

SCHOOL OF COMMERCE

DEPARTMENT OF PROJECT MANAGEMENT

THE EFFECT OF AGILE PROJECT MANAGEMENT PRACTICES ON PROJECT SUCCESS: THE MODERATING ROLE OF TOP-LEVEL MANAGEMENT SUPPORT IN THE ETHIOPIAN HEALTH SECTOR.

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STATEMENT OF DECLARATION

I confirm that this research thesis, titled "The Effect of Agile Project Management Practices on Project Success: The Moderating Role of Top-Level Management Support in the Ethiopian Health Sector," is my own original work. This work has neither been published nor used to submit the work for any other degrees or qualifications. References for all sources used in this work are duly cited.

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This hereby confirms that this project titled "The Effect of Agile Project Management Practices on Project Success: The Moderating Role of Top-Level Management Support in the Ethiopian Health Sector" submitted by Samuel Dinkineh Fantaye as part of the requirement for the Master of Arts Degree in Project Management at Addis Ababa University, School of Commerce, is entirely an original piece of work that has never been submitted elsewhere for awarding any degree.

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List of Abbreviations

APM - Agile Project Management

APMP - Agile Project Management Practices

CA - Communicative Agility

CSF - Critical Success Factor

EHR - Electronic Health Record

FA - Flexibility Agility (Change-Affine Agility)

IA - Iterative Agility

IOA - Improvement-Oriented Agility

IT - Information Technology

PDA - Product-Driven Agility

PMI - Project Management Institute

PS - Project Success

SOA - Self-Organized Agility

SPSS - Statistical Package for the Social Sciences

TMS - Top-Level Management Support

ABSTRACT

Public hospitals in Ethiopia continue to face project implementation challenges, including delays, cost overruns, and inefficiencies linked to traditional project management approaches. Agile Project Management has emerged as a flexible and adaptive alternative, yet evidence of its effectiveness in Low- and Middle-Income Countries (LMICs), particularly in healthcare, remains limited. The role of Top-Level Management Support (TMS) in strengthening this relationship is also underexplored.

This study examined the effect of Agile Project Management practices on project success and assessed the moderating role of Top-Level Management Support in three federal public hospitals in Addis Ababa. Quantitative descriptive and explanatory research design was employed using data collected from 340 professionals involved in hospital projects through a structured questionnaire. Data was analyzed using IBM SPSS Statistics with descriptive statistics, correlation, and regression analyses.

The findings showed a high level of Agile Project Management practice across the hospitals, particularly in self-organized and product-driven agility. Agile practices including Communicative agility, Flexibility agility, Iterative agility, Self-Organized agility, Product-Driven agility and Improvement-Oriented agility had a significant positive effect on project success, explaining 45.9% of the variation in project outcomes. Among the agile dimensions, improvement-oriented agility showed the strongest contribution to project success. However, the moderating effect of Top-Level Management Support was not statistically significant, contributing only 0.4% additional variance.

Guided by Contingency Theory, the study concludes that Agile Project Management practices significantly improve project success in the Ethiopian healthcare sector. The findings suggest that project success is more strongly influenced by team autonomy, adaptability, and continuous improvement than by direct managerial intervention. Recommendations have been provided for improving agile implementation and organizational effectiveness.

Keywords: Agile Project Management, Project Success, Top Management Support, Health Care Sector.

CHAPTER 1: INTRODUCTION

1.1 Background of the Study

Projects have become central mechanisms through which organizations introduce innovations, implement strategic initiatives, improve service delivery, and respond to changing environmental demands. In healthcare systems, projects are increasingly used to implement digital health solutions, quality improvement initiatives, infrastructure development, medical technology adoption, and service transformation programs. However, healthcare projects frequently operate under conditions of uncertainty, complexity, and competing stakeholder expectations, making successful implementation increasingly challenging (World Health Organization [WHO], 2023).

Traditionally, project management has relied on predictive approaches that emphasize detailed planning, fixed requirements, sequential implementation, and control mechanisms. While these approaches remain useful for projects with stable conditions, they often become less effective in environments where requirements change rapidly and unexpected challenges emerge. Recent project management literature highlights that complex projects require adaptive approaches capable of responding to uncertainty through continuous learning, stakeholder engagement, and incremental delivery (Project Management Institute [PMI], 2021; PMI, 2023).

Agile Project Management has emerged as an important alternative approach for managing complex projects by emphasizing flexibility, collaboration, iterative development, customer value, and continuous improvement. Unlike traditional approaches that attempt to predict all project requirements at the beginning, agile approaches recognize uncertainty as an inherent characteristic of projects and provide mechanisms for responding to change throughout implementation (Highsmith, 2020; PMI, 2021). Recent evidence indicates that agile practices improve project performance by strengthening communication, increasing stakeholder participation, accelerating problem-solving, and enabling teams to deliver valuable outcomes more effectively (Serrador & Pinto, 2021; Rigby et al., 2023).

The healthcare sector has increasingly recognized the importance of agile approaches because healthcare projects involve multiple professional groups, complex workflows, evolving technologies, and high expectations regarding quality and patient safety. The implementation of electronic health records, telemedicine platforms, clinical quality improvement programs, and healthcare innovations requires approaches that allow continuous adjustment based on user feedback and operational realities (WHO, 2021; WHO, 2024). Agile methods provide opportunities for healthcare organizations to improve project responsiveness and ensure that implemented solutions better align with clinical and patient needs.

Despite the potential benefits of agile approaches, healthcare organizations face significant challenges in adopting Agile Project Management. Healthcare institutions are often characterized by hierarchical structures, professional boundaries, strict regulations, and established routines that may limit flexibility and rapid decision-making. Recent studies indicate that agile transformation requires not only the adoption of agile practices but also changes in organizational culture, leadership behavior, governance structures, and team capabilities (Dikert et al., 2022; Conforto et al., 2021).

Leadership support is considered a critical organizational factor influencing successful agile implementation. Top-level management involves providing strategic direction, allocating resources, removing organizational barriers, encouraging innovation, and creating an environment where project teams can operate effectively. Recent research emphasizes that leadership plays an important role in facilitating organizational agility by promoting trust, empowerment, and collaboration among project teams (Rigby et al., 2023; Denning, 2021).

However, the relationship between agile practices, leadership support, and project success remains context dependent. Contingency theory suggests that management practices are effective when they fit the organizational environment in which they are applied. Therefore, agile practices that succeed in technology companies may not produce identical outcomes when implemented in healthcare organizations with different institutional characteristics.

In Ethiopia, healthcare institutions are implementing various projects aimed at improving health service quality, strengthening health information systems, expanding infrastructure, and introducing innovative healthcare solutions. However, many healthcare projects continue to experience challenges related to resource limitations, implementation delays, coordination problems, and sustainability concerns. Although Agile Project Management may provide opportunities to address these challenges, empirical evidence regarding its effectiveness within Ethiopian healthcare institutions remains limited.

Therefore, this study examines the effect of Agile Project Management practices on project success and investigates the moderating role of top-level management support in Ethiopian hospital projects. The findings are expected to contribute evidence for improving healthcare project management practices and supporting successful health system transformation.

1.2 Statement of the Problem

Healthcare projects play an essential role in strengthening health systems by introducing innovations, improving operational processes, and enhancing service delivery. Nevertheless, achieving successful project outcomes remains challenging worldwide, particularly in healthcare environments where projects must operate within complex systems involving multiple stakeholders, strict regulations, limited resources, and rapidly changing requirements (WHO, 2023). Many healthcare projects experience difficulties related to delays, cost escalation, inadequate stakeholder coordination, and failure to achieve intended benefits.

Traditional project management approaches have historically supported healthcare projects through structured planning and control mechanisms. However, these approaches may have limitations when applied to complex healthcare environments characterized by uncertainty and continuous change. Recent studies argue that healthcare organizations increasingly require adaptive project management approaches that allow continuous learning, stakeholder engagement, and rapid adjustment during implementation (PMI, 2021; Serrador & Pinto, 2021).

Agile Project Management has gained attention as a potential solution because it supports flexibility, iterative delivery, teamwork, and continuous improvement. Evidence from different industries demonstrates that agile practices positively influence project success by improving communication, responsiveness, and stakeholder satisfaction. However, most existing evidence originates from software development and private-sector environments, creating uncertainty regarding the applicability of agile approaches within public healthcare institutions, particularly in developing countries (Dikert et al., 2022).

Healthcare organizations differ significantly from technology companies because they operate within highly regulated environments involving clinical responsibilities, professional autonomy, patient safety requirements, and complex organizational structures. Therefore, understanding how agile practices influence healthcare project success requires context-specific investigation.

Furthermore, successful implementation of agile practices may depend on organizational support mechanisms. Top-level management support is frequently identified as an important factor because leaders influence resource availability, organizational commitment, decision-making processes, and acceptance of new management approaches. However, recent studies have produced mixed findings regarding whether leadership support strengthens the relationship between agile practices and project success, suggesting the need for further empirical investigation in different organizational contexts (Rigby et al., 2023; Dikert et al., 2022).

In Ethiopia, limited empirical research has examined Agile Project Management within public healthcare institutions. Although hospitals undertake numerous projects related to healthcare improvement, digital transformation, infrastructure development, and service innovation, evidence regarding the effectiveness of agile practices and the influence of leadership support remains insufficient. Existing project management practices in many healthcare institutions continue to rely primarily on traditional approaches, despite increasing complexity and uncertainty in healthcare delivery.

Therefore, this study addresses three important gaps. First, it responds to the limited evidence regarding Agile Project Management application in healthcare settings. Second, it contributes evidence from a developing country context where organizational realities differ from those of high-income countries. Third, it examines whether top-level management support influences the relationship between agile practices and project success.

By addressing these gaps, the study aims to provide practical and theoretical insights for healthcare leaders, project managers, and policymakers seeking to improve project implementation effectiveness and strengthen health system performance in Ethiopia.

1.3 Research Questions

The study addresses the following research questions:

1. What effect do agile project management practices have on project success ?
2. Does communicative agility affect project success?
3. Does change-affine agility (flexibility) affect project success?
4. Does iterative agility affect project success?
5. Does self-organized agility affect project success?
6. Does product-driven agility affect project success?
7. Does improvement-oriented agility affect project success?
8. How does top-level management support moderate the relationship between agile project management practices and project success?

1.4 Objectives of the Study

1.4.1 General Objective

The primary objective is to examine the effect of agile project management practices on project success and assess the moderating role of top-level management support.

1.4.2 Specific Objectives

The specific objectives of the study are:

1. To examine the effect of communicative agility on project success.
2. To assess the impact of change-affine agility (flexibility) on project success.
3. To determine the influence of iterative agility on project success.
4. To evaluate the effect of self-organized agility on project success.
5. To investigate the impact of product-driven agility on project success.
6. To examine the effect of improvement-oriented agility on project success.
7. To determine the moderating effect of top-level management support on the relationship between agile project management practices and project success.

8. To assess agile project management practices, project success and top management support level at the Ethiopian public hospitals.

1.5 Significance of the Study

This study has both theoretical and practical significance. This study contributes theoretically to project management literature by extending project management research into the healthcare and hospital context particularly in a developing-country setting.

It also provides practical significance to hospital managers, project leaders and policymakers with evidence-based insights into how agile practices can enhance project success and how leadership support can strengthen their effectiveness

1.6 Scope of the Study

The study selected St. Peter Specialized Hospital, St. Paul Hospital Millennium Medical College, and ALERT Hospital because they represent major public specialized hospitals in Addis Ababa with substantial experience in implementing hospital-based projects within the five-year period from 2020 to 2025, allowing for the examination of recent project management experiences, challenges, and outcomes. These hospitals were purposively chosen due to their active involvement in health system strengthening initiatives, infrastructure development, quality improvement programs, and externally funded projects, making them suitable settings for examining project management practices and challenges.

Additionally, the three hospitals provide diversity in institutional focus and service delivery. St. Peter Specialized Hospital is known for its specialization in infectious diseases and rehabilitation services, St. Paul Hospital Millennium Medical College combines tertiary healthcare services with medical education and research, while ALERT Hospital has strong expertise in leprosy, rehabilitation, and public health research. This variation allows the study to capture broader perspectives and improve the comparability of findings across different healthcare contexts.

Their location within Addis Ababa also provides accessibility for data collection and ensures feasibility in terms of time and resource constraints. Therefore, selecting these hospitals

enhances the study's relevance, representativeness, and practical applicability within the Ethiopian public health sector.

1.7 Limitation of the Study

The study has limitations, including a cross-sectional research design and reliance on self-reported data which may lead to response bias.

1.8 Organization of the Study

This thesis consists of five chapters. Chapter one sets out the introduction, background, problem statement, objectives, significance, scope, and limitations of the study. Relevant theoretical, conceptual, and empirical literature will be reviewed in the subsequent chapter, from which the study will derive the conceptual framework and research hypotheses. This chapter also discusses the appropriate research methodology. The fourth chapter will present the results of the data analysis, after which the fifth chapter summarizes the study findings, makes conclusions, and offers recommendations based on the study's output.

1.9 Definition of Key Terms

- **Agile Project Management (APM):** An adaptive project management approach that emphasizes flexibility, collaboration, iterative delivery, and continuous improvement to respond to changing project requirements (PMI, 2021).
- **Agile Project Management Practices:** Specific agile methods and behaviors used by project teams, including communication, flexibility, iteration, self-organization, stakeholder focus, and continuous improvement (PMI, 2021).
- **Communicative Agility:** The ability of project teams to maintain effective, transparent, and continuous communication among team members and stakeholders (Conforto et al., 2021).
- **Change-Affine (Flexibility) Agility:** The ability of project teams to adapt quickly and effectively to changes in project requirements and environments (Highsmith, 2020).
- **Iterative Agility:** A project approach where activities and outputs are developed through repeated cycles of planning, implementation, feedback, and improvement (Schwaber & Sutherland, 2020).

- **Self-Organized Agility:** The ability of project teams to independently organize tasks, make decisions, and manage their work with minimal external control (Rigby et al., 2023).
- **Product-Driven Agility:** A focus on delivering valuable project outcomes that meet stakeholder and end-user needs rather than only completing planned activities (PMI, 2021).
- **Improvement-Oriented Agility:** Continuous efforts by project teams to evaluate performance, learn from experience, and improve project processes (Schwaber & Sutherland, 2020).
- **Project Success:** The achievement of project objectives and stakeholder expectations through effective delivery of planned outcomes, value, and benefits (PMI, 2021).
- **Top-Level Management Support:** The commitment and involvement of senior leaders in providing resources, guidance, authority, and organizational support for successful project implementation (Young & Poon, 2013).
- **Moderating Variable:** A variable that influences the strength or direction of the relationship between an independent variable and a dependent variable (Baron & Kenny, 1986).
- **Healthcare Project:** A temporary initiative designed to improve healthcare services, systems, processes, technologies, or organizational performance (WHO, 2023).
- **Hospital Project Management:** The application of project management principles and practices to plan, implement, and complete projects within healthcare organizations (PMI, 2021).
- **Contingency Theory:** A management theory stating that the effectiveness of a management approach depends on its fit with the organizational context and environmental conditions (Donaldson, 2001).
- **Project Team:** A group of individuals with different skills and responsibilities who work together to achieve specific project objectives (PMI, 2021).
- **Agile Transformation:** The process of adopting agile principles, practices, and organizational changes to improve adaptability and performance (Dikert et al., 2022).

CHAPTER 2: REVIEW OF RELATED LITERATURE

2.1 Introduction

This chapter presents a comprehensive review of the literature related to Agile Project Management (APM), project success, and the moderating role of top-level management support within healthcare project environments. The chapter establishes the theoretical and empirical foundation of the study by reviewing existing concepts, theories, and research findings relevant to the relationship between agile project management practices and project outcomes.

The healthcare sector is increasingly characterized by complexity, uncertainty, technological advancement, and changing stakeholder expectations. As healthcare organizations implement projects related to digital transformation, quality improvement, infrastructure development, and service innovation, traditional project management approaches may not always provide sufficient flexibility to address dynamic conditions. Consequently, Agile Project Management has gained attention as an adaptive approach that enables organizations to respond effectively to uncertainty through iterative implementation, collaboration, continuous feedback, and improvement (Project Management Institute [PMI], 2021; World Health Organization [WHO], 2023).

Although previous studies have demonstrated the positive contribution of agile practices to project performance, most empirical evidence has originated from information technology and software development contexts. Limited research has examined agile implementation within healthcare institutions, particularly in developing countries where organizational structures, resource constraints, and institutional characteristics may influence project outcomes (Dikert et al., 2022). Therefore, understanding how agile practices influence healthcare project success requires investigation within specific organizational contexts.

This chapter is organized into four main sections. The first reviews key concepts: healthcare project management, Agile Project Management and its dimensions, project success, and top-level management support. The second section establishes the study's theoretical foundation using Contingency Theory. The third section examines empirical evidence linking agile practices, management support, and project success. Finally, the chapter outlines identified research gaps, presents the conceptual framework, and develops the research hypotheses.

2.2 Conceptual Review

2.2.1 Project Management in Healthcare Context

Project management has become an essential management approach for organizations seeking to implement strategic initiatives, introduce innovations, and achieve organizational improvements. According to the Project Management Institute (PMI), a project is a temporary endeavor undertaken to create a unique product, service, or result. Effective project management involves applying knowledge, skills, tools, and techniques to project activities to meet defined objectives and stakeholder expectations (PMI, 2021).

Healthcare organizations increasingly rely on projects to address emerging challenges and improve health system performance. Healthcare projects include the implementation of electronic health records, digital health platforms, clinical quality improvement programs, hospital infrastructure development, medical technology adoption, and healthcare service redesign. These projects require coordination among diverse professional groups, including healthcare providers, administrators, technical experts, policymakers, and patients (WHO, 2021).

Unlike projects in many other sectors, healthcare projects operate within highly complex environments due to professional diversity, regulatory requirements, patient safety considerations, ethical obligations, and unpredictable service demands. The success of healthcare projects depends not only on technical implementation but also on effective stakeholder coordination, organizational readiness, and the ability to adapt to changing circumstances (WHO, 2023).

Traditional project management approaches have historically emphasized comprehensive planning, predefined objectives, sequential implementation, and strict monitoring of project constraints such as scope, time, and cost. While these approaches remain valuable for predictable projects, they may become less effective in healthcare environments where requirements evolve during implementation and new challenges emerge unexpectedly (PMI, 2021).

Recent healthcare transformation initiatives have increased the demand for adaptive project management approaches. For example, digital health implementation requires continuous adjustment based on user experiences, technological changes, and operational realities. Similarly, healthcare innovation projects require flexibility because solutions often evolve through learning and stakeholder feedback. Agile Project Management provides such flexibility by supporting incremental delivery, collaborative decision-making, and continuous improvement (Rigby et al., 2023).

In low- and middle-income countries, including Ethiopia, healthcare projects face additional challenges related to limited resources, infrastructure constraints, workforce capacity, and institutional complexity. These conditions make adaptive management approaches increasingly important. However, successful implementation of agile approaches requires consideration of organizational culture, leadership support, and contextual factors that influence project performance.

2.2.2 Agile Project Management (APM)

Agile Project Management is an adaptive approach that enables project teams to manage uncertainty through flexibility, collaboration, iterative development, and continuous learning. Unlike traditional predictive approaches that attempt to define all project requirements at the beginning, agile approaches recognize that project requirements may change during implementation and provide mechanisms for responding effectively to such changes (Highsmith, 2020).

The foundation of agile management originates from the Agile Manifesto, which emphasizes individuals and interactions, working solutions, customer collaboration, and responsiveness to change. Although initially developed for software development, agile principles have expanded into various sectors, including healthcare, manufacturing, education, and public services due to their ability to support complex project environments (Schwaber & Sutherland, 2020).

According to PMI (2021), agile project management focuses on delivering value through incremental progress, frequent stakeholder engagement, adaptive planning, and continuous

improvement. Agile teams typically work through short development cycles, review progress regularly, and modify activities based on feedback and changing circumstances.

The increasing adoption of agile approaches in healthcare reflects the growing recognition that healthcare projects require flexibility and stakeholder-centered implementation. Healthcare innovations often involve uncertainty because solutions must be adapted to clinical workflows, user expectations, regulatory requirements, and available resources. Agile approaches allow healthcare teams to test solutions, collect feedback, and improve outcomes before large-scale implementation (WHO, 2021).

Recent research demonstrates that agile practices contribute positively to project success by improving communication, reducing implementation risks, increasing stakeholder satisfaction, and enhancing team performance. Serrador and Pinto (2021) found that agile approaches are associated with improved project success outcomes, particularly in environments characterized by uncertainty and complexity.

However, agile implementation does not automatically guarantee project success. Studies indicate that organizational readiness, leadership commitment, team capability, and cultural alignment significantly influence agile effectiveness (Dikert et al., 2022). Therefore, examining agile practices within specific contexts, such as Ethiopian public hospitals, is necessary to understand their contribution to healthcare project performance.

2.4 Dimensions of Agile Project Management Practices

Agile Project Management (APM) is not a single uniform methodology, but a collection of principles, values, and practices designed to enhance adaptability, collaboration, and continuous value delivery in complex project environments. Over time, different frameworks such as Scrum, Kanban, Lean, and hybrid agile approaches have identified multiple practices associated with agile effectiveness. However, empirical research in agile project management consistently shows that not all agile practices contribute equally to project success, and their relevance often depends on the organizational and sectoral context (Project Management Institute [PMI], 2021; Rigby et al., 2023).

In this study, after detailed reviews six core agile project management practices were selected: communicative agility, change-affine (flexibility) agility, iterative agility, self-organized agility, product-driven agility, and improvement-oriented agility based on three main justifications: theoretical relevance, empirical support, and contextual applicability to healthcare project environments.

Theoretical perspective

These six practices represent the most widely recognized and recurring dimensions of agile implementation across major agile frameworks. For example, the Agile Manifesto emphasizes individuals and interactions (communication), responding to change (flexibility), delivering working solutions iteratively, collaboration through self-organizing teams, continuous delivery of value, and ongoing reflection and improvement (Schwaber & Sutherland, 2020; PMI, 2021). These principles are consistently operationalized in project management literature as key behavioral and process-oriented dimensions of agility.

Empirical perspective

Recent studies on agile project success demonstrate that communication effectiveness, adaptability to change, iterative delivery, team autonomy, value orientation, and continuous improvement are among the strongest and most frequently tested predictors of project performance outcomes (Serrador & Pinto, 2021; Dikert et al., 2022; Rigby et al., 2023). These dimensions have shown consistent statistical relationships with project success across different sectors, particularly in complex and dynamic environments.

Contextual perspective

Healthcare projects require high levels of coordination, responsiveness, and quality control due to the involvement of multiple professional groups, strict regulatory requirements, and direct implications for patient safety and service quality. In such environments, these six practices are particularly relevant because:

- Communication is essential for multidisciplinary coordination

- Flexibility is required due to changing clinical and operational conditions
- Iterative delivery supports safe implementation and gradual adoption
- Self-organization enables faster decision-making in complex clinical settings
- Product-driven focus ensures patient-centered and value-based outcomes
- Continuous improvement aligns with healthcare quality improvement systems

In addition, these dimensions align well with the structure of hospital project teams in Ethiopia, where projects often involve collaborative but hierarchical systems requiring both autonomy and leadership support. Therefore, selecting these six practices provides a balanced framework that captures both technical and behavioral aspects of agile implementation while remaining measurable within the healthcare project environment.

Finally, these six constructs are widely used in recent project management and healthcare transformation studies as reliable indicators of agile maturity and effectiveness, making them suitable for empirical testing in this research model.

2.2.3.1 Communicative Agility

Communication is a fundamental element of successful project implementation because projects involve coordination among individuals with different knowledge, responsibilities, and expectations. Communicative agility refers to the ability of project teams to establish timely, transparent, and continuous communication channels that facilitate information sharing, collaboration, and rapid decision-making (Conforto et al., 2021).

Unlike traditional project approaches where communication is often formal and periodic, agile project management emphasizes frequent interaction among team members and stakeholders. Agile teams use continuous communication to identify challenges early, clarify requirements, resolve conflicts, and ensure that project activities remain aligned with stakeholder expectations (PMI, 2021).

In healthcare projects, effective communication is particularly important because implementation usually requires collaboration among healthcare professionals, administrators, policymakers, technical experts, and service users. Poor communication may result in misunderstanding of project objectives, resistance to change, delayed decisions, and ineffective

utilization of resources. Therefore, communicative agility enables healthcare project teams to coordinate complex activities and improve project outcomes.

Recent studies indicate that communication effectiveness is strongly associated with agile project success because it improves teamwork, stakeholder engagement, and knowledge sharing. When project teams maintain open communication and receive continuous feedback, they are better positioned to adapt to challenges and achieve project objectives (Serrador & Pinto, 2021).

2.2.3.2 Change-Affine (Flexibility) Agility

Change-affine agility refers to the ability of project teams to recognize, accept, and respond effectively to changing conditions throughout the project lifecycle. Agile approaches consider change as a normal characteristic of complex projects rather than as a failure of planning (Highsmith, 2020).

Healthcare projects frequently experience changes due to emerging technologies, policy reforms, resource availability, stakeholder requirements, and operational challenges. Therefore, flexibility is essential for maintaining project effectiveness in uncertain environments.

Agile project teams use adaptive planning, frequent reviews, and stakeholder feedback mechanisms to modify project activities when necessary. This flexibility allows organizations to minimize risks, improve decision-making, and maintain alignment between project outputs and stakeholder needs (PMI, 2021).

Evidence from recent studies suggests that flexible project approaches improve project performance, particularly in complex environments where requirements cannot be fully predicted at the beginning of implementation (Rigby et al., 2023). In healthcare settings, flexibility enables organizations to adjust interventions according to clinical realities and improve the sustainability of project outcomes.

2.2.3.3 Iterative Agility

Iterative agility refers to the implementation of projects through repeated cycles of planning, execution, evaluation, and improvement. Instead of delivering a final product only at the end of a project, agile teams develop outputs incrementally and continuously refine them based on feedback (Schwaber & Sutherland, 2020).

The iterative approach reduces project risks because problems can be identified and addressed early during implementation. It also allows stakeholders to participate throughout the project lifecycle, ensuring that final outcomes better reflect user requirements.

In healthcare projects, iterative approaches are valuable because healthcare interventions often require testing, evaluation, and adjustment before full implementation. For example, digital health systems and quality improvement initiatives require continuous refinement based on user experience and operational challenges.

Previous research indicates that iterative approaches contribute to project success by improving adaptability, reducing uncertainty, and increasing stakeholder satisfaction (Serrador & Pinto, 2021).

2.2.3.4 Self-Organized Agility

Self-organized agility refers to the ability of project teams to manage their activities independently, make operational decisions, and determine the best approaches for achieving project objectives. Agile methodologies emphasize empowered teams rather than strict hierarchical control (Rigby et al., 2023).

Self-organized teams are characterized by shared responsibility, collaboration, accountability, and autonomy. Team members actively participate in decision-making and use their expertise to solve problems quickly.

In healthcare environments, self-organized teams are important because project implementation often requires rapid responses from professionals with different areas of expertise. Empowered teams can make timely decisions, improve coordination, and reduce unnecessary administrative delays.

However, self-organization requires supportive organizational conditions, including leadership trust, clear objectives, and appropriate authority delegation. Without these conditions, teams may experience limitations in decision-making and innovation.

2.2.3.5 Product-Driven Agility

Product-driven agility refers to the focus of project teams on creating valuable outcomes that address stakeholder and end-user needs. Agile approaches prioritize value delivery rather than merely completing predefined project activities (PMI, 2021).

In healthcare projects, product-driven agility means ensuring that project output contributes to improved healthcare services, better patient experiences, and enhanced organizational performance. This requires continuous engagement with end users and stakeholders throughout implementation.

For example, healthcare technology projects should not only focus on system development but also consider usability, workflow integration, and actual improvements in healthcare delivery.

Research indicates that projects emphasizing stakeholder value and user involvement have higher possibilities of achieving sustainable outcomes because they ensure alignment between project outputs and organizational needs (Rigby et al., 2023).

2.2.3.6 Improvement-Oriented Agility

Improvement-oriented agility refers to the continuous evaluation and enhancement of project processes through learning, reflection, feedback, and adaptation. Agile teams regularly review their performance and identify opportunities for improvement (Schwaber & Sutherland, 2020).

Continuous improvement is particularly important in healthcare because service delivery environments constantly change. Healthcare organizations must learn from implementation experiences and improve processes to maintain quality and effectiveness.

Improvement-oriented practices promote organizational learning, innovation, and better resource utilization. Studies demonstrate that continuous improvement mechanisms strengthen project performance by enabling teams to identify weaknesses and implement corrective actions throughout the project lifecycle (PMI, 2021).

2.3 Project Success

Project success is a central concept in project management research and refers to the extent to which a project achieves its intended objectives and creates expected value for stakeholders. Traditionally, project success was measured using the “iron triangle” criteria of time, cost,

scope, and quality. However, contemporary project management literature recognizes that success extends beyond these traditional measures to include stakeholder satisfaction, organizational benefits, sustainability, and value creation (PMI, 2021).

Healthcare project success is particularly complex because outcomes are not limited to completing activities within budget and schedule. Successful healthcare projects should contribute to improved service quality, better patient outcomes, increased efficiency, and sustainable organizational improvement.

Recent studies indicate that agile approaches improve project success by enabling flexibility, stakeholder involvement, and continuous adjustment during implementation. Agile practices allow organizations to focus on delivering meaningful outcomes rather than simply completing project tasks (Serrador & Pinto, 2021).

In this study, project success is measured as the extent to which hospital projects achieve planned objectives, satisfy stakeholder expectations, deliver intended benefits, and improve healthcare performance.

2.4 Top-Level Management Support

Top-level management support refers to the commitment and involvement of senior leaders in providing resources, strategic direction, authority, and organizational support necessary for successful project implementation (Young & Poon, 2013).

Management support plays an important role in project success because leaders influence organizational priorities, resource allocation, decision-making processes, and acceptance of new approaches.

In agile environments, leadership responsibilities differ from traditional command-and-control approaches. Agile leaders provide vision, remove barriers, empower teams, and create conditions that encourage collaboration and innovation (Denning, 2021).

Healthcare organizations often have complex structures where leadership commitment is essential for implementing new management approaches. Without leadership support, agile initiatives may face resistance, inadequate resources, and difficulties in organizational adoption.

Therefore, top-level management support is considered a potential moderator that may influence how effectively agile practices contribute to project success.

2.5 Theoretical Review

Contingency Theory was chosen as the guiding theoretical framework for this study because it emphasizes that there is no single best approach to managing projects; rather, effective project management depends on the specific context and conditions in which projects are implemented. Hospital-based projects are often influenced by multiple dynamic factors such as organizational structure, resource availability, leadership style, stakeholder involvement, policy environment, and external donor support. These factors vary across hospitals and can significantly affect project performance.

In the context of this study, which examines project management practices in St. Peter Specialized Hospital, St. Paul Hospital Millennium Medical College, and ALERT Hospital, Contingency Theory provides a suitable lens for understanding how different institutional settings shape project implementation and outcomes. Since each hospital has unique operational priorities, capacities, and challenges, the theory helps explain why project management strategies may differ and why certain approaches may be more effective in one setting than another.

The theory is particularly relevant for analyzing how managers adapt their planning, decision-making, and implementation strategies to fit situational demands, making it highly applicable for assessing hospital-based projects in Ethiopia's complex healthcare environment.

2.5.1 Contingency Theory

Contingency theory proposes that organizational effectiveness depends on the alignment between management practices and situational factors. The theory argues that there is no universally best management approach; rather, successful practices depend on environmental conditions, organizational characteristics, and contextual factors (Donaldson, 2001).

The theory is relevant to this study because Agile Project Management practices may not produce identical results in all organizations. The effectiveness of agile approaches may depend on factors such as leadership support, organizational culture, team capability, and institutional readiness.

Healthcare organizations operate within unique environments characterized by professional complexity, regulatory requirements, and resource constraints. Therefore, understanding the role of contextual factors is important when examining the relationship between agile practices and project success.

2.5.2 Application of Contingency Theory in This Study

This study applies contingency theory by proposing that the relationship between Agile Project Management practices and project success is influenced by top-level management support.

The conceptual framework assumes that Agile Project Management practices directly drive project success, though the strength of this relationship depends heavily on top-level management support. Organizations with stronger leadership support typically establish superior conditions for agile implementation by ensuring resource availability, fostering team empowerment, and driving organizational alignment.

2.6 Empirical Review

2.6.1 Agile Project Management Practices and Project Success

The relationship between Agile Project Management practices and project success has received increasing attention in recent years due to the growing complexity and uncertainty associated with organizational projects. Empirical studies indicate that agile practices contribute to improved project outcomes by enhancing adaptability, communication, stakeholder involvement, and continuous learning.

Serrador and Pinto (2021) conducted a quantitative analysis of agile project management and found that agile approaches significantly contribute to project success. Their study demonstrated that agile practices improve project performance by increasing flexibility, customer satisfaction, and team collaboration. The findings suggest that agile approaches are particularly beneficial in environments where project requirements frequently change and uncertainty is high.

Similarly, Conforto et al. (2021) examined agile project management adoption beyond software development and found that agile principles can improve organizational responsiveness and project performance in different sectors. The study emphasized that communication, collaboration, and adaptive planning are important mechanisms through which agile practices influence project outcomes.

In healthcare environments, agile practices have become increasingly relevant because healthcare projects involve multiple stakeholders, changing requirements, and complex implementation processes. According to the World Health Organization (WHO, 2023), healthcare transformation initiatives require flexible management approaches that support innovation, continuous improvement, and stakeholder engagement.

Communicative Agility and Project Success

Communication is consistently identified as a critical determinant of project success. Agile methodologies emphasize frequent communication among team members and stakeholders through meetings, feedback sessions, and collaborative decision-making processes.

Research by Conforto et al. (2021) demonstrated that effective communication improves coordination, reduces misunderstanding, and enhances team performance. In healthcare projects, where multidisciplinary collaboration is essential, communicative agility enables different professional groups to share knowledge and coordinate activities effectively.

Therefore, improved communication among healthcare project teams is expected to positively influence project success.

Change-Affine (Flexibility) Agility and Project Success

Flexibility is one of the fundamental characteristics of agile project management. Agile projects are designed to accommodate changing requirements rather than strictly follow predetermined plans.

According to Highsmith (2020), flexible project approaches allow organizations to respond quickly to environmental changes and emerging challenges. Recent studies indicate that flexibility improves project resilience by enabling teams to modify strategies, priorities, and activities when necessary (Rigby et al., 2023).

Healthcare projects frequently experience changes due to technological developments, policy modifications, resource availability, and stakeholder expectations. Therefore, flexibility is expected to contribute significantly to healthcare project success.

Iterative Agility and Project Success

Iterative implementation allows project teams to deliver results gradually while continuously incorporating feedback and improvements. Unlike traditional approaches where evaluation occurs mainly at project completion, iterative approaches encourage continuous assessment throughout implementation.

Schwaber and Sutherland (2020) emphasized that iterative approaches improve transparency, reduce risks, and support continuous value delivery. Empirical evidence suggests that iterative methods increase project adaptability and improve stakeholder satisfaction.

Within healthcare projects, iterative approaches enable organizations to test solutions, identify implementation challenges early, and make necessary improvements before wider adoption.

Self-Organized Agility and Project Success

Self-organizing teams are an important component of agile project management because they promote autonomy, accountability, and collaborative problem-solving.

Rigby et al. (2023) reported that empowered teams demonstrate higher levels of innovation and faster decision-making compared with highly centralized structures. Self-organized teams are able to use their expertise effectively and respond quickly to project challenges.

In healthcare settings, self-organized teams can improve project implementation by allowing healthcare professionals and project members to make timely operational decisions based on their knowledge and experience.

Product-Driven Agility and Project Success

Product-driven agility focuses on maximizing stakeholder value by ensuring that project outputs address actual user needs. Agile projects prioritize outcomes and benefits rather than simply completing activities according to initial plans.

PMI (2021) highlights that modern project success requires organizations to focus on value delivery and stakeholder benefits. In healthcare, this means ensuring that project output contributes to improved healthcare quality, patient experience, and system efficiency.

Studies indicate that projects with strong stakeholder orientation are more likely to achieve sustainable outcomes because they maintain alignment between project deliverables and user expectations.

Improvement-Oriented Agility and Project Success

Continuous improvement is a central principle of agile project management. Agile teams regularly evaluate their performance, identify lessons learned, and implement improvements throughout the project lifecycle.

According to PMI (2021), continuous improvement improves organizational learning and enhances project performance. Healthcare organizations particularly benefit from improvement-oriented approaches because healthcare delivery requires ongoing quality enhancement and adaptation.

Therefore, improvement-oriented agility is expected to have a positive relationship with project success.

2.6.2 Top-Level Management Support and Project Success

Top-level management support has been identified as an important organizational factor influencing project success. Senior leaders provide resources, establish priorities, resolve organizational barriers, and create supportive environments for project implementation.

Young and Poon (2013) found that management support is among the most important factors contributing to successful project outcomes. Their study indicated that leadership involvement improves resource availability, organizational commitment, and project alignment.

Similarly, Zwikael (2008) demonstrated that management involvement contributes to effective project governance by ensuring appropriate decision-making, monitoring, and support throughout the project lifecycle.

In healthcare organizations, leadership support is particularly important because projects often require changes in organizational practices, resource allocation, and professional behaviors. Strong leadership commitment can facilitate innovation and improve project implementation effectiveness.

2.6.3 Moderating Role of Top-Level Management Support

However, empirical findings regarding the moderating effect of leadership support remain inconsistent across studies. Recent research indicates that in some contexts, top-level management support significantly enhances the effectiveness of agile practices by improving resource allocation, strategic alignment, and organizational responsiveness (Project Management Institute, 2023; Rigby et al., 2023). Similarly, studies in project-based organizations suggest that leadership commitment plays a critical role in enabling agile transformation success by fostering empowerment, removing organizational barriers, and reinforcing agile culture (Denning, 2021; Dikert et al., 2022).

However, contrasting evidence shows that the impact of leadership support may be indirect or context-dependent, with some studies arguing that agile team autonomy, cross-functional capability, and organizational maturity exert stronger direct effects on project outcomes than hierarchical leadership involvement (Conforto et al., 2021; Serrador & Pinto, 2021). In such cases, mature agile teams can operate effectively even with minimal managerial intervention, suggesting that leadership may function more as an enabling condition rather than a direct performance driver.

This inconsistency in empirical findings highlights that the moderating role of leadership support is not universally established and may vary depending on organizational context, sector, and implementation maturity level. Evidence from healthcare and public-sector environments remains limited, despite their high complexity and hierarchical structures (World Health Organization, 2023; WHO, 2024). Therefore, further empirical investigation is required, especially in developing country healthcare settings where organizational constraints, leadership structures, and resource limitations may shape the effectiveness of agile implementation differently.

2.7 Research Gap

Despite growing interest in Agile Project Management, several critical gaps persist in the current literature. First, empirical research remains heavily concentrated on software development and information technology, leaving a significant shortage of studies within

healthcare sectors. Healthcare environments navigate unique operational challenges such as stringent patient safety protocols, high professional diversity, and strict regulatory requirements that are rarely accounted for in traditional agile literature.

Second, existing evidence is overwhelmingly drawn from developed nations, creating a geographical bias. Developing countries like Ethiopia present distinct institutional environments, acute resource constraints, and different organizational structures. These contextual variations can fundamentally alter how agile methodologies are implemented and how effectively they perform.

Third, previous studies have focused almost exclusively on the direct relationship between agile practices and project success. By treating this dynamic as a simple linear path, literature largely ignores the potential of critical organizational factors. Specifically, there is limited investigation into how top-level management support functions as a moderating variable that can strengthen or weaken this relationship.

Finally, while Ethiopian healthcare institutions are actively launching projects centered on digital transformation, healthcare improvement, and service innovation, there is an absence of localized data. Empirical evidence evaluating how agile project management practices contribute to project success within Ethiopian hospitals remains virtually non-existent.

To address these gaps, this study examines the effect of Agile Project Management practices on project success while assessing the moderating role of top-level management support specifically within the context of Ethiopian healthcare projects.

2.8 Conceptual Framework

Based on the reviewed literature, this study proposes a conceptual framework in which the selected five agile project management practices (communicative, change-affine, iterative, self-organized, product-driven, and improvement-oriented) influence project success. Top management support is hypothesized to moderate this relationship by strengthening the positive effect of agile practices on project success in hospital projects.

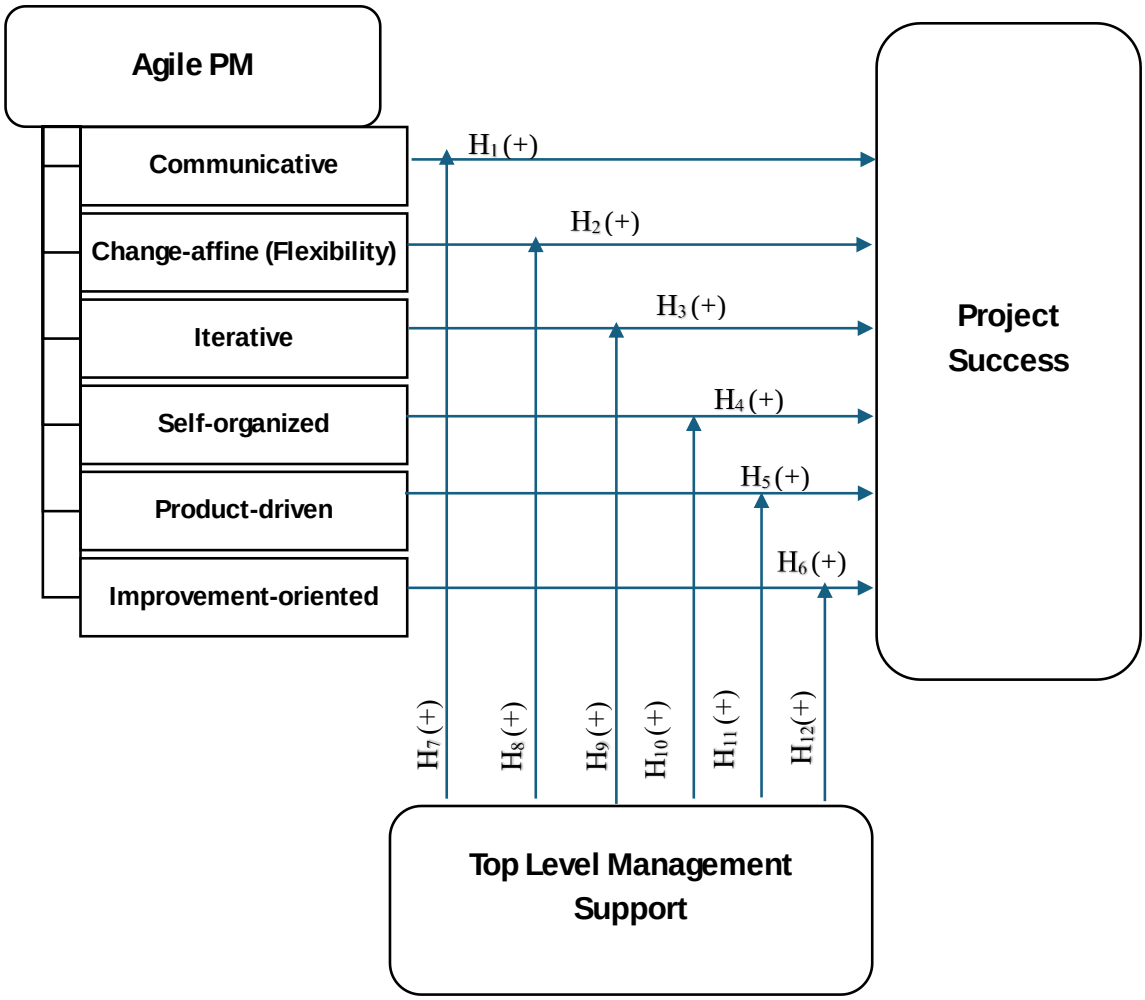


Fig2.10.1 Conceptual Framework of the study

2.11 Research Hypotheses

Based on the study objectives, reviewed literature and the proposed conceptual framework, the following research hypotheses are formulated.

2.11.1 Direct Relationship Hypotheses (Agile Dimensions)

Hypothesis 1 (H1): Communicative agility has a significant and positive effect on project success.

Hypothesis 2 (H2): Change-affine (flexibility) agility has a significant and positive effect on project success.

Hypothesis 3 (H3): Iterative agility has a significant and positive effect on project success.

Hypothesis 4 (H4): Self-organized agility has a significant and positive effect on project success.

Hypothesis 5 (H5): Product-driven agility has a significant and positive effect on project success.

Hypothesis 6 (H6): Improvement-oriented agility has a significant and positive effect on project success.

2.11.2 Moderating Relationship Hypotheses

Hypothesis 7 (H7): Top management support moderates the relationship between communicative agility and project success, such that the positive effect of communicative agility on project success is stronger when top management support is high.

Hypothesis 8 (H8): Top management support moderates the relationship between change-affine (flexibility) agility and project success**,** such that the positive effect of change-affine (flexibility) agility on project success is stronger when top management support is high.

Hypothesis 9 (H9): Top management support moderates the relationship between iterative agility and project success**,** such that the positive effect of iterative agility on project success is stronger when top management support is high.

Hypothesis 10 (H10): Top management support moderates the relationship between self-organized agility and project success, such that the positive effect of self-organized agility on project success is stronger when top management support is high.

Hypothesis 11 (H11): Top management support moderates the relationship between product-driven agility and project success, such that the positive effect of product-driven agility on project success is stronger when top management support is high.

Hypothesis 12 (H12): Top management support moderates the relationship between improvement-oriented agility and project success**,** such that the positive effect of improvement-oriented agility on project success is stronger when top management support is high.

CHAPTER 3: RESEARCH METHODOLOGY

3.1 Description of the Study Area

This study was conducted in three federal hospitals located in Addis Ababa, Ethiopia: St. Peter Specialized Hospital, St. Paul's Hospital Millennium Medical College, and ALERT Hospital. They are study selected because they represent major public specialized hospitals in Addis Ababa with substantial experience in implementing hospital-based projects. These hospitals were purposively chosen due to their active involvement in health system strengthening initiatives, infrastructure development, quality improvement programs, and externally funded projects, making them suitable settings for examining project management practices and challenges.

Additionally, the three hospitals provide diversity in institutional focus and service delivery. St. Peter Specialized Hospital is known for its specialization in infectious diseases and rehabilitation services, St. Paul Hospital Millennium Medical College combines tertiary healthcare services with medical education and research, while ALERT Hospital has strong expertise in leprosy, rehabilitation, and public health research. This variation allows the study to capture broader perspectives and improve the comparability of findings across different healthcare contexts.

3.2 Research Design

This study employed a mixed descriptive and explanatory research design. The descriptive component was used to provide a systematic overview of project management practices within the selected hospital settings. It enabled the assessment of how agile project management practices are implemented in practice without manipulating study variables.

The explanatory component was used to examine the statistical relationships and associations between agile project management practices, project success, and the moderating role of top-level management support. The design enabled the testing of hypothesized relationships among variables at a single point in time using quantitative data.

3.3 Research Approach

This study adopted a quantitative research approach. The approach was appropriate because it allows variables to be measured numerically and analyzed using statistical techniques.

The study was guided by Contingency Theory, which posits that the effectiveness of project management practices depends on their fitness with contextual factors. In this study, the theory informed the expectation that the relationship between agile project management practices and project success varies depending on the level of top management support.

Hypotheses were tested using structured questionnaire data, enabling statistical examination of relationships among study variables.

3.4 Target Population, Sample Size, and Sampling Technique

3.4.1 Target Population

The target population included employees involved in project activities across the three hospitals. These employees were from departments like clinical, supportive and administrative.

3.4.2 Sample Size

To determine the required sample size, the study apply the formula developed by Taro Yamane (1967) for finite study populations.

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

Where:

- n = sample size
- N = total population (2,500)
- e = margin of error (0.05)

Substituting the values:

$$n = \frac{2500}{1+2500(0.05^2)} = \frac{2500}{1+6.25} = \frac{2500}{7.25}$$

$$n \approx 345$$

Based on this formula, the final sample size for the study was **345 respondents**.

3.4.3 Sampling Technique and Stratification

A stratified random sampling technique is used in this study. Within each hospital, staff members are categorized into three major functional strata: clinical staff (physicians, nurses, midwives), supportive staff (pharmacy, public health, laboratory, imaging, and other technical units), and administrative staff. Proportional allocation applied within each stratum to ensure adequate representation of all functional groups. Subsequently, simple random sampling techniques is used to select individual respondents from each stratum.

3.4.3.1 Sample Allocation by Hospital and Strata

To ensure proportional representation, the total sample size of 345 was allocated across the three selected hospitals based on their staff population size. Further stratification was made into clinical, supportive, and administrative categories.

Hospital	Total Population	Total Sample	Clinical	Supportive	Administrative
St. Peter Specialized Hospital	750	104	63	25	16
St. Paul Hospital MMC	950	131	72	25	34
ALERT Hospital	800	110	63	21	26
Total	**2,500**	**345**	**198**	**71**	**76**

3.5 Data Sources and Data Collection Instruments

3.5.1 Data Source

The study used data collected from healthcare professionals and project team members. The data was collected using a self-administered questionnaire with a five-point Likert scale. These project teams include clinical staff (physicians, nurses, and other health professionals), supportive staff (such as pharmacy, laboratory, IT, and logistics personnel), and administrative staffs (including project coordinators, finance officers, and hospital managers).

3.5.2 Data Collection Instruments

Data is collected using a structured self-administered five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree) questionnaire which is adapted from validated

measurement distributed through Google Forms. In line with established methodological practices, Likert-scale data were treated as interval data, allowing the computation of mean and standard deviation for descriptive statistical analysis. Indeed, existing literature supports the use of parametric statistics in analyzing Likert-type data (Norman, 2010; Sullivan & Artino, 2013). The survey instrument included five major sections: demographics, dimensions of agile project management, measures of project success, items about top-level management support, and questions on overall perception of project performance. The Google form URL was circulated among the sample population through internal means such as Telegram and WhatsApp.

3.6 Validity and Reliability of Instruments

To ensure the validity and reliability of the research instruments, relevant measurement items were adapted from previous studies and aligned with the objectives of this study. A pilot test was conducted on 10% of the total study participants prior to the actual data collection to assess the clarity, relevance, and consistency of the instruments.

Based on the pilot test findings, minor adjustments were made, mainly by contextualizing and refining some terms to better fit the healthcare setting and improve respondents' understanding. The pilot study also helped verify the reliability of the measures and ensured that the instruments were appropriate for the main study.

3.7 Data Analysis

In order to facilitate interpretation, mean scores of the data collected were categorized into equally spaced categories on the scale. With minimum and maximum scores of 1 and 5, respectively (spanning a range of 4 points) and five possible responses, the intervals are 0.8 units wide.

Thus, mean scores were interpreted as follows: 1.00 – 1.80 = Strongly Disagree; 1.81 – 2.60 = Disagree; 2.61 – 3.40 = Neutral; 3.41 – 4.20 = Agree; 4.21 – 5.00 = Strongly Agree. The standard deviation statistic was calculated to measure level of agreement among respondents. Lower SD means higher level of agreement while larger SD means dispersion of views. Classification includes: 0.00 – 0.50 = Very Low Variability (High Agreement); 0.51 – 1.00 = Low Variability; 1.01 – 1.50 = Moderate Variability; and > 1.50 = High Variability (Norman, 2010; Sullivan & Artino, 2013). These techniques provide additional information besides mean scores. Correlation and multiple regression were used to analyze the effect of agile project

management practices on project success. Data analysis was done using IBM SPSS Statistics version 27 software.

Furthermore, the moderating effect of top-level management support is tested using hierarchical regression analysis. Interaction terms between top-level management support and each agile project management dimension were included to determine whether management support strengthened or weakened the relationship between agile project management practices and project success. Statistical significance was evaluated at $p < 0.05$.

3.8 Mathematical Regression Model

The study used a moderation regression model to examine the moderating effect of management support.

$$PS = \beta_0 + \beta_1 CA + \beta_2 FA + \beta_3 IA + \beta_4 SA + \beta_5 PDA + \beta_6 IOA + \beta_7 TMS + \beta_8 (CA \times TMS) + \beta_9 (FA \times TMS) + \beta_{10} (IA \times TMS) + \beta_{11} (SA \times TMS) + \beta_{12} (PDA \times TMS) + \beta_{13} (IOA \times TMS) + \epsilon$$

Where:

- **PS** = Project Success
- **CA** = Communicative Agility
- **FA** = Flexibility Agility
- **IA** = Iterative Agility
- **SA** = Self-Organized Agility
- **PDA** = Product-Driven Agility
- **IOA** = Improvement-Oriented Agility
- **TMS** = Top-Level Management Support
- **CA × TMS** = Interaction between Communicative Agility and TMS
- **FA × TMS** = Interaction between Flexibility Agility and TMS
- **IA × TMS** = Interaction between Iterative Agility and TMS
- **SA × TMS** = Interaction between Self-Organized Agility and TMS
- **PDA × TMS** = Interaction between Product-Driven Agility and TMS
- **IOA × TMS** = Interaction between Improvement-Oriented Agility and TMS

- **β0** = Constant
- **β1–β13** = Regression coefficients
- **ε** = Error term

3.9 Ethical Considerations

Ethical considerations were carefully observed throughout the study to protect the rights, dignity, and privacy of participants. Prior to data collection, ethical clearance and official permission were obtained from the research directorates of the participating hospitals, namely St. Peter Specialized Hospital, St. Paul Hospital Millennium Medical College, and ALERT Hospital.

Participation in the study was entirely voluntary, and respondents were informed about the purpose, procedures, and significance of the research before taking part. Informed consent was obtained from all participants, and they were given the right to decline participation or withdraw from the study at any stage without any negative consequences.

To maintain confidentiality, no personal identifiers such as names or contact information were collected, and all responses were treated anonymously. The collected data were used strictly for academic purposes and were securely stored to prevent unauthorized access. Furthermore, the study ensured that no physical, psychological, or professional harm was caused to participants during the data collection process.

CHAPTER 4: Data Presentation, Analysis and Discussion

4.1 Introduction

This chapter presents the results of the data analysis. The data was analyzed using the Statistical Package, for Social Sciences (SPSS) version 27. It includes the response rate, characteristics of respondents descriptive statistics, correlation analysis and regression analysis. The results are presented using figures and tables and interpreted accordingly.

4.2 Response Rate

A total of 345 online questionnaires were given out to people involved in project work in the three hospitals. Out of these 340 questionnaires were properly filled out and returned, while 5 questionnaires were not returned.

Table 4.2.1 Response Rate

Description	**Frequency**	**Percentage**
Questionnaires Distributed	345	100%
Questionnaires Returned	340	98.6%
Questionnaires Not Returned	5	1.4%

Source: SPSS output, 2026

The response rate of 98.6% is very good and suitable for analysis. According to research standards, a response rate above 70% is considered adequate for project management research.

4.3 Demographic Profile of Respondents

The current section presents information about the characteristics of the respondents, such as gender, age, and education.

Table 4.3.1 Gender Distribution

Gender	**Frequency**	**Percentage**
Male	214	62.9%
Female	126	37.1%
Total	340	100%

Source: SPSS output, 2026

About 63% of the participants claimed to be males, while the remaining 37% were females.

Table 4.3.2 Age Distribution

Age Group	Frequency	Percentage
20–29	92	27.1%
30–39	156	45.9%
40–49	66	19.4%
50+	26	7.6%
Total	340	100%

Source: SPSS output, 2026

The largest portion of respondents belonged to the age group of 30-39, which means they have already accumulated significant expertise working with hospital projects.

Table 4.3.3 Educational Level

Education Level	Frequency	Percentage
Bachelor’s degree	186	54.7%
Master’s degree	132	38.8%
PhD	22	6.5%
Total	340	100%

Source: SPSS output, 2026

The vast majority of the participants were graduates of college or had their master's or bachelor's degree. Therefore, they have the sufficient level of knowledge to understand what project management is and share their views.

4.4 Descriptive Statistics

When analyzing the responses to questions that were rated on the scale of five points, they were considered continuous variables, so it was possible to calculate mean and standard deviations. The latter is consistent with how other studies are conducted. For interpreting the obtained results, the scale was divided into equal intervals of 0.8 (Norman, 2010; Sullivan & Artino, 2013). Accordingly, mean scores were interpreted as follows: 1.00 - 1.80 = strongly disagree, 1.81 - 2.60 = disagree, 2.61 - 3.40 = neutral, 3.41 - 4.20 = agree, and 4.21 - 5.00 = strongly agree.

Standard deviation remains relevant as one of the measures that demonstrates agreement. Low values mean that people share similar viewpoints, while high values show different opinions. In this case, categories are defined as follows: below 0.5 indicates strong agreement, 0.5 to 1 reflects moderate variation, 1.01 to 1.50 suggests highly varied opinions, and above 1.50 denotes a wide disparity (Norman, 2010; Sullivan & Artino, 2013).

Communicative Agility

Table 4.4.1 Descriptive Statistics for Communicative Agility

Variable	N	Mean	Std. Deviation	Min.	Max.
Communicative Agility	340	3.48	0.61	2.13	4.75

Source: SPSS output, 2026

Communicative agility resulted in the mean of 3.48, which shows that respondents find the communication within the hospital project teams satisfactory. The standard deviation of 0.61 means that there is no serious disagreement between the participants of all three hospitals concerning this aspect.

Flexibility Agility

Table 4.4.2 Descriptive Statistics for Flexibility Agility

Variable	N	Mean	Std. Deviation	Min.	Max.
Flexibility Agility	340	3.48	0.65	2.00	5.00

Source: SPSS output, 2026

Both flexibility and agility have received the same mean of 3.48, meaning that respondents think that hospitals can adjust their operations to new conditions. The standard deviation is 0.65, meaning that there is a certain gap between their opinions. However, it is quite low, so there is still considerable agreement.

Iterative Development Agility

Table 4.4.3 Descriptive Statistics for Iterative Agility

Variable	N	Mean	Std. Deviation	Min.	Max.
Iterative Agility	340	3.48	0.64	2.00	5.00

Source: SPSS output, 2026

Iterative agility got the same mean of 3.48 (standard deviation = 0.64). Participants agree that there are cycles when small improvements are made, but not all projects are equally rolled out. Minor differences observed show that some hospital teams perform well in this area.

Self-Organized Agility

Table 4.4.4 Descriptive Statistics for Self-Organized Agility

Variable	N	Mean	Std. Deviation	Min.	Max.
Self – Organized Agility	340	3.53	0.65	2.00	4.75

Source: SPSS output, 2026

Self-organized agility scored the highest with the mean of 3.53. It means that people in the teams can organize their activities and make decisions independently. But with a standard deviation of 0.65, not every team, department, or hospital experiences the same level of freedom.

Product-Driven Agility

Table 4.4.5 Descriptive Statistics for Product-Driven Agility

Variable	N	Mean	Std. Deviation	Min.	Max.
Product - Driven Agility	340	3.51	0.62	2.00	5.00

Source: SPSS output, 2026

Product-driven agility shows a mean of 3.51, indicating that respondents generally agree that stakeholders and team members are actively involved in decision-making processes. This suggests that hospital projects incorporate collaborative decision-making practices, where team members participate in defining scope, priorities, and implementation strategies.

The relatively low standard deviation (0.62) indicates consistent perceptions among respondents, suggesting that participatory governance is well embedded in project processes within the hospitals.

Improvement-Oriented Agility

Table 4.4.6 Descriptive Statistics for Improvement-Oriented Agility

Variable	N	Mean	Std. Deviation	Min.	Max.
Improvement - Oriented Agility	340	3.48	0.60	2.25	5.00

Source: SPSS output, 2026

Improvement-oriented agility has a mean of 3.48. This shows that respondents perceive continuous improvement practices implemented in the hospital projects. This reflects the presence of mechanisms such as regular performance review, learning from experience (daily multidisciplinary round and morning sessions) , and cyclic enhancement of project processes using PDSA cycle. The relatively low standard deviation (0.60) indicates strong consistency in responses, suggesting that continuous quality improvement practices are uniformly perceived across respondents.

Project Success

Table 4.4.7 Descriptive Statistics for Project Success

Variable	N	Mean	Std. Deviation	Min.	Max.
Project Success	340	3.01	0.31	2.20	4.13

Source: SPSS output, 2026

The mean score of 3.01for project success falls within the neutral range (2.61 - 3.40). This indicates that respondents neither strongly agree nor disagree that projects are successful, suggesting a moderate level of perceived project success in hospitals. The very low standard deviation (0.31) indicates very high consistency among respondents, meaning there is strong agreement on this moderate level of project success in the Ethiopian public hospitals.

This result is important because it shows a clear gap between the agile practice implementation (which are rated as “agree” in the study) and actual project success (rated as “neutral”), suggesting that while agile methods are present, they may not yet fully translate into high project performance outcomes in hospitals.

Top Level Management Support (TMS)

Table 4.4.8 Descriptive Statistics for Top Level Management

Variable	N	Mean	Std. Deviation	Min.	Max.
Top Level Management Support (TMS)	340	2.98	1.74	1	5

Source: SPSS output, 2026

The descriptive statistics for Top Management Support (TMS) showed a mean score of 2.98 (SD = 1.74). The mean value indicates a moderate level of perceived management support for project activities. The relatively high standard deviation suggests substantial variation in respondents' perceptions, implying that management support may not be uniformly experienced across all units or projects within the organization.

4.5 Correlation Analysis

Correlation analysis was conducted to examine the relationship between agile project management practices and project success in the selected hospitals. Specifically, the analysis assessed the degree and direction of association between the six selected agile dimensions and project success indicators.

The study employed the Pearson correlation coefficient (r) to measure the strength and direction of the relationships among the variables. The results helped determine whether improvements in agile practices were associated with better project outcomes. Correlation values ranging from -1 to +1 were interpreted to identify weak, moderate, or strong relationships, where positive values indicated a direct relationship and negative values indicated an inverse relationship.

Table 4.5.1 Correlation Matrix

Variables	PS	CA	FA	IA	SA	PDA	IOA
Project Success (PS)	1.000						
Communicative Agility (CA)	.288**	1.000					
Flexibility Agility (FA)	.328**	.001	1.000				
Iterative Agility (IA)	.298**	-.004	.004	1.000			
Self-Organized Agility (SA)	.193**	.013	.060	-.019	1.000		
Product-Driven Agility (PDA)	.210**	.090	-.002	-.070	-.027	1.000	
Improvement-Oriented Agility (IOA)	.342**	-.078	.127	.080	-.058	-.017	1.000

Note:

*** Correlation is significant at p < 0.01 (1-tailed)*

Source: SPSS output, 2026

Pearson correlation coefficients showed that more agile practices go hand in hand with better project outcomes. In short, when teams used agile project management practices, projects were more likely to succeed.

4.6 Regression Analysis

Multiple regression analysis was employed to examine the influence of different dimensions of agility on project success while controlling for the effects of other variables. Specifically, the analysis assessed the contribution of communicative agility, change-affine (flexibility) agility, iterative agility, self-organized agility, product-driven agility, and improvement-oriented agility as independent variables on project success as the dependent variable.

The use of multiple regression was appropriate because it enables the determination of the extent to which each agility dimension predicts project success while adjusting for the presence of other agility factors. This approach also helps identify the relative strength and statistical significance of each predictor in explaining variations in project success.

The regression model was used to test whether the selected agility practices had a significant positive or negative influence on project outcomes. The results were interpreted using regression coefficients (β), significance values (p-value), and the coefficient of determination (R^2), which indicates the proportion of variance in project success explained by the agility dimensions.

4.6.1 Assumptions and tests

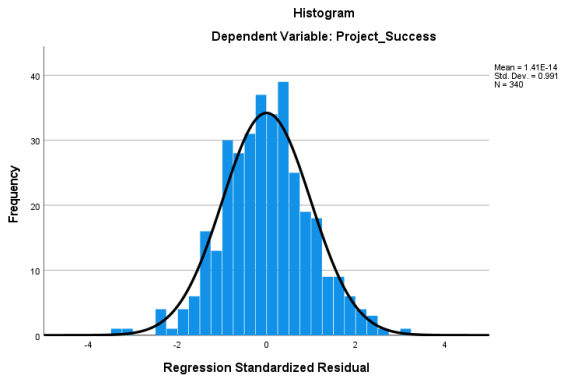
Before conducting the analysis, we ensured that all technical requirements were met. We confirmed that the data distribution was normal, the relationships were linear, errors were randomly distributed, and predictors were not collinear.

For normality, they looked at residuals with a histogram and a normal probability plot making sure the errors from their model lined up with a bell curve. With 340 data points, everything looked symmetric and normal.

Normality Test

For normality, they looked at residuals with a histogram and a normal probability plot making sure the errors from their model lined up with a bell curve.

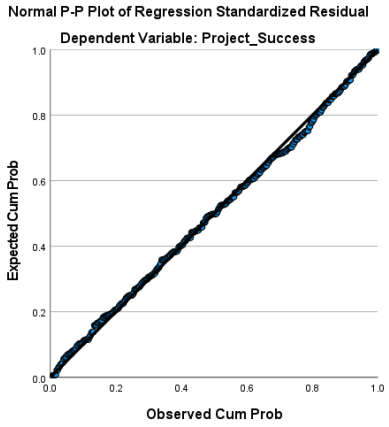
Figure 4.6.1.1 Histogram of Standardized Residuals



Source: SPSS output, 2026

With 340 data points, everything looked symmetric and normal. The descriptive statistics also support the models integrity. The mean of the residuals is zero and the standard deviation is almost 1. These results suggest that the findings on practices and project success are statistically robust.

Figure 4.6.1.2 Normal P–P Plot of Standardized Residuals



Source: SPSS output, 2026

The normal probability plot also shows that the residuals are normally distributed. The data points follow a 45-degree line indicating no significant deviations from normality.

Table 4.6.1.3 kurtosis values

	N	Minimum	Maximum	Mean	Std. Deviation	Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
Comm_Agility	340	2.13	4.75	3.4776	.61237	-1.075	.264
Flex_Agility	340	2.00	5.00	3.4801	.65413	-.941	.264
Iter_Agility	340	2.00	5.00	3.4757	.64088	-.876	.264
Self_Agility	340	2.00	4.75	3.5294	.65023	-1.001	.264
PD_Agility	340	2.00	5.00	3.5140	.62103	-.677	.264
IO_Agility	340	2.25	5.00	3.4765	.60036	-.832	.264
Project_Success	340	2.20	4.13	3.0135	.31476	.322	.264
TMS_total	340	1.00	5.00	2.9765	1.73784	-1.789	.264
Valid N (listwise)	340						

Source: SPSS output, 2026

Kurtosis values for all dimensions are found within the normal range, suggesting no severe deviation from normality.

Multicollinearity Test

First of all, it was crucial to conduct a multicollinearity test because of the presence of overlapping variance due to the correlation of related factors. Tolerance and Variance Inflation Factor (VIF) were the key diagnostics tools used for estimating the influence of each practice.

Table 4.6.1.4 Multi collinearity test

Variable	Tolerance	VIF
Communicative (Comm) Agility	0.978	1.022
Flexibility (Flex) Agility	0.985	1.015
Iterative Agility	0.967	1.034
Self-Organized (Self) Agility	0.971	1.03
Product-Driven (PD) Agility	0.982	1.018
Improvement-Oriented (IO) Agility	0.991	1.009
Top Management Support (Moderator)	0.951	1.051

Source: SPSS output, 2026

The results indicate that multicollinearity is not a concern. All VIF values are below 3.0 and tolerance values are near 1.0. These findings validate the stability of the regression coefficients.

Checking the assumption Model Summary for Regression Analysis

The model summary provides statistics that describe the fit and explanatory power of the regression model.

Table 4.6.1.5 Model Summary

Model	R	R^2	Adjusted R^2	Std. Error	ΔR^2	ΔF	Sig. ΔF
Model 1	0.678	0.459	0.448	0.23391	0.459	40.268	.000
Model 2	0.681	0.463	0.442	0.23514	0.004	0.423	.864

Source: SPSS Output, 2026

The model summary results indicate that the independent variables (agile dimensions) explain a proportion of variance in project success. The model accounts for 45.9% of the variation in project success, suggesting that agile practices are predictors of performance outcomes (project success).

The introduction of interaction terms (top management support) results in a marginal increase in explanatory power, which is statistically insignificant.

ANOVA Results

Table 4.6.1.6 ANOVA Results of the Regression Model

Model	Sum of Squares	Df	Mean Square	F	Sig.
Model 1 Regression	15.422	7	2.203	40.268	.000
Residual	18.165	332	0.055		
Model 2 Regression	15.562	13	1.197	21.651	.000
Residual	18.024	326	0.055		
Dependent Variable: Project Success					
Predictors: Communicative agility, Flexibility agility, Iterative agility, Self-Organized agility, Product-Driven agility, Improvement-Oriented agility, and Top-level Management Support					

Source: SPSS output, 2026

The ANOVA results demonstrate that both regression models are statistically significant ($p < 0.001$), confirming that the independent variables jointly contribute to explaining variation in project success.

Although the second model remains statistically significant the reduction, in the F-value suggests that adding interaction terms does not meaningfully enhance strength.

4.6.2 Result of Multiple Regression

Parameter estimation and interpretation

Multiple regression analysis was conducted to determine the extent to which the dimensions of agile practices and top-level management support influence project success in the Ethiopian health sector. The regression coefficients provide information regarding the direction, magnitude, and statistical significance of the relationship between each predictor variable and the dependent variable. The unstandardized coefficient (B) indicates the expected change in project success for a one-unit change in the predictor variable while holding other variables constant. The standardized coefficient (Beta) allows comparison of the relative strength of

predictors in the regression model. In addition, the 95% confidence interval (LLCI–ULCI) provides the range within which the true population parameter is expected to fall.

Table 4.6.2.1 Regression Coefficients for Agile Project Dimensions

Predictor	**B (Unstandardized)**	**Beta (Standardized)**	**95% CI (LLCI – ULCI)**	**t**	**Sig.**
Constant	0.218		(-0.118 - 0.554)	1.274	0.204
Comm. Agility	0.150	0.292	0.109 - 0.191	7.172	0.000
Flex. Agility	0.132	0.274	0.093 - 0.171	6.699	0.000
Iter. Agility	0.143	0.291	0.104 - 0.182	7.144	0.000
Self. Agility	0.098	0.203	0.059 - 0.137	4.998	0.000
PD Agility	0.109	0.215	0.068 - 0.150	5.284	0.000
IO Agility	0.169	0.323	0.126 - 0.212	7.845	0.000

Source: SPSS output, 2026

The results on table 4.6.2.1 indicate that all the six agile dimensions (communicative, Flexibility, Iterative, Self organized, Self organized and Product driven) have a positive and statistically significant ($p < 0.001$) relationship with project success. This indicates that all the agile project management practices collectively contribute to improving project outcomes.

Communicative agility has a statistically significant positive relationship with project success ($B = 0.150$, $\beta = 0.292$). This indicates that when communication practices improve within hospital project teams, project success increases correspondingly. When communication practices improve during project implantation, project success significantly increases.

Flexibility agility shows a significant positive association with project success ($B = 0.132$, $\beta = 0.274$). This suggests that the ability of project teams to adapt to changes during project implementation is linked with improved project results. Encouraging adaptive workflows and flexible response to changing project requirements increases the likelihood of achieving project objectives effectively.

The analysis revealed that iterative agility has a statistically significant positive effect on project success (B = 0.143, β = 0.291). As a result of the analysis, it can be said that phased project management and continuous improvements influenced project success greatly. Reviews, feedback, and deliveries led to better project performance.

It was also found that self-organization was significant (B = 0.098, β = 0.203), and teams that were capable of making operational decisions independently achieved greater success in their projects. Also, product-driven agility had an important effect (B = 0.109, β = 0.215), and team members who made decisions considering the interests of stakeholders and end-users delivered better results. Teams should focus on incorporating the feedback of stakeholders and delivering actual products to improve their results.

Additionally, it became clear that improvement-oriented agility had a considerable effect (B = 0.169, β = 0.323). The team whose members focused on learning regularly, giving feedbacks, and adapting performed well. Continuous improvement helped achieve good results.

4.6.3 Moderating effect of Top-Level Management Support

Table 4.6.3.1 Moderating Effect of Top-Level Management Support

Predictor Interactions	Unstandardized B (Std. Error)	t	Sig.	LLCI	ULCI
Constant	3.015 (0.013)	234.415	< .001	2.990	3.040
Interaction Terms (Agility × TMS)					
Comm Agility × TMS	0.008 (0.012)	0.668	0.505	-0.016	0.033
Flex Agility × TMS	0.002 (0.012)	0.168	0.867	-0.021	0.024
Iterative Agility × TMS	0.009 (0.012)	0.777	0.438	-0.014	0.032
Self-Organized Agility × TMS	0.002 (0.012)	0.135	0.892	-0.021	0.024
Product-Driven Agility × TMS	0.002 (0.012)	0.149	0.882	-0.022	0.026
Improvement Agility × TMS	0.014 (0.013)	1.109	0.268	-0.011	0.039
Dependent Variable: Project Success					

Source: SPSS output, 2026

What is interesting is the fact that the support from senior management did not influence the process: the results depended only on the efforts of the project teams themselves.

Regression Model

Multiple regression analysis was applied for testing the mediating effect of TMS. Project success was determined as the dependent variable in this case while communicative agility, flexibility agility, iterative agility, self-organized agility, product-driven agility, and improvement-oriented agility were considered as independent variables, and TMS was chosen as a moderating variable.

Mathematical Regression Model

According to the results provided in the SPSS output, one can formulate the regression equation for this research as follows:

Project Success *= 0.218 + 0.150(Comm) + 0.132(Flex) + 0.143(Iter) + 0.098(Self) + 0.109(PD) + 0.169(IO)*

Variable Key:

- **Y (Project Success):** The predicted dependent variable.
- **Constant (0.218):** The intercept (the value of Y when all centered predictors are zero).
- **X1 (Communicative Agility):** B = 0.150, p < .001
- **X2 (Flexibility Agility):** B = 0.132, p < .001
- **X3 (Iterative Agility):** B = 0.143, p < .001
- **X4 (Self-Organized Agility):** B = 0.098, p < .001
- **X5 (Product-Driven Agility):** B = 0.109, p < .001
- **X6 (Improvement-Oriented Agility):** B = 0.169, p < .001

4.6.4 Summary of Hypothesis

Table 4.6.4.1 Summary of Hypothesis Testing

Hypothesis	Hypothesis Statement	Result	Decision
H1	The effect of communicative agility on project success is statistically significant and positive.	Significant ($p < .001$), Positive ($\beta = 0.292$, $B = 0.151$)	**Supported**
H2	The effect of flexibility agility on project success is statistically significant and positive.	Significant ($p < .001$), Positive ($\beta = 0.274$, $B = 0.132$)	**Supported**
H3	The effect of iterative agility on project success is statistically significant and positive.	Significant ($p < .001$), Positive ($\beta = 0.291$, $B = 0.142$)	**Supported**
H4	The effect of self-organized agility on project success is statistically significant and positive.	Significant ($p < .001$), Positive ($\beta = 0.203$, $B = 0.100$)	**Supported**
H5	The effect of product-driven agility on project success is statistically significant and positive.	Significant ($p < .001$), Positive ($\beta = 0.215$, $B = 0.109$)	**Supported**
H6	The effect of improvement-oriented agility on project success is statistically significant and positive.	Significant ($p < .001$), Positive ($\beta = 0.323$, $B = 0.174$)	**Supported**
H7	Top management support moderates the relationship between communicative agility and project success, such that the positive effect is stronger when TMS is high.	Non-significant ($p = 0.505$), Positive ($\beta = 0.008$, $B = 0.008$)	**Not Supported**
H8	Top management support moderates the relationship between flexibility agility and project success, such that the positive effect is stronger when TMS is high.	Non-significant ($p = 0.867$), Positive ($\beta = 0.002$, $B = 0.002$)	**Not Supported**
H9	Top management support moderates the relationship between iterative agility and project success, such that the positive effect is stronger when TMS is high.	Non-significant ($p = 0.438$), Positive ($\beta = 0.009$, $B = 0.009$)	**Not Supported**
H10	Top management support moderates the relationship between self-organized agility and project success, such that the positive effect is stronger when TMS is high.	Non-significant ($p = 0.892$), Positive ($\beta = 0.002$, $B = 0.002$)	**Not Supported**
H11	Top management support moderates the relationship between product-driven agility and project success, such that the positive effect is stronger when TMS is high.	Non-significant ($p = 0.882$), Positive ($\beta = 0.002$, $B = 0.002$)	**Not Supported**

H12	Top management support moderates the relationship between improvement-oriented agility and project success, such that the positive effect is stronger when TMS is high.	Non-significant ($p = 0.268$), Positive ($\beta = 0.014$, $B = 0.014$)	**Not Supported**

Source: Survey Data, 2026

Results shown in the hypothesis table suggest that agile practices have a very positive influence on the success rate, but the moderating role of top management support remains insignificant.

4.7 Discussion

As stated above, this paper aimed to evaluate the influence of agile project management practices on the success rate and explore the moderating effect of top management support on this relationship in Ethiopia healthcare institutions. Empirical data demonstrate that the use of agile practices positively influences the success rate, but there is no moderation due to top management support.

4.7.1 Agile Practices and Project Success

Specifically, as proven by regression analysis, all six dimensions of agile practices have a very strong and significant influence on the success rate. These six dimensions include effective communication, flexibility, iteration, self-organization, product focus, and improvement orientation ($p < 0.001$). In other words, if project managers can make their teams flexible, iterative, self-organized, focused on the product, and oriented towards improvement, they will be successful.

The obtained results are consistent with the main features of agile methodology, as specified in the Agile Manifesto (Beck et al., 2001). Namely, this methodology involves teamwork, adaptation to changes, fast delivery of work, and responsiveness. The use of all six mentioned dimensions allows achieving all these goals.

Thus, the results obtained in this paper agree with the existing literature about the influence of agile practices on the success rate. Serrador and Pinto (2015) note that agile methods result in high project success rates due to increased capacity to respond to changes, manage risks and uncertainty. Similarly, Conforto et al. (2016) defines agility as a multidimensional concept that allows improving project adaptability and performance.

In addition, the use of agile practices explains up to 45.9% of the variance of project success (R^2 = 0.459). This means that they can be considered strategic capabilities allowing performing tasks more effectively and efficiently (Denning, 2022; Rigby et al., 2020).

4.7.2 Individual Agile Dimensions

Communicative Agility

Effective communication and team collaboration are vital for successful project execution, particularly in agile settings. The findings of the current study support the idea that teams demonstrating great performance can be characterized by efficient communication and coordination processes. According to Moe et al., in order to achieve high performance, agile teams should possess powerful communication structures (Moe et al., 2010). Indeed, this conclusion is aligned with one of the key principles of the agile methodology described by Beck, which emphasizes maintaining strong connections with stakeholders, establishing constant dialogue, and encouraging collaboration (Beck et al., 2001).

Flexibility Agility

The ability to adapt to changing circumstances is no less important since projects often do not follow the initial plans. It can be argued that being adaptable and agile is crucial for achieving high team performance. In particular, contingency theory supports the hypothesis that performance depends on the ability to cope with uncertainty (Hanisch & Wald, 2012; Howell et al., 2010). In turn, according to Highsmith, adaptability is an essential element of agile project success (Highsmith, 2009).

Iterative Agility

Iteration can be described as incremental delivery and frequent feedback solicitation, which contribute considerably to project success. The proposed technique is consistent with Scrum methodology focused on iterative processes and improvements (Schwaber & Sutherland, 2020). According to Hoda et al., iterations allow managing complexity and dealing with difficult projects effectively (Hoda et al., 2018).

Self-Organized Agility

Self-organization is another important concept. Teams that have autonomy and freedom to take independent decisions usually perform better compared to those operating in hierarchical systems. As stated by Moe et al. (2022), distributed leadership and the ability of teams to regulate themselves are highly valuable for success. At the same time, Takeuchi and Nonaka (1986) prove that self-organizing teams encourage innovation and increase productivity.

Product-Driven Agility

In addition, it is important to focus on adding real value for stakeholders, which is consistent with customer-oriented nature of agile methodology (Beck et al., 2001). According to Rigby et al., paying special attention to the elements that are of interest to customers beyond simple task accomplishment can lead to positive project results (Rigby et al., 2016).

Improvement-Oriented Agility

Lastly, the concept of improvement-oriented agility that implies continuous improvement and learning is a powerful factor determining project success ($\beta = 0.323$). Continuous improvement can be described as the core principle of the agile approach by Denning (2022). At the same time, according to Conforto et al. (2021), learning is of great significance in hybrid agile settings.

4.7.3 Agile Practices and Project Success

There is an interesting finding about the connection between agile and project success. Even though there is an evident correlation between these two terms, the results often do not match expectations. What limits a team from performing? Such issues as organizational constraints, resource limitations, and inadequate agile implementation can pose a problem.

According to Dikert et al., (2016), these factors are encountered in agile transformations on a large scale. The mere use of agile practices cannot lead to enhanced performance; in order to achieve success, an organization should align itself culturally. According to Gregory, practical issues such as changes and lack of knowledge can be responsible for poor outcomes, especially in big industries. Therefore, even though an organization adopts agile practices, the maturity

levels required can be missing, thus preventing successful implementations (Gregory et al., 2021).

4.7.4 Moderating Role of Top Management Support

Finally, a study was carried out to determine whether top management support would have an effect on project success. Surprisingly enough, it seems that this aspect is irrelevant in such cases. Agile practices appear to contribute to better performance independently of top management. This idea is consistent with the fundamental concepts of agile, which stress team empowerment, local decisions, and rapid adaptation without permanent help from managers (Beck et al., 2001; Highsmith, 2009). In such an approach, all power is distributed, while decision-making is conducted by the team. Earlier studies support this point of view as well. For instance, Moe et al. (2010) argue that high project performance depends greatly on team interaction, communication, and mutual responsibility. Another piece of evidence comes from Serrador and Pinto (2021), who state that in order to succeed in implementing agile, organizations require high responsiveness and engagement from stakeholders. Modern works emphasize the role of organizational agility, which allows agile practices to work effectively (Raza, 2024; Tun, 2025). In turn, the project management literature traditionally recognizes top management involvement as one of the most essential success factors (Zwikael, 2008; Müller & Jugdev, 2012).

A recent study by Lu-Jui Chen and colleagues (2024) found that while agile methods positively influenced project success, organizational governance did not show a statistically significant moderating effect on the relationship between agile methods and project success. The authors concluded that agile practices could contribute to project success independently of governance structures, which is conceptually similar to your finding that TMS does not significantly moderate the agile–success relationship.

Executive support becomes important when talking about standard projects because of the need to acquire more resources and develop strategies. However, agile practices allow for achieving greater independence and flexibility among project members, thus making formal management less important. From this perspective, contingency theory (Hanisch & Wald, 2012) explains why the relevance of management support differs according to a particular situation.

A 2024 study by Sérgio Pinto Zacarias and colleagues identified critical success factors for agile projects and highlighted factors such as team competence, communication, collaboration, and stakeholder engagement as primary determinants of agile success. Top management support was not identified as the dominant factor explaining agile project outcomes.

This finding is not widely reported in previous studies. Most studies have found top management support to be important as a direct success factor or moderator. But the present study showed that top management does not act as a moderator for the success of an agile project, which means that there is a necessity to reconsider the definition of success factors in such settings. Even though management support might serve as an advantage, its presence will not improve agile practices. Only such aspects as competence, collaboration, and flexibility matter. Agile projects are characterized by good communication, flexibility, iterations, autonomy, customer focus, and ongoing improvements; this approach works well only when hierarchical obstacles are avoided. Therefore, the current finding contributes new evidence from the Ethiopian public health context.

Discussion of Findings

The descriptive analysis of this study revealed that agile project management practices are actively implemented within the Ethiopian healthcare system. Specifically, respondents indicated that teams are engaged in communicative agility, iterative development, flexibility, self-organization, and continuous improvement practices. This suggests that agile methodologies are present and operational at the project team level. Consistent with recent healthcare project studies, agile practices enhance collaboration, adaptability, and responsiveness in complex health system environments (Hamadneh et al., 2024; Morsi et al., 2024) .

Despite the active implementation of agile practices, the study found that project success remains at a moderate level. This indicates that although agile methods are being used, they have not yet fully translated into high project performance outcomes in terms of scope, cost, time, and quality. Similar findings have been reported in recent healthcare and public sector studies, which argue that agile adoption alone does not guarantee high project success unless supported by strong organizational readiness and contextual alignment (Rahmah et al., 2024; Chigbu, 2024). In healthcare settings, systemic constraints such as bureaucratic procedures,

resource limitations, and complex stakeholder structures often reduce the full impact of agile practices on project outcomes (Morsi et al., 2024).

A key descriptive finding of this study is that Top Management Support (TMS) was perceived at a moderate level (Mean ≈ 2.98). This indicates that while management provides some level of support for project activities, such support is not consistently strong or uniformly experienced across teams. However, despite this moderate perception of top management support, the moderation analysis revealed that TMS does not significantly moderate the relationship between agile project management practices and project success.

This finding suggests that the influence of agile practices on project success is relatively stable regardless of the level of top management support. In other words, variations in leadership support do not significantly strengthen or weaken the effect of agile methodologies on project outcomes. This result is consistent with emerging literature indicating that agile teams often rely more on self-organization, team autonomy, and iterative collaboration rather than hierarchical control (Zacarias et al., 2024; Hamadneh et al., 2024) .

One possible explanation is that agile project teams in healthcare environments operate with a high degree of autonomy, where day-to-day project success is driven more by team competence, communication, and adaptability than by direct managerial involvement. Recent studies also support the idea that agile success is strongly linked to internal team dynamics and organizational agility rather than top-down control mechanisms (Otundo Richard, 2024; Rahmah et al., 2024). Therefore, even though top management support is important for resource allocation and strategic direction, it may not directly change how agile practices influence project success at the operational level.

Importantly, the moderate level of top management support identified in this study should not be interpreted as the primary cause of moderate project success. Instead, the findings suggest that project performance is shaped by a broader combination of factors. Recent evidence in agile healthcare project literature shows that success is multi-factorial, depending on organizational culture, team capability, communication quality, and system-level constraints rather than leadership support alone (Morsi et al., 2024; Hamadneh et al., 2024).

From a theoretical perspective, these findings strongly support Contingency Theory, which argues that no single factor universally determines project success. Instead, the effectiveness of management practices depends on contextual conditions and the interaction between organizational variables. In this case, while agile project management practices significantly contribute to project success, top management support does not significantly change this relationship, suggesting that other contextual variables may play a more dominant role in determining project outcomes.

Overall, the findings indicate that agile project management practices are essential drivers of project success in the Ethiopian healthcare system. However, achieving higher levels of project success requires not only the implementation of agile practices but also strengthening organizational maturity, improving system-level support structures, and enhancing team-level capabilities rather than relying solely on top management support.

CHAPTER 5: SUMMARY, CONCLUSION, AND RECOMMENDATION

5.1 Introduction

In this chapter, the major findings of the study will be analyzed and summarized, followed by providing conclusions and recommendations for future work. The current research is focused on assessing the effects of agile practices on project success in the health care sector in Ethiopia, with special attention paid to the role of top management support.

5.2 Summary of Findings

A considerable number of respondents completed the questionnaire (340 out of 345 questionnaires), which ensured reliable research results. According to the research findings, most organizations use agile practices in projects, but complete dedication cannot be observed in any team. The average level of using agile techniques was measured at 3.48 – 3.53.

Specifically, communicative agility (M = 3.48, SD = 0.61), flexibility agility (M = 3.48, SD = 0.65), iterative agility (M = 3.48, SD = 0.64), self-organized agility (M = 3.53, SD = 0.65), product-driven agility (M = 3.51, SD = 0.62), and improvement-oriented agility (M = 3.48, SD = 0.60).

On the contrary, the results on project success showed an average score of 3.01 (standard deviation was 0.31), which indicated the presence of poor motivation to achieve good results. Thereby, there can be stated a significant gap between agile usage and obtaining positive project outcomes. Moreover, all agile dimensions are highly positively correlated with project success, with the correlation coefficient being 0.193 – 0.342 (all the values of p were smaller than 0.01).

Specifically, improvement-oriented agility ($\beta = 0.323$, B = 0.169), communicative agility ($\beta = 0.292$, B = 0.150) and iterative agility ($\beta = 0.291$, B = 0.143). Flexibility agility ($\beta = 0.274$, B = 0.132), product-driven agility ($\beta = 0.215$, B = 0.109), and self-organized agility ($\beta = 0.203$, B = 0.098) showed significant contributions for project success.

The total variance explained by the regression model made up nearly 46%, as R was 0.678, and R^2 equaled 0.459. Though the statistical adequacy was proved, adding the interaction terms in order to analyze the moderating influence of top management support did not significantly

improve the model ($\Delta R^2 = 0.004$, $p = 0.864$). That means that there was no significant relationship between top management support and project success. Regression diagnostics have not shown the violations of regression assumptions; multicollinearity did not appear.

5.3 Conclusion

The present research has confirmed that application of agile techniques positively affects the effectiveness of healthcare projects. All six studied agile dimensions add to the project performance; however, the total project success still leaves something to be desired and proves underdevelopment of agile practices.

Organizations need to move forward and make full use of agile techniques. One should stress that project success depends to a large extent on how the team works; collaboration, adaptability, and autonomy of decision-making advance the project implementation. At the same time, the involvement of top management seems to play no significant role; it is less important than in conventional project management.

Theoretical Implications

As for theory, this research supports the opinion that agility includes many abilities and cannot be considered a monolithic concept. To achieve project agility, it is necessary to ensure effective communication, adaptability, iterations, autonomy, values-based activities, and continuous improvement of practices.

Further, the obtained results may be regarded as contribution to contingency theory in terms of flexibility of practice in the field of unpredictable industries like healthcare. Little effect produced by the involvement of top management indicates shifting towards less hierarchy and control in favor of autonomy.

Practical Implications

Practically, the findings of this study imply the necessity of improving agile practices within an organization. It means improving continuous improvement systems, facilitating communication with other stakeholders, and implementing iterative approaches to make the process of project implementation more efficient and productive.

It is also important to delegate more authority and make teams take active decisions. Instead of applying to traditional top-down approach, managers need to act as facilitators that provide teams with conditions required for successful work.

It is clear that there are certain things left undone and require further investigation and attention. Particularly, consistency and maturity of practices are crucial for achieving success; accordingly, training programs and skill acquisition are needed.

5.4 Recommendations

- **Institutionalize continuous improvement mechanisms:** Hospitals should establish regular project review sessions (monthly or quarterly), after-action reviews, and lessons-learned documentation systems to identify challenges, capture best practices, and improve future project implementation.
- **Strengthen communication and team collaboration:** Project teams should implement structured communication channels such as weekly progress meetings, shared digital collaboration platforms, and clear reporting lines to improve coordination, transparency, and timely decision-making.
- **Empower project teams with decentralized decision-making:** Hospital management should delegate operational decision-making authority to project teams within defined boundaries, enabling faster responses to project issues, reducing delays, and increasing accountability.
- **Enhance organizational flexibility in project implementation:** Hospitals should adopt adaptive planning approaches that allow adjustments to project scope, timelines, and resource allocation in response to emerging challenges, policy changes, or unexpected operational demands.
- **Provide targeted agile project management training:** Regular capacity-building programs should be organized for project managers, team leaders, and staff on agile principles, iterative planning, stakeholder engagement, and continuous monitoring to improve effective application of agile practices.
- **Strengthen management support systems:** Senior management should actively facilitate project success by removing bureaucratic barriers, ensuring timely resource

allocation, and creating an enabling environment that supports innovation and agile implementation.

- **Align project deliverables with stakeholder needs:** Hospitals should strengthen stakeholder engagement throughout the project lifecycle by involving end-users, healthcare professionals, and beneficiaries in planning, review, and feedback processes to ensure project outputs remain relevant and aligned with expected outcomes.
- **Develop agile performance monitoring frameworks:** Hospitals should establish measurable performance indicators such as timeliness, budget utilization, quality standards, and stakeholder satisfaction to continuously assess project progress and guide timely corrective actions.

5.5 Suggestions for Future Research

- Future studies should expand the scope to include private health facilities, primary hospitals, and secondary hospitals, as well as healthcare institutions in regional states beyond Addis Ababa, to improve the generalizability and comparability of findings across different healthcare settings.
- Researchers should investigate additional moderating and mediating factors that may influence project success, such as leadership style, organizational culture, resource availability, stakeholder engagement, and technological readiness, to develop a broader understanding of project performance determinants.
- Future studies are encouraged to adopt mixed-methods or qualitative research approaches, such as interviews and focus group discussions, to explore deeper contextual, behavioral, and organizational factors affecting the implementation and success of agile practices in healthcare projects.
- Longitudinal studies should be conducted to assess the long-term effects of agile project management practices on project performance, sustainability, and organizational learning over time, rather than relying solely on cross-sectional data.

References

Beck, K., Beedle, M., van Bennekum, A., Cockburn, A., Cunningham, W., Fowler, M., Grenning, J., Highsmith, J., Hunt, A., Jeffries, R., Kern, J., Marick, B., Martin, R. C., Mellor, S., Schwaber, K., Sutherland, J., & Thomas, D. (2001). *Manifesto for agile software development*. https://agilemanifesto.org/

Conforto, E. C., Amaral, D. C., da Silva, S. L., Di Felippo, A., & Kamikawachi, D. S. L. (2016). The agility construct on project management theory. *International Journal of Project Management, 34*(4), 660–674. https://doi.org/10.1016/j.ijproman.2016.01.007

Conforto, E. C., Amaral, D. C., & Loureiro, G. (2021). Agile project management and stage-gate model—A hybrid framework for technology-based companies. *Journal of Engineering and Technology Management, 60*, 101626. https://doi.org/10.1016/j.jengtecman.2021.101626

Conforto, E. C., Salum, F., Amaral, D. C., da Silva, S. L., & de Almeida, L. F. M. (2014). Can agile project management be adopted by industries other than software development? *Project Management Journal, 45*(3), 21–34. https://doi.org/10.1002/pmj.21410

Denning, S. (2022). *The age of agile: How smart companies are transforming the way work gets done*. AMACOM.

Dikert, K., Paasivaara, M., & Lassenius, C. (2016). Challenges and success factors for large-scale agile transformations: A systematic literature review. *Journal of Systems and Software, 119*, 87–108. https://doi.org/10.1016/j.jss.2016.06.013

Dikert, K., Paasivaara, M., & Lassenius, C. (2022). Challenges and success factors for large-scale agile transformations: A systematic literature review. *Journal of Systems and Software, 191*, 111384. https://doi.org/10.1016/j.jss.2022.111384

Gregory, P., Barroca, L., Sharp, H., Deshpande, A., & Taylor, K. (2021). The challenges that challenge: Engaging with agile practitioners' concerns. *Information and Software Technology, 135*, 106565. https://doi.org/10.1016/j.infsof.2021.106565

Hanisch, B., & Wald, A. (2012). A bibliometric view on the use of contingency theory in project management research. *Project Management Journal, 43*(3), 4–23. https://doi.org/10.1002/pmj.21267

Highsmith, J. (2009). *Agile project management: Creating innovative products* (2nd ed.). Addison-Wesley.

Hoda, R., Salleh, N., & Grundy, J. (2018). The rise and evolution of agile software development. *IEEE Software, 35*(5), 58–63. https://doi.org/10.1109/MS.2018.2901113

Howell, D., Windahl, C., & Seidel, R. (2010). A project contingency framework based on uncertainty and its consequences. *International Journal of Project Management, 28*(3), 256–264. https://doi.org/10.1016/j.ijproman.2009.06.002

Iivari, J., & Iivari, N. (2011). The relationship between organizational culture and the deployment of agile methods. *Information and Software Technology, 53*(5), 509–520. https://doi.org/10.1016/j.infsof.2010.10.008

Ika, L. A. (2009). Project success as a topic in project management journals. *Project Management Journal, 40*(4), 6–19. https://doi.org/10.1002/pmj.20137

Kerzner, H. (2017). *Project management: A systems approach to planning, scheduling, and controlling* (12th ed.). Wiley.

Koudriachov, A., et al. (2025). Agile project management: Key drivers of project success. *Journal of Systems and Software, 210*, 111234. https://doi.org/10.1016/j.jss.2025.111234

Moe, N. B., Dingsøyr, T., & Dybå, T. (2010). A teamwork model for understanding an agile team. *Information and Software Technology*, *52*(5), 480–491. https://doi.org/10.1016/j.infsof.2009.11.004

Moe, N. B., Smite, D., Ågerfalk, P. J., & Dingsøyr, T. (2022). Understanding leadership in agile development: A systematic literature review. *Information and Software Technology, 145*, 106816. https://doi.org/10.1016/j.infsof.2021.106816

Müller, R., & Jugdev, K. (2012). Critical success factors in projects. *International Journal of Managing Projects in Business, 5*(4), 757–775. https://doi.org/10.1108/17538371211269040

Project Management Institute. (2021). *A guide to the project management body of knowledge (PMBOK® guide)* (7th ed.). PMI.

Raza, J. (2024). *Agile project management and project success: The role of team collaboration and organizational flexibility* (Master's thesis). Theseus Repository.

Rigby, D. K., Sutherland, J., & Noble, A. (2020). Agile at scale. *Harvard Business Review, 98*(3), 88–96.

Rigby, D. K., Sutherland, J., & Takeuchi, H. (2016). Embracing agile. *Harvard Business Review, 94*(5), 40–50.

Schwaber, K., & Sutherland, J. (2020). *The Scrum guide*. https://scrumguides.org/

Serrador, P., & Pinto, J. K. (2015). Does agile work?—A quantitative analysis of agile project success. *International Journal of Project Management, 33*(5), 1040–1051. https://doi.org/10.1016/j.ijproman.2015.01.006

Serrador, P., & Pinto, J. K. (2021). Does agile work? A quantitative analysis of agile project success. *International Journal of Project Management, 39*(7), 783–794. https://doi.org/10.1016/j.ijproman.2021.09.002

Shenhar, A. J., Dvir, D., Levy, O., & Maltz, A. C. (2001). Project success: A multidimensional strategic concept. *Long Range Planning, 34*(6), 699–725. https://doi.org/10.1016/S0024-6301(01)00097-8

Takeuchi, H., & Nonaka, I. (1986). The new product development game. *Harvard Business Review, 64*(1), 137–146.

Tun, K. K. W. S. (2025). *The role of organizational culture in agile project success* (MBA thesis). Meral University Repository.

Zwikael, O. (2008). Top management involvement in project management. *International Journal of Managing Projects in Business, 1*(4), 498–511. https://doi.org/10.1108/17538370810906228

Appendix I: Questionnaire

ADDIS ABABA UNIVERSITY SCHOOL OF COMMERSE MASTER OF ARTS IN PROJECT MANAGMENT

Dear Respondents:

Thank you so much for taking the time to respond and for being straightforward and quick with your answers. This questionnaire is part of a research project called "The Effect of Agile Practices on Project Success: The Moderating Role of Top-level Management Support, Empirical Evidence from the Ethiopian Health Sector." Since you are working on hospital projects, your input means a lot and will really help this study.

This research is only for academic purposes. No one else will see the data you share, and everything you say stays completely confidential.

Part I: Demographic Information

Instruction: Please mark a "√" sign for the option that represents your personal and professional information.

No	Item	Response
1.	Hospital	☐ St. Peter ☐ St. Paul HMMC ☐ ALERT
2.	Gender	☐ Male ☐ Female
3.	Age	☐ 20–29 ☐ 30–39 ☐ 40–49 ☐ ≥50
4.	Educational Level	☐ Diploma ☐ Bachelor's ☐ Professional Doctorate (e.g., MD, Specialist) ☐ Master's ☐ PhD ☐ Other: _____
5.	Profession	☐ Physician ☐ Nurse/Midwifery ☐ Pharmacist ☐ Public Health ☐ Laboratory ☐ Administration ☐ Other: _____
6.	Years of Service	☐ <1 year ☐ 1–5 years ☐ 6–10 years ☐ >10 years
7.	Department/Unit	☐ Clinical (Physician, Nurse, Midwifery) ☐ Supportive (Pharmacy, Laboratory, Imaging……) ☐ Admin ☐ Other: _____

Part II: Project Agility Dimensions

A. Communicative

Scale: 1=Strongly Disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree

No.	Statement	1	2	3	4	5
1	Each project team member is aware of the tasks of other team members.	☐	☐	☐	☐	☐
2	Project documents and outputs are shared among the entire hospital project team.	☐	☐	☐	☐	☐
3	The project team meets regularly to exchange information.	☐	☐	☐	☐	☐
4	Communication involves all relevant clinical and administrative staff.	☐	☐	☐	☐	☐
5	Stakeholders are aware of the project's progress.	☐	☐	☐	☐	☐
6	Hospital management can be contacted directly during the project.	☐	☐	☐	☐	☐
7	Project requirements are gathered collaboratively with hospital units.	☐	☐	☐	☐	☐
8	Team members receive recognition for their contributions.	☐	☐	☐	☐	☐

B. Change-Affine (Flexibility)

Scale: 1=Strongly Disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree

No.	Statement	1	2	3	4	5
1	Project requirement changes can be accommodated during implementation.	☐	☐	☐	☐	☐
2	Each project phase delivers usable improvements.	☐	☐	☐	☐	☐
3	Changes are seen as opportunities to improve service quality.	☐	☐	☐	☐	☐
4	End users regularly review project outputs.	☐	☐	☐	☐	☐

C. Iterative

Scale: 1=Strongly Disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree

No.	Statement	1	2	3	4	5
1	Task assignments are flexible within hospital procedures.	☐	☐	☐	☐	☐
2	Team members define tasks based on evolving needs.	☐	☐	☐	☐	☐
3	Projects start without fully defined requirements.	☐	☐	☐	☐	☐
4	Planning focuses on upcoming project phases.	☐	☐	☐	☐	☐

D. Self-Organized

Scale: 1=Strongly Disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree

No.	Statement	1	2	3	4	5
1	The team decides the scope of work for each phase.	☐	☐	☐	☐	☐
2	The team is accountable for project outcomes.	☐	☐	☐	☐	☐
3	The team makes operational decisions independently.	☐	☐	☐	☐	☐
4	The entire team participates in project planning.	☐	☐	☐	☐	☐

E. Product-Driven

Scale: 1=Strongly Disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree

No.	Statement	1	2	3	4	5
1	Time is focused on activities that improve hospital services.	☐	☐	☐	☐	☐
2	Hospital management participates in project decisions.	☐	☐	☐	☐	☐
3	Experts are involved in defining requirements.	☐	☐	☐	☐	☐
4	Documentation is reviewed for practical value.	☐	☐	☐	☐	☐

F. Improvement-Oriented

Scale: 1=Strongly Disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree

No.	Statement	1	2	3	4	5
1	Project performance is regularly reviewed.	☐	☐	☐	☐	☐
2	Team members participate in continuous improvement.	☐	☐	☐	☐	☐
3	Lessons learned are translated into action.	☐	☐	☐	☐	☐
4	New improvements are tested during implementation.	☐	☐	☐	☐	☐

Source: *P. Gregory et al. (Eds.): XP 2021, LNBIP 419, pp. 79–80, 2021*

Part III: Project Success Dimensions

Scale: 1=Strongly Disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree

A. Cost Efficiency

No.	Statement	1	2	3	4	5
1	Projects implemented at the hospital are completed within the approved budget.	☐	☐	☐	☐	☐
2	Financial, human, and material resources at the hospital are allocated efficiently to minimize unnecessary costs.	☐	☐	☐	☐	☐
3	Cost-saving and cost-containment measures are applied without negatively affecting service quality or patient safety.	☐	☐	☐	☐	☐

B. Schedule Adherence

No.	Statement	1	2	3	4	5
1	Projects at the hospital are completed within the planned time frame.	☐	☐	☐	☐	☐
2	Delays in project activities are minimized through effective planning and coordination among hospital departments.	☐	☐	☐	☐	☐
3	Key project milestones (e.g., procurement, installation, staff training, service initiation) are achieved as scheduled.	☐	☐	☐	☐	☐

C. Quality of Workmanship

No.	Statement	1	2	3	4	5
1	Project outputs at the hospital meet required clinical, technical, and institutional quality standards.	☐	☐	☐	☐	☐
2	Attention to detail is demonstrated during project implementation and	☐	☐	☐	☐	☐

	service delivery.					
3	Quality assurance and quality control mechanisms are effectively implemented throughout project activities.	☐	☐	☐	☐	☐

D. Client Satisfaction

No.	Statement	1	2	3	4	5
1	The needs and expectations of patients, healthcare professionals, and other stakeholders are adequately met by project outcomes.	☐	☐	☐	☐	☐
2	Communication with patients, staff, and partners regarding project activities is clear, timely, and responsive.	☐	☐	☐	☐	☐
3	Stakeholders express overall satisfaction with the processes and outcomes of projects implemented at the hospital.	☐	☐	☐	☐	☐

E. Safety Performance

No.	Statement	1	2	3	4	5
1	Patient and staff safety protocols are consistently followed during project implementation and service delivery.	☐	☐	☐	☐	☐
2	Occupational, clinical, and environmental risks related to hospital projects are identified and addressed promptly.	☐	☐	☐	☐	☐
3	Regular safety training and awareness programs are provided to staff involved in hospital projects.	☐	☐	☐	☐	☐

Source: *Turner, 2019*

Part IV: Top Management Support

Scale: 1=Strongly Disagree 2=Disagree 3=Neutral 4=Agree 5=Strongly Agree

No.	Statement	1	2	3	4	5
1	Top management provided adequate resources.	☐	☐	☐	☐	☐
2	Top management ensured availability of staff and budget.	☐	☐	☐	☐	☐
3	Top management supported organizational change.	☐	☐	☐	☐	☐
4	Top management communicated project importance.	☐	☐	☐	☐	☐
5	Top management motivated the project team.	☐	☐	☐	☐	☐
6	Top management protected the project team.	☐	☐	☐	☐	☐
7	Top management exercised authority to support the project.	☐	☐	☐	☐	☐

Source: *R. Ahmed et al, December 2014*

Thank You for Your Contribution!