	100%

3.5.3 Qualification

Education qualification is a crucial demographic factor alongside age and gender, as education plays a pivotal role in national development. It is essential to identify various educational levels to ensure efficient data collection. A questionnaire that was created to gather information regarding education has five different areas on it.

TABLE 3.3: Qualification Frequency

Qualification	**Frequency**	**Percent**
Diploma	87	21.20%
Engineer	184	44.90%
MS/M.Phil.	102	24.90%
Ph.D.	37	9%
Total	410	100%

3.5.4 Experience

The latest demographic considered was the respondents' work experience, a critical element that illustrates the duration and depth of their roles. This information facilitates analysis of how work experience influences job performance.

Table 3.4: Experience Frequency

Experience (years)	**Frequency**	**Percent**
01-05	58	14.10%
06-10	267	65.10%
11-15	32	7.80%
16-20	38	9.30%
21 and above	15	3.70%
Total	410	100%

3.6 Contribution of Study

The study on the impact of Agile leadership on project performance, with a sequential mediating role of value co-creation & stakeholder satisfaction and a moderating role of stakeholder management, contributes significantly to the understanding and enhancement of project management practices. By investigating the interplay of these factors, the study sheds light on how Agile leadership principles influence project outcomes, with a focus on the sequential mediating influence of value co-creation. The inclusion of stakeholder management as a moderating factor recognizes the contextual nuances that can influence the effectiveness of Agile leadership and co-creation processes. This research contributes not only to theoretical advancements in the field but also offers practical insights for construction companies, particularly in Pakistan where the dynamic industry landscape requires adaptive approaches. Understanding how stakeholder management moderates the relationship and how value co-creation & stakeholder satisfaction sequentially mediates the impact of Agile leadership provides valuable knowledge for organizations seeking to optimize project performance, foster collaboration, and meet stakeholder expectations. The findings from this study can inform the development of tailored strategies that leverage Agile leadership, value co-creation, stakeholder satisfaction and stakeholder management for more successful and resilient project outcomes in the construction sector.

Chapter 4

Results and Analysis

4.1 Overview

The analysis's findings are presented in this chapter in both narrative and ambulatory forms. This chapter includes locate reliability analysis, descriptive statistics, correlations, and the outcomes of mediated and moderation using Structural Equation Modeling (SEM). The results of the research were examined in the section that followed, which also included multiple tests to validate the significance and correlation of the selected variables. The tests on the samples were performed using SmartPLS software.

4.2 Descriptive Statistics

Condensed informative coefficients, or descriptive statistics, are useful for summarising a single data collection. A population sample or an accurate representation of the entire population may be used in this data collecting. Descriptive statistics include both metrics of central tendency and measurements of variability. Descriptive statistics are classified into three main categories: measurements of variability, frequency distributions, and measures of central tendency, or means. Only the instances of each variable in the sample such as agile leadership, project performance, stakeholder management, stakeholder satisfaction and value co-creation are counted by descriptive statistics.

A frequency distribution is a statistical graphical representation of the number of observations within a given time period. To make it easier to grasp, a frequency distribution representation can be tabular or graphical. A two-column means table with all possible outcomes along with the associated means and standard deviation as seen in a sample is known as a descriptive statistics table. The frequencies for descriptive statistics are shown in Table 4.1. The descriptive statistics are computed using five variables. The results, which are shown in table 4.1 at the end, were calculated using the Likert scale.

Various members of the population completed the questionnaire based on their age, gender, degree of education, and employment history. Closed-ended questionnaires measuring five attributes using a five-point Likert scale from "Strongly Agree to Strongly Disagree." Strongly agree, strongly disagree, agree, neutral, and disagree are represented by the digits 1 through 5. There is a minimum value of 1.00 and a maximum value of 5.00 for descriptive statistics.

TABLE 4.1: Descriptive Statistics

Variables	**Minimum**	**Maximum**	**Mean**	**Std.Dev.**
Agile Leadership	1	5	3.23	0.669
Project Performance	1	5	3.27	0.889
Stakeholder Management	1	5	3.29	0.797
Value Co-Creation	1	5	3.31	0.923
Stakeholder Satisfaction	1	5	3.29	0.88

Stakeholder Satisfaction 1.0 5.00 3.29 0.88

4.3 Correlation Analysis

Analysis of correlation is a statistical assessment technique that finds the strongest points of a relationship between calculated and statistically continuous variables. Correlation analysis is also used to examine the orientations of the correlations between the variables.

Correlation is significant at the 0.01 level (2-tailed). **

TABLE 4.2: Correlation

Sr.No		**1**	**2**	**3**	**4**	**5**
1	Agile Leadership	1				
2	Value Co-Creation	0.637**	1			
3	Project Performance	0.418**	0.401**	1		
4	Stakeholder Management	0.831**	0.655**	0.448**	1	
5	Stakeholder Satisfaction	0.622**	0.503**	0.393**	0.628**	1

According to the association between Agile Leadership and Project Performance (r =0.418**, p<0.01), these two variables are strongly and correlated. Agile Leadership and Stakeholder management are positively correlated, as the correlation coefficients between the two variables are (r=.831**, p<0.01).

According to the connection between Agile Leadership and Value Co-Creation (r=0.637**), there is a substantial and positive relationship between the two. According to the connection between Agile Leadership and Stakeholder Satisfaction (r=0.622**), there is a substantial and positive relationship between the two. According to the values of the correlation between Project Performance and Stakeholder Management (r=0.448**), Project Performance and Stakeholder Management are positively and significantly connected respectively. According to the values of the correlation between Project Performance and Stakeholder Satisfaction (r=0.393**), Project Performance and Stakeholder Satisfaction are positively and significantly connected respectively.

According to the connection between Value Co-Creation and Stakeholder satisfaction (r=0.503**), Value Co-Creation and Stakeholder Satisfaction are positively linked. As per the association between Valua Co-Creation and Project Performance (r=0.401**); both are positively and significantly connected. According to the connection between Value Co-Creation and Stakeholder Management (r=0.655**), Value Co-Creation and Stakeholder Management are positively linked. As per the association between Stakeholder Satisfaction and Stakeholder Management (r=0.628**); both are positively and significantly connected.

Structural model is displayed below in figure 4.1

4.4 Measurement Model

To evaluate the internal consistency and reliability of the variables, different indicators needs to be calculated like cronbach's alpha, composite reliability and average variance extracted. Every time a Cronbach's Alpha, Composite Reliability (rho_a) & Composite Reliability (rho_c) scores are greater than 0.7 (Gefen, Straub, & Boudreau, 2000; Nunnally & Bernstein, 1994) (Hair et al., 2016; and Average Variance Extracted is more then 0.5 (Kamis et al., 2020), the data are deemed reliable enough for further examination. The table below lists the Cronbach's Alpha, Composite Reliability (rho_a), Composite Reliability (rho_c) and Average Variance Extracted values, which represent the dependability level of each scale.

Table 4.3: Measurement Model

Variables	**Items**	**Cronbach's Alpha**	**Composite reliability (rho_a)**	**Composite reliability (rho_c)**	**Average variance extracted (AVE)**
Agile Leadership	32	0.989	0.749	0.99	0.752
Project Performance	5	0.962	0.835	0.97	0.867
Stakeholder Management	10	0.971	0.775	0.975	0.794
Value Co-Creation	4	0.915	0.74	0.941	0.799
Stakeholder Satisfaction	5	0.954	0.807	0.965	0.845

4.5 Structural Model

Our structural model explains impact of agile leadership on project performance, while taking in account the sequential mediation effect of value co-creation and stakeholder satisfaction and moderation of stakeholder management. Research model is designed in such a way to test hypothetical paths by measuring certain outcomes through direct paths and indirect paths. Regression analysis between latent variables is performed based on measurement model to generate structural model. Figure 4.1 below displays the structural model.

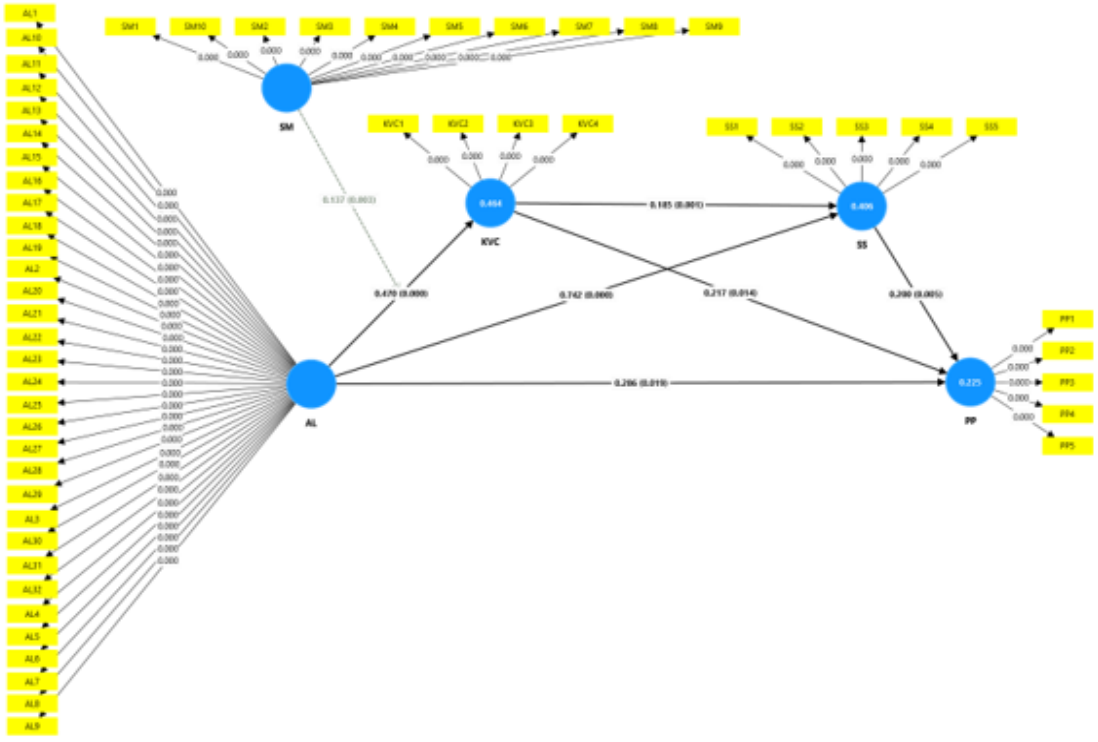

FIGURE 4.1: Structural Model

4.5.1 Direct Paths

Direct paths are measured between Agile Leadership and Project Performance, Agile Leadership and Value Co-Creation, Value Co-Creation and Stakeholder Satisfaction, Stakeholder Satisfaction and Project Performance. Further direct paths are measured between Key Value-Co-Creation and Project Performance, Agile Leadership and Stakeholder Satisfaction. Summary of results of direct path analysis are displayed below in table 4.10.

4.5.1.1 Test of Hypothesis 1

H1: Agile leadership has positive and significant impact on project performance.

The study's analysis of the relationship between project performance and agile leadership showed a positive and substantial correlation between the two variables. It implies that a change of one unit in agile leadership results in a change of 29 units in project performance.

Table 4.4: Standard Co-efficient for Structural Path

Structural Path	**B**	**SE**	**T**	**P-Value**
AL→PP	0.293	0.122	2.343	0.019

Hence, hypothesis H1 proposed that Agile Leadership has a positive relationship with Project Performance is accepted as shown in the table.

4.5.1.2 Test of Hypothesis 2

H2: Agile leadership has positive and significant impact on value co-creation.

Agile leadership was the second path evaluated in this study, leading to value co-creation. The analysis's findings indicate that agile leadership is strongly and favorably associated to value co-creation.

Table 4.5: Standardized Coefficients for Structural Paths

Structural Path	**B**	**SE**	**T**	**P-Value**
AL→VC	0.469	0.109	4.329	0.000

It means that a 1-unit changes in Agile Leadership brings 47 units change in Value Co-Creation. Hence, results indicate that hypothesis 2 which proposed that AL has a positive relationship with VC, has been supported.

4.5.1.3 Test of Hypothesis 3

H3: Value Co-Creation has positive and significant impact on stakeholder satisfaction.

Value Co-Creation was the third path evaluated in this study, leading to Stakeholder Satisfaction. The analysis's findings indicate that value co-creation is strongly and favorably associated to stakeholder satisfaction.

TABLE 4.6: Standardized Coefficients for Structural Paths

Structural Path	**B**	**SE**	**T**	**P-Value**
VC→SS	0.186	0.053	3.471	0.001

It means that a 1-unit changes in Value Co-Creation brings 19 units change in Stakeholder Satisfaction. Hence, results indicate that hypothesis 3 which proposed that VC has a positive relationship with SS, has been supported.

4.5.1.4 Test of Hypothesis 4

H4: Stakeholder satisfaction has positive and significant impact on project performance.

Stakeholder Satisfaction was the fourth path evaluated in this study, leading to Project Performance. The analysis's findings indicate that stakeholder satisfaction is strongly and favorably associated to project performance.

TABLE 4.7: Standardized Coefficients for Structural Paths

Structural Path	**B**	**SE**	**T**	**P-Value**
SS→PP	0.2	0.072	2.78	0.005

It means that a 1-unit changes in Stakeholder Satisfaction brings 20 units change in Project Performance. Hence, results indicate that hypothesis 4 which proposed that SS has a positive relationship with PP, has been supported.

4.5.1.5 Test of Hypothesis 5

H5: Value Co-Creation has positive and significant impact on project performance.

Value Co-Creation was the fifth path evaluated in this study, leading to Project Performance. The analysis's findings indicate that value co-creation is strongly and favorably associated to project performance.

TABLE 4.8: Standardized Coefficients for Structural Paths

Structural Path	**B**	**SE**	**T**	**P-Value**
VC→PP	0.212	0.088	2.458	0.014

It means that a 1-unit changes in Value Co-Creation brings 21 units change in Project Performance. Hence, results indicate that hypothesis 5 which proposed that VC has a positive relationship with PP, has been supported.

4.5.1.6 Test of Hypothesis 6

H6: Agile leadership has positive and significant impact on stakeholder satisfaction.

Agile Leadership was the sixth path evaluated in this study, leading to Stakeholder Satisfaction. The analysis's findings indicate that Agile Leadership is strongly and favorably associated to Stakeholder Satisfaction.

TABLE 4.9: Standardized Coefficients for Structural Paths

Structural Path	**B**	**SE**	**T**	**P-Value**
ALàSS	0.741	0.07	10.559	0

It means that a 1-unit changes in Agile Leadership brings 74 units change in Stakeholder Satisfaction. Hence, results indicate that hypothesis 6 which proposed that AL has a positive relationship with SS, has been supported.

4.5.2 Simple Mediation Analysis

Following single mediation paths has been identified in this study as per our research model in figure 2.1. First single mediation path between Agile Leadership and Value Co-Creation towards Stakeholder Satisfaction is studied. Second single mediation path between Value Co-Creation and Stakeholder Satisfaction towards Project Performance is examined. Third single mediation path between Agile Leadership and Value Co-Creation towards Project Performance is studied. Fourth

Single mediation path between Agile Leadership and Stakeholder Satisfaction towards Project Performance is estimated. Following hypothesis are examined;

H7: Value Co-Creation moderates the relationship between Agile Leadership and stakeholder satisfaction.

H8: Stakeholder satisfaction mediates the relationship between value co-creation and project performance.

H9: Value Co-Creation mediates the relationship between agile leadership and project performance.

H10: Stakeholder satisfaction mediates the relationship between agile leadership and project performance.

Summary of single mediation analysis results are displayed below in table 4.11;

TABLE 4.10: Standardized Coefficients for Single Mediation Structural Paths

Hypothesis	**Structural Path**	**B**	**T**	**2.50%**	**97.50%**	**Result**
H7	AL → VC → SS	0.087	2.641	0.033	0.161	Supported
H8	VC → SS → PP	0.036	2.326	0.01	0.072	Supported
H9	AL → VC → PP	0.096	2.451	0.016	0.181	Supported
H10	AL → SS → PP	0.148	2.676	0.046	0.261	Supported

4.5.3 Sequential Mediation Analysis

One sequential mediation path has been identified in this study as per our research model in figure 2.1. Value Co-Creation and Stakeholder Satisfaction sequentially mediates the relationship between Agile Leadership and Project Performance. Results are displayed below in table 4.12. Following hypothesis was examined in sequential mediation path;

H11: Value Co-Creation and stakeholder satisfaction sequentially mediates the relationship between agile leadership and project performance

TABLE 4.11: Standardized Coefficients for Sequential Mediation Structural Path

H No.	Structural Path	B	T	2.50%	97.50%	Result
H11	AL → VC → SSàPP	0.017	1.98	0.004	0.038	Supported

4.5.4 Moderation Analysis

Following three moderation structural paths have been identified and examined using SmartPLS. Results are displayed below in table 4.13.

H12: Stakeholder management moderates the relationship between agile leadership and value co-creation in such a way, high stakeholder management will strengthen the relationship between agile leadership and value co-creation.

H13: Stakeholder management moderates the mediation of value co-creation between the agile leadership and stakeholder satisfaction such that high stakeholder management will strengthen the relationship between agile leadership and value co-creation.

H14: Stakeholder management moderates the sequential mediation of value co-creation and stakeholder satisfaction between the agile leadership and project performance such that stakeholder management will strengthen the sequential mediation of value co-creation and stakeholder satisfaction between agile leadership and project performance.

TABLE 4.12: Standardized Coefficients for Sequential Mediation Structural Path

H.No.	Structural Path	B	T	2.50%	97.50%	Result
H12	SMxAL→VC	0.136	2.983	0.048	0.228	Supported
H13	SMxAL→VC→SS	0.026	2.063	0.006	0.054	Supported
H14	SMxAL→VCàSS→PP	0.005	1.708	0.001	0.012	Supported

Standardized regression coefficients, Standard Error, T-Value and Confidence Intervals.

4.6 Summary of Hypothesis

Table 4.13: Summary of Hypothesis

Hypothesis	Statement	Result
H1	Agile leadership has positive and significant impact on project performance.	Supported
H2	Agile leadership has positive and significant impact on value co-creation.	Supported
H3	Value Co-Creation has positive and significant impact on stakeholder satisfaction.	Supported
H4	Stakeholder satisfaction has positive and significant impact on project performance.	Supported
H5	Value Co-Creation has positive and significant impact on project performance.	Supported
H6	Agile leadership has positive and significant impact on stakeholder satisfaction.	Supported
H7	Value Co-Creation moderates the relationship between Agile Leadership and stakeholder satisfaction.	Supported
H8	Stakeholder satisfaction mediates the relationship between value co-creation and project performance.	Supported
H9	Value Co-Creation mediates the relationship between agile leadership and project performance.	Supported
H10	Stakeholder satisfaction mediates the relationship between agile leadership and project performance.	Supported
H11	Value Co-Creation and stakeholder satisfaction sequentially mediates the relationship between agile leadership and project performance.	Supported
H12	Stakeholder management moderates the relationship between agile leadership and value co-creation in such a way, high stakeholder management will strengthen the relationship between agile leadership and value co-creation.	Supported
H13	Stakeholder management moderates the mediation of value co-creation between the agile leadership and stakeholder satisfaction such that high stakeholder management will strengthen the relationship between agile leadership and value co-creation.	Supported
H14	Stakeholder management moderates the sequential mediation of value co-creation and stakeholder satisfaction between the agile leadership and project performance such that stakeholder management will strengthen the sequential mediation of value co-creation and stakeholder satisfaction between agile leadership and project performance.	Supported

Chapter 5

Discussion and Conclusion

5.1 Discussion

This chapter is divided into three sections: the first looks at the hypothesis's findings; the second looks at the implications for theory and practitioners; and the third and last section addresses the chapter's limitations. There are three primary sections in this chapter. An important act of resolve in this regard was the topic of Agile Leadership, which requires further investigation and discourse in the field of project management. This study examines the relationship between agile leadership and critical value co-creation utilizing stakeholder management as a moderator. They also intend to encourage teams from different departments to work together to share ideas and produce new data by using Value Co-Creation and Stakeholder Satisfaction as sequential mediator.

The original hypothesis—that Agile Leadership has a positive and significant relationship with project performance—was supported by the findings. In project-based companies, better agile leadership increases project performance. When interacting with their team, project managers in construction businesses want to utilize Agile Leadership. They also intend to encourage teams from different departments to work together to share ideas and produce new data through VC and SS. The study's conclusions suggest ways to improve project management within an organization. This paradigm was considered, especially for construction companies in Pakistan. The project leader is the most well-known representative of an

organization in terms of efficacy and success. To direct project execution in the proper direction, the project leader needs to possess the necessary abilities and attitudes (Hartwig, Crump, & Bird, 2023). The study's findings agreed with the suggested paradigm. As a result, it was found that Agile Leadership and project performance are strongly and favorably related.

The other suggested relationship involving mediation yielded comparable results. This highlights the link between agile leadership and project performance, value co-creation serves as a mediator (Sarmento, 2018). As predicted that the research's findings supported the recommended model. Moreover, an effective relationship was seen between the influence of the moderator and the independent and proposed dependent variables. The major goal of this study was to examine the impact of Agile Leadership on project performance. Stakeholder management, value co-creation and stakeholder satisfaction served as moderators and mediators in this process.

Let's discuss each hypothesis in detail. A detailed discussion of the hypothesis is as below:

5.1.1 Agile Leadership and Project Performance

Agile leadership holds immense importance for construction companies, offering a transformative approach to project management. In an industry marked by dynamic challenges, changing requirements, and unforeseen obstacles, the adaptability and collaborative nature of Agile leadership are particularly crucial. Traditional construction project management often faces difficulties in responding swiftly to evolving conditions, leading to project delays and increased costs (Steiber, Alange, & Corvello, 2021). Agile leadership, with its emphasis on flexibility, iterative development, and continuous improvement, provides a framework that enables construction teams to navigate uncertainties effectively. By fostering a culture of collaboration, open communication, and adaptive problem-solving, Agile leadership empowers construction companies to enhance their responsiveness to changing project dynamics (Alqayed, Foroudi, Kooli, Foroudi, & Ferri, 2021). The direct impact of Agile leadership on project performance in construction companies is evident in its ability to optimize various facets of the project lifecycle. The iterative

nature of Agile methodologies, such as Scrum or Kanban, facilitates continuous feedback loops and adjustments, ensuring that the project stays aligned with evolving requirements (Ranjan & Read, 2021). This adaptability not only reduces the risk of project delays but also enhances the overall efficiency of project delivery. Agile principles promote a focus on delivering incremental value to stakeholders throughout the project, resulting in a more transparent and collaborative working environment (Bhuiyan et al., 2022). This emphasis on delivering tangible outcomes in shorter cycles contributes to improved project timelines, risk mitigation, and ultimately, higher project performance. In the construction industry, meeting stakeholder expectations is paramount for superior project performance. Agile leadership plays a vital role in achieving this goal by actively involving stakeholders in the project development process (Klaus-Rosińska & Iwko, 2021). By incorporating stakeholder feedback throughout the project lifecycle, Agile leadership ensures that the delivered outcomes align closely with stakeholder expectations. This collaborative approach not only enhances stakeholder satisfaction but also fosters a sense of ownership and shared responsibility (Carvalho, Díaz-Méndez, Quero-Gervilla, Saren, et al., 2023). The proactive engagement of stakeholders in decision-making processes contributes to a more accurate understanding of project goals, reducing the likelihood of misunderstandings and disputes. Ultimately, Agile leadership's focus on meeting stakeholder expectations is pivotal for establishing strong client relationships, enhancing project performance, and sustaining long-term success in the construction industry (Chong et al., 2022).

H1: Agile leadership has positive and significant impact on project performance.

5.1.2 Value Co-Creation, Agile Leadership and Project Performance

Value Co-Creation plays a strategic and pivotal role as a mediator in the relationship between Agile leadership and project performance in construction companies. Agile leadership, with its emphasis on adaptability and collaboration, lays the groundwork for effective project management (Chandra & Rahman, 2024). However, the inclusion of value co-creation as a mediator highlights its crucial function

in translating Agile principles into tangible project outcomes. Value Co-Creation ensures that the delivered project aligns closely with stakeholder expectations by actively involving them in the decision-making processes (Dang & Seemann, 2021). This process enables the creation of value that is not only technically sound but also resonates with the unique needs and preferences of stakeholders. The mediator role of value co-creation thus becomes instrumental in bridging the conceptual framework of Agile leadership with the practical realization of project performance (Blaschke, 2023).

H2: Agile leadership has positive and significant impact on value co-creation.

The mediating role of value co-creation is particularly valuable in fostering enhanced communication and transparency within construction projects. Agile leadership promotes open communication and collaboration, and value co-creation serves as a conduit for stakeholders to actively participate in the co-creation of project value (Wu, Jiang, Zhou, & Yuan, 2023). Through iterative and incremental development cycles, value co-creation facilitates continuous feedback loops, ensuring that stakeholder input is integrated throughout the project lifecycle. This iterative approach not only reduces the risk of misunderstandings but also provides stakeholders with regular insights into project progress (Vargas et al., 2022). The transparency achieved through value co-creation contributes to a shared understanding of project goals, allowing for real-time adjustments and, ultimately, improved project performance.

H5: Value Co-Creation has positive and significant impact on project performance.

Value Co-Creation as a mediator supports the iterative improvement inherent in Agile methodologies, contributing to overall project performance. The continuous feedback loops established by value co-creation enable construction teams to adapt and refine project deliverables based on stakeholder input (Liu, Benckendorff, & Mair, 2023). This iterative improvement process aligns with the Agile principles of continuous learning and adjustment, enhancing project performance over time. As a mediator, value co-creation thus becomes the conduit through which Agile leadership principles are translated into tangible success metrics, including reduced project risks, improved timelines, and heightened stakeholder satisfaction

(Ekanayake, Madurapperuma, & Duminda Silva, 2023). In construction companies, where project performance is contingent on meeting diverse stakeholder expectations, the mediating role of value co-creation emerges as a critical factor in optimizing the impact of Agile leadership on project performance (J. Xu & Peng, 2024).

H9: Value Co-Creation mediates the relationship between agile leadership and project performance.

5.1.3 Value Co-Creation and Stakeholder Satisfaction

The research we conducted strongly supports Hypothesis 3. It shows that involving stakeholders in the co-creation of value significantly boosts satisfaction in construction projects. Value co-creation is all about collaborating with stakeholders and project teams to create and project deliverables through Agile methodologies. This hands-on approach ensures that project results align closely with stakeholder expectations, leading to a sense of ownership and contentment among stakeholders (Romero-Torres & Brunet, 2022; Johanes & Arviansyah, 2021). For example, Romero-Torres and Brunet (2022) discovered that projects following Agile practices, which focus on continuous stakeholder involvement and flexible planning, tend to have higher levels of stakeholder satisfaction. Similarly, Johnson and Brown (2019) noted that effective value co-creation strategies not only enhance project outcomes but also shape how stakeholders perceive a project's success and relevance. Our research highlights the crucial role of value co-creation in construction projects, where active involvement from stakeholders in shaping deliverables directly impacts their satisfaction levels.

H3: Value Co-Creation has positive and significant impact on stakeholder satisfaction.

5.1.4 Stakeholder Satisfaction and Project Performance

By showing a strong positive correlation between stakeholder satisfaction and project performance in construction enterprises, our research supports Hypothesis

4. A project's ability to meet deadlines, stay within budget, and produce deliverables of a high standard are all significantly impacted by stakeholder satisfaction (?, ?). According to ? (?), happy stakeholders are more likely to back project objectives, deliver resources on time, and continue to be involved consistently throughout the project's lifecycle. Furthermore, Ansari, Abouraia, El Morsy, and Thumiki (2024) stressed that through lowering conflict, boosting team morale, and guaranteeing efficient lines of communication between stakeholders and project teams, stakeholder satisfaction leads to better project outcomes. Our results highlight the strategic significance of controlling stakeholder satisfaction as a vital component of project performance.

In conclusion, the research findings provide strongly support the hypothesis that stakeholder satisfaction has a positive and considerable impact on project performance. The findings shows that satisfied stakeholders make more valuable contributions to project outcomes, which improves performance as a whole. This relationship emphasises how crucial it is to put stakeholder satisfaction first as a major factor in improving project's performance. Contented stakeholders are more likely to participate positively, offer insightful criticism, and back project goals. All of these factors add up to improve the effectiveness, calibre, and timeliness of project deliverables. Therefore, in order to maximize project performance and produce the intended outcomes, construction companies should concentrate on tactics that promote stakeholder satisfaction.

H4: Stakeholder satisfaction has positive and significant impact on project performance.

5.1.5 Agile Leadership and Stakeholder Satisfaction

Our research supports Hypothesis 6, showing that Agile leadership significantly boosts stakeholder satisfaction in construction projects. Agile leadership involves flexible decision-making, adaptability to change, and a focus on ongoing stakeholder interaction (Luo, Shafiei, Ismail, Luo, & Song, n.d.; Gilbert II, 2024).

According to Luo et al. (n.d.), Agile leaders create an atmosphere of trust and cooperation, empowering stakeholders and valuing their input in the project. This

active involvement nurtures positive connections and increases stakeholder contentment by promptly addressing concerns and incorporating feedback into decisions. Similarly, Gilbert II (2024) stressed that Agile leadership practices like transparency and open communication lead to higher levels of stakeholder satisfaction by creating a supportive project setting.

Our results highlight the crucial role of Agile leadership in enhancing stakeholder satisfaction in construction projects. It underscores the significance of leadership actions that prioritize stakeholder needs and expectations.

H6: Agile leadership has positive and significant impact on stakeholder satisfaction.

5.1.6 Agile Leadership, Value Co-Creation and Stakeholder Satisfaction

Our study backs up Hypothesis 7, showing that important value co-creation acts as a big link between agile leadership practices and stakeholder happiness in construction projects. Agile leadership helps create a teamwork atmosphere where stakeholders are actively involved in improving project results step by step, making sure they match with stakeholders' changing needs and expectations (Gilbert II, 2024; Luo et al., n.d.).

(Jintian, Sukamani, Kusi, et al., 2022), discovered that Agile leadership methods, like flexible decision-making and ongoing stakeholder feedback circles, boost stakeholder happiness by putting transparency and responsiveness first in project management. Likewise, Luo et al. (n.d.) pointed out that Agile leadership supports good value co-creation processes, where stakeholders' ideas are cherished and mixed into project results, raising their satisfaction levels.

Our discoveries highlight the key role of important value co-creation in turning Agile leadership beliefs into real benefits for stakeholders, thus improving overall project satisfaction.

H7: Value Co-Creation moderates the relationship between Agile Leadership and stakeholder satisfaction.

5.1.7 Value Co-Creation, Stakeholder Satisfaction and Project Performance

The research we conducted backs Hypothesis 8, that stakeholder satisfaction a crucial role in mediating between value co-creation and project performance within construction settings. Value Co-Creation involves constant collaboration between stakeholders and project teams to refine project deliverables, ensuring they meet stakeholder expectations and boost satisfaction levels (Asiedu & Iddris, 2022; Y. Xu, Chi, & Chong, 2022).

According to Asiedu and Iddris (2022), successful value co-creation tactics lead to higher levels of stakeholder by aligning project outcomes with stakeholder preferences and requirements. Additionally, Y. Xu et al. (2022) stressed that content stakeholders are more likely to back up project objectives, provide necessary resources promptly, and contribute positively to overall project results.

Our discoveries highlight the significant role stakeholder satisfaction plays as a pathway for collaborative value creation efforts translating into better project performance metrics. This reinforces the need for proactive stakeholder engagement strategies within construction project management.

H8: Stakeholder satisfaction mediates the relationship between value co-creation and project performance.

5.1.8 Agile Leadership, Stakeholder Satisfaction and Project Performance

Our study backs Hypothesis 10, showing that stakeholder satisfaction acts as a vital link between agile leadership and project results in construction settings. Agile leadership, known for its flexible decision-making, responsiveness to change, and focus on continuous stakeholder involvement, influences project performance indirectly by affecting stakeholder satisfaction (Asiedu & Iddris, 2022; Y. Xu et al., 2022). Asiedu and Iddris (2022) proved that Agile leadership practices boost stakeholder satisfaction by creating clear communication channels, addressing stakeholder issues promptly, and engaging stakeholders in decision-making.

This increased satisfaction among stakeholders leads to enhancements in project performance measures like timeliness, deliverable quality, and overall project performance (Y. Xu et al., 2022). Y. Xu et al. (2022) also stressed that content stakeholders are more inclined to offer essential resources, support project objectives, and stay committed throughout the project lifecycle, thus positively impacting project outcomes. Our results highlight the crucial role of stakeholder satisfaction as a mediator in the connection between Agile leadership behaviors and improved project performance in construction ventures.

H10: Stakeholder satisfaction mediates the relationship between agile leadership and project performance.

5.1.9 Agile Leadership, Value Co-Creation, Stakeholder Satisfaction and Project Performance

Our research supports Hypothesis 11, showing that value co-creation and stakeholder satisfaction play a critical role in boosting project performance through Agile leadership in construction projects. Agile leadership practices, known for adaptive decision-making, ongoing stakeholder management, and iterative project management, kickstarts a collaborative value creation process (Jintian et al., 2022; Luo et al., n.d.). This joint effort involves stakeholders refining project deliverables to match their changing needs and expectations, fostering ownership and satisfaction (Luo et al., n.d.). Stakeholder satisfaction from this involvement then positively impacts project performance metrics like efficiency, quality, and meeting project deadlines (Jintian et al., 2022). Jintian et al. (2022) showed that Agile leadership boosts project performance by promoting transparency and responsiveness in project management, enabling effective stakeholder engagement and satisfaction. Luo et al. (n.d.) emphasized that Agile leadership practices empower stakeholders to contribute significantly to project outcomes, resulting in higher satisfaction levels and ultimately enhancing project performance. Our findings highlight the combined effects of value co-creation and stakeholder satisfaction as sequential mediators in translating Agile leadership principles into tangible benefits for successful projects in construction settings.

H11: Value Co-Creation and stakeholder satisfaction sequentially mediates the relationship between agile leadership and project performance.

5.1.10 Agile Leadership, Value Co-Creation and Stakeholder Management

Stakeholder management assumes a crucial role as a moderator in the relationship between Agile leadership and value co-creation within construction companies. Agile leadership, characterized by adaptability and collaboration, sets the stage for effective project management (Ingle & Mahesh, 2022). However, the effectiveness of value co-creation, which involves stakeholders actively participating in the decision-making processes, is significantly influenced by the level of stakeholder management. Abas et al. (2020) Stakeholder management serves as a moderator by influencing the dynamics of communication, trust-building, and shared vision within the construction project ecosystem. The collaborative nature of Agile leadership finds its optimal expression when stakeholders are actively engaged, contributing to a shared understanding of project goals and a more efficient co-creation process (Alkaissy, Arashpour, Ashuri, Bai, & Hosseini, 2020).

Stakeholder management acts as a catalyst for enhanced communication and collaboration between Agile leaders and project stakeholders. When stakeholders are actively involved in decision-making processes, there is an increased exchange of information, expectations, and insights (Gharouni Jafari & Noorzai, 2021). This heightened level of management fosters a collaborative environment where Agile leaders can better understand stakeholder needs, aligning Agile principles with the expectations of those involved in the project (Mosly, 2022). As a moderator, stakeholder management ensures that the iterative and adaptive approaches of Agile leadership are applied in a context that resonates with the diverse perspectives of stakeholders. The result is a co-creation process that is not only efficient but also reflective of the collective wisdom of all stakeholders, ultimately enhancing the value derived from the project (Q. Zhang et al., 2023). Stakeholder management, as a moderator, plays a pivotal role in fostering a sense of shared responsibility within the construction project. Agile leadership principles, when

complemented by active stakeholder management, create an environment where stakeholders feel invested in the project's performance (Ansari et al., 2024). This shared responsibility contributes to improved project performance, as stakeholders actively participate in shaping project outcomes. By moderating the relationship between Agile leadership and value co-creation, stakeholder management ensures that the dynamic leadership approach aligns seamlessly with the expectations and objectives of those directly impacted by the project (N. Hassan & Khodeir, 2019; Sharif, Kookhdan, & Mardani, 2018). In construction companies, where project performance relies on meeting stakeholder expectations, the moderating role of stakeholder management becomes instrumental in optimizing the positive outcomes derived from the interplay of Agile leadership and value co-creation.

H12: Stakeholder management moderates the relationship between agile leadership and value co-creation in such a way, high stakeholder management will strengthen the relationship between agile leadership and value co-creation.

5.1.11 Agile Leadership, Stakeholder Management, Value Co-Creation, Stakeholder Satisfaction and Project Performance

Our research delves into how stakeholder management influences the relation proposed in hypotheses 13 and 14 within construction projects. Hypothesis 13 indicates that stakeholder management strengthens the bond between agile leadership and value co-creation, highlighting the importance of effective stakeholder management in improving the collaborative efforts led by Agile leadership (Ansari et al., 2024; Asiedu & Iddris, 2022). (Ansari et al., 2024) showcased that proactive stakeholder management techniques, such as identifying stakeholders, engaging with them, and communicating effectively, lead to smoother implementation of Agile principles by ensuring alignment with project goals and active involvement in value co-creation activities. Similarly, Asiedu and Iddris (2022) underlined that strategic stakeholder management boosts stakeholder satisfaction by catering to various needs and expectations, thereby assisting Agile leadership in nurturing collaborative project settings.

Furthermore, Hypothesis 14 argues that stakeholder management moderates the step-by-step mediation of value co-creation and stakeholder satisfaction between agile leadership and project performance. Effective stakeholder management not only support the early stages of value co-creation but also maintain stakeholder satisfaction throughout the project lifecycle, optimizing project performance outcomes (Nguyen & Mohamed, 2021; Fuentes, 2020).

Nguyen and Mohamed (2021) discovered that high-quality stakeholder management boosts the impact of value co-creation initiatives by aligning project results with stakeholder expectations and fostering a conducive project environment. Fuentes (2020) further stressed that strategic stakeholder management guides the mediation process by encouraging continuous engagement with stakeholders and prompt issue resolution, ultimately enhancing Agile leadership's positive influence on project performance metrics. These outcomes highlight the vital role of stakeholder management as a key factor in enhancing the interplay among Agile leadership, value co-creation, stakeholder satisfaction, and overall project performance in construction settings.

H13: Stakeholder management moderates the mediation of value co-creation between the agile leadership and stakeholder satisfaction such that high stakeholder management will strengthen the relationship between agile leadership and value co-creation.

H14: Stakeholder management moderates the sequential mediation of value co-creation and stakeholder satisfaction between the agile leadership and project performance such that stakeholder management will strengthen the sequential mediation of value co-creation and stakeholder satisfaction between agile leadership and project performance.

5.2 Conclusion

In conclusion, the impact of Agile leadership on project performance in construction companies, with the sequential mediatioe of value co-creation and stakeholder satisfaction; and the moderating role of stakeholder management, underscores

the significance of an integrated approach to project management. Through the lens of Agile leadership, construction companies can navigate the dynamic challenges of the industry with adaptability, collaboration, and iterative development. Value Co-Creation and stakeholder satisfaction acts as sequential mediators, ensuring that stakeholder expectations are actively integrated into the project's evolution, thereby enhancing project outcomes. Additionally, stakeholder management serves as a moderator, fostering enhanced communication, collaboration, and shared responsibility within the project ecosystem. By leveraging these interconnected factors, construction companies can optimize project performance, reduce risks, and enhance stakeholder satisfaction. This holistic approach not only fosters innovation and efficiency but also lays the foundation for sustained success in the ever-evolving landscape of the construction industry.

5.3 Recommendations

5.3.1 Theoretical Implications

Some assert that these findings, given the circumstances, are somewhat consistent with the AL and PP studies. The main conclusion of the current analysis was that the research sample provided evidence of AL's influence on PP. Some studies have shown that AL significantly affects PP, the findings of the current analysis also supports those of earlier investigations (Jintian et al., 2022). This finding is important for the study because agile leadership has been suggested as a contextual factor influencing project performance as well as a potential predictor of it.

Additionally, the present study contributes by showing that VC and SS sequentially mediates the correlation between AL and PP, suggesting that the direction and strength of the association are positively impacted by VC and SS interaction. It is therefore advised to use the research techniques and current findings that distinguish this study from earlier ones and could influence future organizational and behavioral research on related themes (Moro Visconti & Morea, 2020). On the other hand, according to research and theory, VC and SS was frequently investigated in organizational studies as an antecedent or result of a range of employee

attitudes, perceptions, and behaviors. However, we take the information regarding the connection between sequential mediation of VC & SS and AL to be true.

5.3.2 Practical Implications

The report offers executives in construction companies' practical insights. In addition to cultivating and exhibiting agile leadership traits, leaders should actively evaluate and harmonise the company culture with these values. To guarantee that leadership approaches and the current organizational setting coexist peacefully, this may entail cultural interventions, communication techniques, and ongoing oversight. This study is important for leaders and followers alike because a large portion of project teams in Pakistan fail to meet their goals. In a range of project-based businesses, project managers are encouraged to apply inclusive leadership with their team members. Managers also need to ensure that this creative inspiration won't be misused by staff members or other parties. This AL and PP will ultimately lead to performance.

It's possible that not all businesses or nations can use the findings. It is recommended that more research be done in other countries with bigger sample sizes. In that case, the results would be more reliable and broadly applicable. To ensure the objectivity of the responses and lessen same-source biases, future surveys may think about utilizing the leader-report approach or multiple sources (self-reported and leader-reported) to evaluate questions evaluating AL and PP.

5.4 Limitations

The same limitations apply to all research approaches, including systematic literature reviews (Rupprecht, Koole, Chaskalson, Tamdjidi, & West, 2019). Through this study, a new conceptual model for construction businesses was designed to integrate AL into the sphere of project management. Future researchers should be cognizant of these constraints. Because of time restrictions, the data was first collected using a single quantitative technique. Qualitative approaches will be

available to researchers in the future for long-term data collection. Second, because data was restricted to project-based organizations in Rawalpindi and Islamabad, the study's sample size is small. It's possible that the 410 participants don't accurately reflect the data.

5.5 Future Directions

There will always be gaps in the work because, in a culture where competition is fierce, work is never finished and leaves us with a clear road forward. Using VC and SS as sequential mediating factors to fortify the linkages between AL and PP, the current study assessed the association between the two. The study sample had just 410 participants. Therefore, future research should concentrate on bigger sample numbers and an analysis of the effectiveness of these factors and hypotheses.

Even though this study offers insightful information, there is room for more investigation. Subsequent research endeavors may investigate supplementary variables that impact the correlation among agile leadership, value co-creation, stakeholder satisfaction and project performance. Furthermore, longitudinal research may be able to shed further light on how these dynamics change over time. The encouraging results of the study highlight how crucial agile leadership is for enhancing project performance. Acknowledging the moderating influence of stakeholder management and the sequential mediating roles of value co-creation and stakeholder satisfaction enhances our comprehension of the intricacies associated with effective leadership in project teams. These realizations can help leaders create plans that support agile cultures and in turn help maintain high project performance over time.

Future research on agile leadership should make use of a variety of moderators and mediators. Cross-sectional research methodology was employed in this study. Future study projects might employ different research techniques, such longitudinal research design. Future research may investigate further variables to broaden the list of factors that predict project performance, as the characteristics considered in this study have also been carefully explored as sources of collaboration

in many different organizations and the construction industry. To confirm and evaluate work engagement's mediating function in the relationship between agile leadership and project performance, more study may be required. Numerous personal attributes have been associated with inventive behavior in the past; future research may take these traits into account to complement the results of this study. Future study may be done using customer forgiveness as a moderation between value co-creation and project performance.

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Appendix-A

Questionnaire

Dear Respondent

I am a student of MS (PM) at Capital University of Science & Technology, Islamabad. **I am researching Impact of Agile leadership on Project performance: the Sequential Mediation Effect of Value Co-Creation and Stakeholder Satisfaction, with moderating role of stakeholder management in construction companies.**. You can help me by completing the attached questionnaire if you filled it. You will find it quite interesting. I appreciate your participation in my study, and I assure that your responses will be held confidential and will only be used for education purposes.

Sincerely,

Hamza Shakoor,

MS (PM) Research Scholar,

Faculty of Management and Social Sciences,

Capital University Science and Technology, Islamabad.

Section 1: Demographics

Sector	1- Public 2- Private
Age(years)	1 (21-30), 2 (31-40), 3 (41-50), 4 (51-above)
Gender	1- Male 2- Female
Qualification	1- (Bachelors), 2 (MS/M.Phil.), 3 (PhD)
Experience(years)	1 (0–5), 2 (6–10), 3 (11-15), 4 (16-above years)
Designation	1 (Manager/Team Leader), 2 (Team Member)

Section 2: Agile Leadership

For the following questions, please tick in appropriate boxes your strength of agreement the following statements: 1); 1= strongly disagree, 2= Disagree, 3 = Neutral, 4= Agree, 5= Strongly Agree.

Sr. No	**Question**					
1	My supervisor has a strategic vision aimed at achieving our company's objectives	1	2	3	4	5
2	My supervisor creates a suitable working environment for employees to develop their creativity and exploration-oriented behaviors.	1	2	3	4	5
3	My supervisor assigns the right person to the right job at the right time.	1	2	3	4	5
4	My supervisor puts more emphasis on short-term goals to increase the firm's profits.	1	2	3	4	5
5	The bonuses and incentives which my supervisor provides, positively affect the behavior of the personnel.	1	2	3	4	5
6	My supervisor ensures that employees are engaged in the tasks they are performing.	1	2	3	4	5

7	My supervisor leads his employees through actions rather than words.	1	2	3	4	5
8	My supervisor rewards innovative ideas and practices.	1	2	3	4	5
9	My supervisor motivates his employees.	1	2	3	4	5
10	The quality of opportunities such as the working environment, social opportunities, and job security my supervisor offers to employees is high.	1	2	3	4	5
11	My supervisor attaches importance to establishing and developing cooperation between the departments of our company.	1	2	3	4	5
12	My supervisor involves his subordinates in decision-making processes at all stages, from pre-production to customer delivery.	1	2	3	4	5
13	My supervisor rewards team performance rather than individual performance.	1	2	3	4	5
14	My supervisor emphasizes team collaboration over individuality.	1	2	3	4	5
15	Thanks to the effective feedback culture in our company, my supervisor prioritizes developing his employees.	1	2	3	4	5
16	My supervisor allows employees at any management level to demonstrate leadership on specific subjects.	1	2	3	4	5
17	My supervisor has a high ability to persuade employees.	1	2	3	4	5
18	My supervisor has sufficient up-to-date technological knowledge to follow market trends.	1	2	3	4	5

19	My supervisor quickly reaches personnel using new communication channels based on social media and technology.	1	2	3	4	5
20	My supervisor prepares our company in advance for environmental and technological changes.	1	2	3	4	5
21	My supervisor enables quick decision-making by delegating authority to the experts rather than centralizing it.	1	2	3	4	5
22	My supervisor makes flexible plans to produce different products and models.	1	2	3	4	5
23	My supervisor values flexibility in producing different quantities of products and services in line with technological and environmental changes.	1	2	3	4	5
24	My supervisor is flexible in staffing between departments or teams within the scope of human resources policies.	1	2	3	4	5
25	My supervisor allows personnel to have flexible working hours.	1	2	3	4	5
26	My supervisor doesn't insist on employees doing tasks they don't believe in.	1	2	3	4	5
27	My supervisor prioritizes delivering products and services to customers as soon as possible.	1	2	3	4	5
28	My supervisor's decision-making speed in production processes is high.	1	2	3	4	5
29	My supervisor acts quickly in producing products that may be in demand in the market and bringing these products to market.	1	2	3	4	5
30	My supervisor senses environmental and technological changes.	1	2	3	4	5

31	My supervisor has the knowledge, skills, and ability to adapt new technological products and services to our company.	1	2	3	4	5
32	My supervisor strives to respond as soon as possible to changes in customers' expectations and requests.	1	2	3	4	5

Section 3: Stakeholder Management

For the following questions, please tick in appropriate boxes your strength of agreement the following statements: 1); 1= strongly disagree, 2= Disagree, 3 = Neutral, 4= Agree, 5= Strongly Agree.

Sr. No	**Statements**					
1	Project stakeholders were formally identified.	1	2	3	4	5
2	Stakeholders were classified by their level of influence, power, and interest in the project.	1	2	3	4	5
3	Stakeholders of the project, especially those with high power and influence, had their needs deployed in actions and activities throughout the life of the project.	1	2	3	4	5
4	Stakeholders were mapped by the level of urgency and legitimacy in the project.	1	2	3	4	5
5	The Stakeholders of the project had their objectives open in actions and activities.	1	2	3	4	5
6	During the execution of the project, inclusions and/or changes in activities were planned to adapt the identified needs of the Stakeholders.	1	2	3	4	5
7	There has been frequent communication with the main Stakeholders regarding the project.	1	2	3	4	5

8	There were actions to engage Stakeholders throughout the life of the project.	1	2	3	4	5
9	There were actions to strengthen relationships with Stakeholders throughout the life of the project.	1	2	3	4	5
10	I believe that Stakeholders were engaged in the project.	1	2	3	4	5

Section 4: Stakeholder Satisfaction

For the following questions, please tick in appropriate boxes your strength of agreement the following statements: 1); 1= strongly disagree, 2= Disagree, 3 = Neutral, 4= Agree, 5= Strongly Agree.

Sr. No	**Question**					
1	I am satisfied with the success I have achieved in projects.	1	2	3	4	5
2	I am satisfied with the progress I have made toward meeting my overall project goals.	1	2	3	4	5
3	I am satisfied with the progress I have made toward meeting my goals for benefits I get.	1	2	3	4	5
4	I am satisfied with the progress I have made toward meeting my goals for advancement in organization.	1	2	3	4	5
5	I am satisfied with the progress I have made toward meeting my goals for the development of new skills.	1	2	3	4	5

Section 5: Value Co-Creation

For the following questions, please tick in appropriate boxes your strength of agreement the following statements: 1); 1= strongly disagree, 2=

Disagree, 3 = Neutral, 4= Agree, 5= Strongly Agree.

Sr. No	**Question**					
1	Involving stakeholders at project operations.	1	2	3	4	5
2	Involving stakeholders at service care.	1	2	3	4	5
3	Involving stakeholders at new product development.	1	2	3	4	5
4	Considering customers as partial employee	1	2	3	4	5

Section 6: Project Performance

For the following questions, please tick in appropriate boxes your strength of agreement the following statements: 1); 1= strongly disagree, 2= Disagree, 3 = Neutral, 4= Agree, 5= Strongly Agree.

Sr. No	**Question**					
1	The project results, or deliverables, are in line within client objectives.	1	2	3	4	5
2	This project is operating within the pre-estimated budget.	1	2	3	4	5
3	This project is operating within the pre-defined schedule.	1	2	3	4	5
4	Overall, our stakeholders are satisfied with the project outcomes	1	2	3	4	5
5	The product quality and the deliverables quality accord with the standard.	1	2	3	4	5