

ADDIS ABABA UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS

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The Effect of Scope Management on Project Success

Evidence From Software Projects in Addis Ababa

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A Project work submitted to Addis Ababa university school of commerce In Partial Fulfillment of The Requirements for award of Masters of Art degree in Project Management

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Statement of Declaration

I hereby declare that the thesis/ dissertation entitled" The Effect of Scope Management on Project Success Evidence From Software Projects in Addis Ababa", submitted in partial fulfillment of the requirements for the degree of Master of Arts in Project Management at BAIS, Addis Ababa University, is my original work and has not been submitted to any other institution for the award of any degree or certificate. All sources of assistance and support received during the course of this study have been duly acknowledged.

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Approval Sheet

This is to certify that the project work prepared by Tsion Gachena, entitled "The Effect of Scope Management on Project Evidence from software Projects" Submitted in partial fulfillment of the requirements for the Degree of Master of Arts Project Management compiles with the regulation of the University and meets the accepted standards with respect to Originality and quality.

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ABSTRACT

This study examines the effect of project scope management dimensions—scope planning and scope control on software project success in selected IT companies in Addis Ababa, Ethiopia. A quantitative research method and explanatory research design were used. Primary data were collected using structured questionnaires from project managers, system analysts, software developers, quality assurance personnel and project team leaders involved in software development projects. From a population of 164 professionals, a sample was selected using the Taro Yamane formula, and 108 valid responses were analyzed. purposive and stratified sampling techniques were used for selecting organizations and respondents. The collected data were analyzed using SPSS version 27 through descriptive statistics, correlation analysis and multiple regression analysis. The findings show that both scope planning and scope control have significant positive effects on software project success, with scope planning exerting a stronger influence than scope control. Correlation results confirm significant positive relationships among the variables. The regression model explains the variation in project success, indicating the importance of effective scope management. The study concludes that effective scope planning and scope control enhance software project success by improving quality, reducing delays, controlling costs, and increasing client satisfaction. The findings provide practical implications for IT firms and recommendations for future studies are included.

Keywords: Project Management, Scope Management, Scope Planning, Scope Control, Project Success, software

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ACRONYMS AND ABBREVIATIONS

Acronym	Meaning
APM	Association for Project Management
ICT	Information and Communication Technology
IT	Information Technology
NGO	Non-Governmental Organization
PMI	Project Management Institute
PMBOK	Project Management Body of Knowledge
SPSS	Statistical Package for Social Sciences
WBS	Work Breakdown Structure
SP	Scope Planning
SC	Scope Control
PS	Project Success
RPSNP	Rural Productive Safety Net Project
ERP	Enterprise Resource Planning

CHAPTER ONE

1. INTRODUCTION

1.1.Background of the study

The success of any software development projects hinges greatly on proper project scope management, which is known as an essential component that determines project success in the Information Technology (IT) industry (Project Management Institute, 2021). IT firms in developing nations like Ethiopia are increasingly under greater pressure to produce high quality software products with limited budgets and time while taking into consideration the evolving needs of their clients. Scope mismanagement may lead to cost and time overruns as well as failure to meet client expectations thus limiting the success of the project. Therefore, effective scope management practices are essential for improving project performance, customer satisfaction, and organizational competitiveness in the IT sector.

Scope is one of the "triple constraints" of project management with time and cost being the other two (Kerzner and Saladis, 2009; Shirazi et al., 2017). It outlines what is included and excluded from the project. Project scope management is the process of outlining the essential project tasks and then making sure that all of that task and only that task is done. (Rijkswaterstaat, 2015) explains project scope management as the management of different project output factors in an effective manner to ensure different tasks occur as planned and meet the deadlines. It involves processes that include scope definition, scope validation, and scope control, these processes work together to keep the project on track with its initial objectives while adapting to any necessary changes. Effective scope management is crucial as it establishes clear boundaries for what is included and excluded in the project thereby reducing the risk of scope creep, which occurs any change in project scope or pressure to deliver more than what was agreed between customers and vendors initially. When scope is not properly defined at the beginning of projects and managed effectively across the project phases, the likelihood of failure is high (Ogunberu et al., 2018), Kaliba et al. (2009) highlights scope modifications as a key factor leading to project delay and cost

escalation. A Project Management Institute report revealed that while 19% of all projects are unsuccessful, more than 50% of projects suffer scope creep (Project Management Institute, 2017). The process of scope management enables organizations to avoid project budget overruns while producing results that match customer requirements completely.

IT organizations face major challenges which block their expansion because they fail to control their project boundaries properly. IT companies face numerous challenges because clients require modifications during project development which creates substantial difficulties for project success. The authors Johnson et al. state in their research 32% stemmed from misunderstandings or miscommunication, while 25% arose from other previously unaddressed business needs. According to a study by the Association for Project Management (APM, 2019), while 34 percent of organizations mention that they have a change control procedure set up, 62 percent of projects without change control witnessed major issues concerning the scope. Although many companies implement formal change request processes managing these changes can still lead to delays in project timelines, client dissatisfaction when extra charges are negotiated or when requests are denied to maintain timelines, escalate expenses through added resources. According to K. G. Raman and Meenakshi and V. R. Rajalakshmi, the development process faces costs that reach four times the initial estimate because of scope creep. The Standish Group's Chaos Report for 2020 reveals that scope creep stands as the primary reason for project failures because over half of failed projects experienced budget overruns and 75% of problematic projects experienced schedule delays and 38% of projects experienced quality deterioration and 61% of projects with scope creep experienced stakeholder dissatisfaction. Mongare et al. (2019) discovered that Sub-Saharan Africa encounters more than 50% of IT projects which experience major financial and operational damage because of poor scope control.

Academic investigations into project management reveal that successful scope management needs explicit project boundary identification together with organized change management systems and continuous stakeholder interaction from start to finish of the project. The research conducted by Kerzner, H. (2017) shows that successful projects start with defining their scope effectively. According Mirza, Pourzolfaghar, and Shahnazari (2013) emphasize that poorly defined project scopes are a frequent reason for project failure, Unclear requirements often result in rework, delays, and misaligned expectations. Fageha and Aibinu (2013) demonstrate that early stakeholder

involvement during scope definition leads to better project results because it minimizes uncertainties and stops scope expansion. Ofori (2013) explains that developing countries experience project delays and unclear scope because of poor communication and weak stakeholder engagement and Heeks (2002) shows that project failures happen when planned project designs fail to match actual local conditions because of the design-reality gap which becomes most evident in resource-limited environments. Studies in developing countries (Ahsan & Gunawan, 2010; Ofori, 2013) reveal that project management methods borrowed from developed nations tend to be less effective unless tailored to accommodate regional expectations, stakeholder abilities, and specific local limitations.

This study aims to examine the relationship between scope management practices and the success of software projects within selected IT companies in Ethiopia. The research will identify successful project scope management approaches for software projects through its analysis of these interactions.

1.2. Statement of the problems

The IT industry in Ethiopia suffers from severe operations issues owing to inadequate scope management processes in projects that affect software project success and implementation. Development organizations are faced with issues of undefined requirements, lack of control over scope changes, poor communication among stakeholders, and poor management of changes. There are also instances where there are client dissatisfaction and resistance during the implementation of change management processes since the clients are asking for additional services and features that are not part of the initial project agreement. Such situations present challenges to project managers when trying to reconcile customer expectations against project constraints like time and cost (Belete, 2019).

The impacts of scope mismanagement on the performance of software projects cannot be overstated. This is because of such problems as time delays, budget overruns, low-quality project output, and non-realization of the project goals due to lack of proper definition and growth of requirements (Mirza et al., 2013; Suvari, 2022). With regard to the software projects in Ethiopia, there are problems associated with requirements change management, stakeholder coordination, and the process of implementing project management techniques. According to some local studies,

some problems related to requirement management, communication barriers, and implementation of project management techniques in Ethiopia can have an impact on software projects (Belete, 2019).

While change requests are important in enhancing software products, poor scope management poses several risks for the organization and for the customers. Poorly managed scope through the use of strict change management processes without involving all stakeholders could cause the customers to be dissatisfied, while poor scope management may lead to scope creep, which causes higher project costs and late completion. Thus, there is a need for good scope management in Ethiopian IT organizations.

Research findings have found out that proper management of the scope of projects is dependent on such factors as scope definition, scope planning, scope change control process, documentation, communication, and stakeholder participation (PMI, 2017; Suvari, 2022). Nevertheless, these management techniques are difficult to be applied in developing countries such as Ethiopia since their organizational, business environment, customer needs, and project management maturity conditions differ greatly from those of developed nations (Heeks, 2002; Ofori, 2013). Studies conducted in Ethiopia have concentrated more on project management and software development problems in general but not on scope management.

Moreover, the relationship of scope control processes and customer expectations has not been adequately studied in the case of Ethiopia and information technology. While global project management practices can be used as useful recommendations, they might not fully consider the problems faced by Ethiopian IT organizations like changing customer requirements, resource constraints, and lack of readiness of organizations to perform these practices. Thus, there is a difference between international practice and local scope management practices.

The need for this research therefore stems from both practical and theoretical needs. The problem of poor scope management that has resulted in software projects being unsuccessful, delayed, and dissatisfying to customers continues to be a challenge for information technology firms in Ethiopia, but there is limited empirical work that explains the effects of scope planning and scope control on the success of software projects.

Therefore, this study examines the effect of project scope management dimensions, specifically scope planning and scope control, on software project success in selected IT firms in Addis Ababa, Ethiopia.

1.3.General Objective

The general objective of the study is to assess the effect of project scope management on success of software projects in selected IT companies in Addis Ababa Ethiopia.

1.4.Specific objectives

1. To determine the influence of scope planning on software project success in selected Ethiopian IT companies.
2. To determine the influence of scope control on software project success in selected Ethiopian IT companies.

1.5. Research questions

1 How does scope definition influence the success of software projects in Ethiopian IT companies?

2. How does scope control, including the management of change requests, affect the success of software projects in Ethiopian IT companies?

1.6. Significance of the study

This research offers important contributions to a better understanding of the impact of scope planning and scope control on the success of software projects situated in Ethiopia. While previous studies have explored scope management practices in other contexts, limited attention has been given to IT firms in Ethiopia, where the business environment, client expectations, and organization capability are likely to have a significant impact on project outcomes. In addition, limited research has examined the management of change requests as part of scope control, Therefore, this research may provide IT firms with ways to improve project outcomes through effective planning of project scope; effective controlling of each change; and efficient management of client requests to eliminate the issues that lead to project delays, cost overruns, and project dissatisfaction.

1.7. Scope of the study

The study centers its analysis on software development projects which stand as a primary category of IT project types. The study concentrates on software development projects which IT companies based in Addis Ababa Ethiopia carry out despite IT projects spanning multiple domains including network systems and software implementation and security systems. The study examines how organizations develop their project scope while they handle scope change requests and they apply scope control techniques to achieve their project goals. The research investigates how these methods affect project results through their impact on timing and budget expenses and product quality standards and client satisfaction levels.

Therefore, this study will examine current or recently completed software development projects to ensure the study produces relevant results and reflects current practices in scope management practices within Ethiopian IT firms.

1.8. Limitation of the study

There are some limitations to the study. The study is confined to software development projects in IT companies located in Addis Ababa, and therefore the conclusions drawn cannot be generalized beyond these geographical and industry boundaries. The other limitation of the study there was an issue of sample size due to the availability of resources, which may make the results obtained not generalizable to all IT companies. Moreover, the data used is participant data, which means that bias or errors may occur in data collection. Another limitation of the study is that the projects examined in the research are current and completed projects only, and therefore do not consider future developments. Lastly, the study concentrates on scope management and excludes other factors.

1.9. Definition of Terms

Project Success: The project achieved success when it completed its work within scheduled timeframes and financial limits while fulfilling all promised deliverables and receiving positive feedback from all involved parties.

Scope: The project scope establishes all required tasks which must be completed to reach the project's goals while serving as a starting point for any scope modifications.

Project Scope Planning: The process of defining project objectives and deliverables and activities and schedules establishes a clear understanding of project goals and the methods to achieve them.

Project Scope Control: monitors and controls all variations which occur in project scope while it handles client change requests and stops scope expansion to protect the project from moving away from its original objectives.

Change Request: functions as a formal request which allows organizations to modify their present project scope by adding new elements or removing existing ones or substituting deliverables or modifying project objectives.

Software: Software is a sequence of commands that instruct a computer on how to execute certain actions.

1.10. Organization of the study

The final report is organized under five chapters. The first chapter is introduction under this chapter background of this study, statement of the problems, basic research questions, the general and specific objectives of the study, definition of relevant terms, significance of the study and scope of the study will be presented. The second chapter contains a literature review which examines present research findings together with relevant studies in this field. The third chapter will present the research design and methodology which includes the research approach and design and data collection methods and analysis techniques and validity and reliability and ethical considerations. The fourth chapter contains the data analysis results along with the research findings. The last chapter presents a summary of main findings which leads to drawing conclusions and creating actionable recommendations.

CHAPTER TWO

2. LITRATURE REVIEW

This chapter provides a review of literature on the subject of project scope management and software project success. The objectives of this review of literature include setting out the theoretical basis of this study, exploring the empirical results found in previous studies, and identifying gaps in the existing literature concerning scope planning, scope control, and project success. The chapter is divided into three sections, namely theoretical literature, empirical literature, and conceptual framework. While the theoretical literature section will provide an account of the theoretical perspectives that link the subject matter of project scope management and the results of such a project, the empirical literature will offer a critical review of the previous findings regarding the study variables.

2.1. THEORETICAL LITRATURE REVIEW

2.1.1 Review of concepts

2.1.2. Project

Project is defined as a temporary and purposeful activity aimed at providing unique products or services using limited resources. According to the ISO 21502:2020 standard, a project is described as an interconnected set of activities, which are coordinated in a controlled manner and have definite start and finish dates in order to attain predetermined goals with agreed upon restrictions. Such definition is more pertinent in relation to IT project because the deliverables are usually unique and complicated. Turner (2016) goes on to explain that projects are temporary organizations created to achieve a unique output, noting their structured yet flexible approach. In addition, Nicholas & Steyn (2017) also state that projects are means of bringing about change within an organization through the realization of its strategy.

Pressman & Maxim (2020) further argue that in cases of IT projects, especially those of software development and systems implementation, there is much sensitivity in the requirements since the

users' needs keep changing. On the other hand, Kerzner (2017) states that projects have limitations of time, cost, and performance, making it very important to define and manage them well. This is very crucial in the case of an environment such as IT organizations in Ethiopia.

Therefore, a project in this research is defined as a limited, organized, and resource-controlled activity carried out with the aim of providing a distinct information technology system or service.

2.1.3. Project Management

Project management is a systematic approach to the planning, organizing, and implementing activities of projects in order to attain desired objectives. It is the set of activities that manage and control the processes of a project throughout its life cycle from beginning to end. The PMI (2021) has defined it as the application of knowledge, skills, and tools.

Project management, according to Kerzner (2017), entails the control of the organization's resources in order to meet certain goals, whereas, as noted by Schwalbe (2019), project management is essential for ensuring the alignment of the technical implementation with the business needs in IT environments. It is especially applicable to software development projects as they fail because of misalignment of the technical side and client's needs.

Nicholas and Steyn (2017) argue that effective project management helps in eliminating the risks and uncertainties associated with such projects. However, in many IT development projects in countries like Ethiopia, inadequate project management techniques lead to communication challenges, ill-defined requirements, and suboptimal deliverables.

Therefore, the definition of project management for this research will involve coordination of the process and resources involved in delivering IT projects successfully.

2.1.4. Project Success

Success in projects is a multi-dimensional term that transcends doing a project on schedule and within budget. Traditionally, success in a project was evaluated using the iron triangle of time, cost, and scope (Atkinson, 1999). But according to De Wit (1988), project management success (efficiency) does not always mean project success (value creation).

The definition of success by Shenhar and Dvir (2007) includes several dimensions such as efficiency, customer satisfaction, impact on the organization, and future readiness. As per Sommerville (2016), when it comes to software development, usability, reliability, and maintainability are key factors for measuring success due to constant evaluation of the software.

Schwalbe (2019) also notes that stakeholder satisfaction plays a significant role in ensuring success in IT organizations. This point is highly important for Ethiopia because of the frequent dissatisfaction of clients when the system provided does not satisfy the requirements expected by them due to poor definition and management of the scope.

Therefore, project success in this research should be understood as the degree to which the project is able to meet the set objectives and satisfy user requirements.

2.1.5. Scope in IT Projects

IT Project Scope refers to the limits within which an inclusion and exclusion are defined in the project scope. As opposed to constructions projects, software projects work in an environment characterized by ever-changing requirements (Pressman & Maxim, 2020). According to Sommerville (2016), software requirements are intrinsically volatile in nature since they keep changing according to user requirements.

One of the biggest problems within an IT environment is that of scope creep, defined by PMI (2021) as the uncontrolled enlargement of project scope without making necessary changes to time, cost, or resources involved. This problem is directly associated with ineffective requirement definition and change control.

According to Beck et al. (2001), agile methodology suggests iterative development as an approach to handle changes in requirements while conventional methodologies fail to cope with such changes due to poorly managed scope at the initial phase of the project. This is a direct issue in the Ethiopian IT industry environment.

Therefore, in IT projects, scope is regarded as a flexible but controlled boundary which encompasses all required efforts to make a working system.

2.1.5.1. Project Scope

Scope of the project is defined as the total work involved in producing a product or system having certain characteristics and functions. According to PMI (2021), it means the work involved in the successful completion of a project, whereas Kerzner (2017) points out that it involves all deliverables.

Scope of products and scope of projects have differences: scope of product indicates that which functions should be accomplished by the system whereas scope of projects refers to activities needed to deliver the product (PMI, 2021). According to Nicholas & Steyn (2017), one of the main reasons for the failure of projects lies in improper scope definition.

The scope baseline, which is made up of the scope statement, WBS, and WBS dictionary, becomes the benchmark for change management.
In the majority of IT companies, even in developing nations, poor scope definition is the direct cause of rework, delays, and dissatisfied clients.

2.1.5.2. Project Scope Management

The term scope management of a project encompasses the processes involved in making sure that a project has all the work that needs to be done, but none of the unnecessary work done for it to be completed successfully (PMI, 2021). According to Schwalbe (2019), scope management is very important in IT projects.

According to Kerzner (2017), scope management is one of the main reasons for the failure of projects, especially in circumstances whereby there are no clearly defined requirements from the onset of a project. In projects that poorly managed scope leads to costs overruns and delay in schedules.

This is consistent with the research problem in the current study where projects in information technology among Ethiopians have been facing challenges arising from lack of proper scope definition and change control mechanism.

2.1.5.3. Project Scope Management Process

The scope management process entails organized processes, according to PMI (2021), whose aim is to define and manage the project work effectively. Scope planning determines how the scope-related activities will be executed. Requirement gathering includes gathering needs of the stakeholders, which, argus Sommerville (2016), is one of the most difficult yet essential parts of software development projects.

The scope definition is a process through which the deliverables are defined, while the work breakdown structure creation is a process through which the work is organized into small units. The scope validation ensures that the deliverables meet the stakeholders' requirements, while the scope control deals with the changes during the lifecycle of the project.
Failure in any of the processes above often results in scope creep, rework, and dissatisfactions, all of which can be found in badly managed IT projects.

2.1.5.4. Scope Planning

Scope planning describes how scope would be determined, described, and controlled. Scope planning relies on input factors like the project charter and stakeholder needs. According to Pressman and Maxim (2020), inadequate requirement analysis at this point will bring about future problems for the project.

Insufficient participation of the stakeholders in the planning process is common in IT environments, especially when dealing with developing countries, and leads to inadequate requirements and subsequent alterations.
This is directly responsible for project delay and dissatisfaction. Hence the need for scope planning becomes clear.

2.1.5.5. Scope Control

Scope control involves controlling and measuring the progress of the project and any changes made to the scope baseline. Changes must be evaluated and approved using procedures like Change Control Boards. Scope verification ensures that deliverables are acceptable.

Lack of control over changes is one of the reasons behind the failure of IT system project. According to Beck et al. (2001), agile methodologies help to minimize this threat through constant feedback; however, lack of proper governance even makes agile projects vulnerable to scope instability. It is very much related to the research problem, whereby requirement change is uncontrollable and frequent.

2.1.5.6. Total Scope Management

Total scope management is an integrated approach that ensures all scope processes work together to define, validate, and control project work. It emphasizes that integration of scope processes improves overall project performance by aligning technical outputs with strategic objectives.

An integrated scope ensures less uncertainty and greater predictability in such situations. In software development projects, for example, where the requirements are dynamic, total scope management is critical to avoid any possible project failure due to unmanaged scope change and mismanagement. Thus, scope management is associated with project success, client satisfaction, and the better management of the outcomes of IT projects, which are the core problems of this research.

2.1.2. Review of theory

2.1.2.1. Project Management Theory

The Project Management Body of Knowledge (PMBOK) serves as the fundamental base for Project Management Theory because the Project Management Institute (PMI) created this knowledge framework. A project functions as a short-term business initiative which exists to create an exclusive product or service or deliverable. Project management functions as the process of organizing tasks and resources to reach specific goals within established limits (PMI, 2017).

Project Management Theory bases its core structure on project scope management which defines all necessary work activities and prevents any additional work from occurring. The scope management process consists of six essential stages which include planning for scope, gathering requirements, defining scope, creating Work Breakdown Structure (WBS), validating scope, and controlling scope. The processes establish clarity about project deliverables and restrictions which enables all stakeholders to reach a common understanding.

Software projects experience frequent scope changes because of unclear requirements and changing client requirements during the project execution phase. Project Management Theory teaches that proper scope planning during project initiation reduces uncertainty while stopping any incorrect understanding of project goals from occurring. The process of scope control requires organizations to carry out formal impact evaluations for every suggested change before granting approval which assesses the effects on project timelines and budgets and quality standards. The structured method helps to reduce rework and team conflicts which leads to successful project completion.

The theory serves as a vital framework for the present research because it shows how scope planning and control mechanisms work to achieve success in software projects.

2.1.2.2. Triple Constraint Theory

The Triple Constraint Theory indicates that the success of the project is dependent upon how effectively three related components operate together, namely scope, time, and cost. Kerzner and Saladis (2009) have explained that these three components are inter-related, which means that any change in one component is bound to affect the other two components as well.

Scope serves as the fundamental basis for the triple constraint since it establishes the amount of work and its degree of difficulty that needs to be finished. Software projects experience frequent scope changes because technology keeps advancing and user needs transform and business environments undergo continuous changes. Failure to have proper scope control results in time overruns, increased costs, and poor-quality projects.

The concept emphasizes the significance of establishing scope definition at the planning stage and controlling scope changes at the implementation stage. The process of defining project boundaries creates realistic schedules and cost plans while scope management systems handle all authorized modifications through resource and timeline adjustments.

The Triple Constraint Theory functions as the theoretical framework which enables this study to investigate how scope planning together with scope control affects software project success through the equilibrium of essential project limitations.

2.1.2.3. Contingency Theory

Contingency Theory suggests that project management methodologies must be tailored based on the specific context within which a project is undertaken. Scott (1981) summarizes that every management style is not equally effective and that the degree of project success relates directly to the match between organizational practices and the environment.

Information technology projects usually involve environments that are dynamic in nature, featuring fast-paced technological development, high amounts of uncertainty, as well as changing demands from the clients. In countries such as Ethiopia, other factors come into play in determining the performance of software projects within the country. According to Contingency Theory, the adaptability of scope management processes should be taken into consideration.

Under this understanding, scope planning should incorporate capabilities and constraints, and scope control processes should be designed in such a way as to effectively accommodate modifications based on the changing conditions associated with projects.

Contingency Theory, which applies to the present study, describes why context-sensitive scope management practices are critical to the success of software project outcomes for Ethiopian IT companies.

2.1.2.4. Resource-Based View Theory

According to the Resource-Based View Theory, organizational performance stems from resource availability and capability use. Wernerfelt (1984) indicated that firms experience superior performance due to the utilization of resources that are valuable, rare, hard to imitate, and well-organized.

The effective management of scope within software projects calls for experienced project managers, technical teams that are competent, sound communication systems, and established systems of project management. Effective scope planning and the implementation of effective scope control procedures would thus be easier to undertake by organizations with strong resource bases.

According to the Resource-Based View theory, the capabilities of the organization, like competence in requirement management/change control, strongly influence the outcomes of

projects. In other words, investments in the enhancement of capabilities by organizations can ensure that projects are completed within the given scope, time, and cost limitations.

The above theory endorses the study as it recognizes the value of the resources in the organization in ensuring proper scope and software project success.

2.2. EMPIRICAL LITRATURE REVIEW

2.2.1. Empirical Studies on Scope Planning and Project Success

The issue of scope planning in projects has been largely researched as a determinant of significance within the scope of project performance. An empirical research study was carried out by Mwanza, Namusonge, & Makokha in 2020, exploring the effect of project planning practices on the performance of construction projects. The research involved a mixed research design, utilizing both descriptive survey, census, and correlation research. The research used a sample size of 313 respondents, selected from a population of 1,761 project managers.

The research findings highlighted that though project planning offers direction and minimizes mistakes, the poor involvement of stakeholders in project planning impacted negatively. The research concluded that project planning is a necessary tool for project definition, resource allocation, and error reduction, and suggested the use of experienced project managers to improve project planning. This research work tends to verify the practicality of project planning as a tool for project success with the possibility of diminished efficiency due to the involvement of stakeholders.

Muute (2019) conducted research to establish the impact of project scope planning on the performance of construction projects in Nairobi City County. The research used the census method to collect data from 125 project managers, and Pearson's correlation test was used. The results of the study established that the application of good practices in project scope planning, such as accurate estimate of the duration of activities, good specification of the scope of the project, and good scheduling, positively and significantly affected the performance of the project. The investigation reached the conclusion that human resource planning together with financial planning and material planning and effective time management serve as vital elements for project

success. The research proves through detailed analysis that precise project scope definition leads to improved results during the planning phase.

Maina and Mungai (2024) carried out an empirical study on the effects of project scope planning on the success of information technology projects in commercial banks in Nairobi City County in Kenya. The study used a descriptive and explanatory research design. The study targeted IT project managers or members, and data was gathered using structured questionnaires. The findings of the study revealed that project scope planning positively and significantly influenced the success of software projects concerning the timeliness and cost of completing the projects, as well as user satisfaction. The study concluded that defining project scope and estimating resources in project scope planning increase the probability of software project success.

Novo, Landis, and Haley (2017) examined the importance of planning as an integral part of successfully managing projects, focusing on leadership competencies of project managers. Direct correspondence was found between efficient planning processes, as well as leadership competencies of project managers. In fact, a positive correlation was noted between leadership competencies and success within projects. The research proves, empirically, that planning is not only a technical process, but a managerial one, improving coordination, communication, as well as decision-making.

A study conducted in Nigeria by Buba & Tanko (2017) evaluated the impact of project planning on quality performance of construction projects. Using a questionnaire for surveying the opinions of quantity surveyors, architects, and builders working as project managers, it was concluded that project planning had led to an enhancement in quality performance by providing better project direction. In support of this, Yang, et al. (2018) indicated in their research that project planning and leadership are important factors in project success related to project scope, budget, quality, and customer satisfaction.

Relevance to the present study:

Although these studies focus on construction projects, they provide empirical evidence that scope planning is a critical success factor. However, very limited empirical work has examined scope planning in the context of software projects in Ethiopian IT companies; hence, there is a gap at both the sectoral and geographical levels which this study tries to fill.

H1: The scope planning will positively and significantly influence the success of the software projects within the Ethiopian IT companies.

2.2.2. Empirical Studies on Scope Control and Project Performance

It has been established through an empirical study that scope control has an effect on project performance by ensuring alignment of project activities with approved project plans. Atieno (2019) analyzed the effect of monitoring and control processes in the performance of Constituency Development Fund (CDF) projects in Kenya. This study utilized a census approach with 140 respondents.

The outcome revealed a strongly positive association between the cost control system and the performance of projects with a coefficient of correlation of 0.921. It was also revealed in the study that the cost change control system supported minimizing unnecessary cost. Cost variance analysis improved the reconciliation of costs. The quality control technique positively impacted project performance. The conclusion of the research was that effective monitoring and control techniques are major contributors in improving project performance.

A descriptive study on the factors affecting the performance of projects in non-governmental organizations in Kenya was carried out by Kariega in 2021. The study used census sampling and the results were analyzed through the aid of SPSS. The study revealed a major impact of project scope control on project performance. A major emphasis of the study is placed on the relevance of scope validation.

Kuswardini & Pasaribu (2025) analyzed scope control practices in information technology projects using a case study approach at an IT solutions company. This study aimed at scope control, validation, and change control practices. It indicated that poor scope control practices resulted in project delays, cost overruns, and decreased system quality because of scope creep. Projects that used formal scope validation and continuous monitoring showed improved performance and alignment with organizational goals. This study stressed that scope control is an essential element in IT project environments where there is high volatility in requirements or projects with high chances of requirement changes.

Mwangi (2017) evaluated the aspects that play important roles in implementing projects of NGOs that are Donor Funded in the International Livestock Research Institute in Kenya. This study employed qualitative research and concluded that the aspects of clear scope, communication, competent project managers, and adequate resource management are important determinants in implementing projects. The study supports the notion of the significance of Scope Management in controlling projects to avoid deviations in their outcomes.

Mkutano (2018) conducted research on the connection between project management approaches and NGO project performance within Nairobi City County. The findings were that communication, planning, stakeholder engagement, and evaluation helped improve project performance. The study concluded that continuous reporting and feedback are key in successful scope control.

These research works confirm the positive influence of scope control practices like monitoring, validation, audit, and feedback on project performance; however, most works are focused upon NGOs, public sector projects rather than private IT firms.

> H2: Scope control, inclusive of the management of change requests, has a significant positive influence on the success of software projects in Ethiopian IT companies.

2.3. Conceptual Framework

A conceptual framework illustrates the relationship between the independent and the dependent variable in the research. A conceptual framework illustrates how the concepts are expected to work in accordance with the theoretical and empirical evidence.

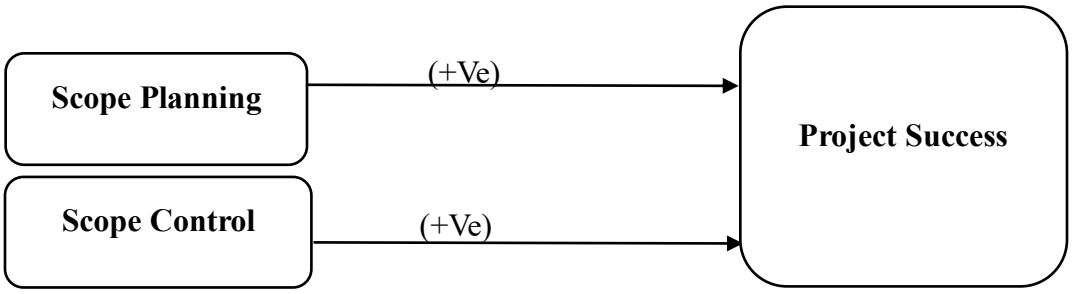


Figure 1 conceptual framework

(source: adapted from Maina and Mungai (2024)

The conceptual framework applied in this study was derived from the work conducted by Maina and Mungai (2024), which focused on the scope management of projects and the performances associated with information and technology projects among commercial banks located within the Nairobi City County, Kenya. The conceptual framework was adapted according to the context that fits the software projects in IT companies found within Addis Ababa, Ethiopia. Moreover, this framework is also supported by the Project Management Life Cycle, which is a process wherein scope planning occurs during the planning stage, and scope control is implemented during the monitoring and controlling stage.

2.4. Scope Planning

Scope planning involves the identification, documenting, and definition of boundaries and deliverables of a project. It helps clarify what to include in a project and what to exclude, hence making the expectations for delivery of the project very clear to stakeholders.

As put by Novo, Landis, and Haley (2017), the scope planning entails early-stage activities such as project initiation, planning, and defining the scope. Such activities are informed by inputs such as project objectives, strategic alignment, stakeholder requirements, and historical information derived from previous projects. Expert judgment, stakeholder analysis, cost–benefit analysis, and deliverable analysis are among the common tools used during scope planning.

Effective scope planning provides key outputs that include: project scope statement, scope baseline, work breakdown structure, and well-defined assumptions and constraints. These outputs will enable the Project team to understand the execution of their project and provide points of reference for future changes. Mwanza, Namusonge, and Makokha (2020) assert that scope planning lies at the core of the project life cycle since it stipulates the guidelines on implementing and controlling the activities of the project.

In software projects, where requirements are often complex and subject to frequent change, scope planning helps to reduce ambiguity and confusion so that realistic project schedules and costs can

be applied effectively. In this study, scope planning is conceptualized through the definition of the scope baseline, the clear definition of the scope statement, and the accuracy of resource estimation.

2.5. Scope Control

Scope control includes the processes required to manage the tracking of the project scope, as well as controlling any changes to ensure all changes are carried out after evaluation and approval. It makes sure that the work being done in the project is aligned with the set objectives.

It involves activities like scope validation, auditing, Change request management and continuous reporting and feedback, according to Atieno (2019). Scope validation concerns the formal acceptance of completed deliverables by stakeholders, a factor that enhances accountability and reduces disputes over project outcomes Kariega (2021).

Another critical aspect in the process of scope control is project auditing. According to Mwangi (2017), project audits can be defined as formal project reviews completed in order to evaluate the level of project management and project plans.

Change request management is one of the core elements of scope control in this study. As identified in Chapter One, Ethiopian IT firms often encounter resistance and dissatisfaction from clients when managing change requests despite their critical role in the avoidance of delays and cost overruns. According to PMI (2017), effective change control calls for the impact assessment of requested changes on time, cost, quality, and project objectives prior to approval.

Feedback and reporting systems are also very essential in scope management. According to Mkutano (2018), feedback is essential as it enhances learning, performance, and effective decision-making. effective reporting is also essential in monitoring progress and scope changes during project implementation.

2.6. Software Project Success

Software project success is about projects meeting expectations for intended outcomes within defined constraints. Traditional measures for successful projects have considered completion within time and budget, while contemporary approaches have also given attention to quality and satisfaction of stakeholders.

According to the literature related to project management, the success of a project is achieved when the project satisfies the user expectations by providing the required output, meets the project schedules and cost, and satisfies the customer to a satisfactory level. Success, in the case of information technology projects, also includes functionality and usability of the system, as well as alignment with organizational needs.

CHAPTER THREE

3. RESEARCH METHODOLOGY

3.1. Introduction

This chapter outlines the methodology that shall be used to study the effect of project scope management on the success of software projects in selected IT companies in Addis Ababa, Ethiopia. Precisely, the chapter delineates the research design adopted for the study, the study area, target population, sampling techniques and sources of data, data collection instruments, data analysis methods, and ethical considerations. The methodological choices shall be informed by the objectives of the study and the nature of the variables under investigation.

3.2. Research Design

The research study was utilized both descriptive and explanatory research designs. The descriptive research design used to characterize the current project scope management practices, including scope planning and scope control, as implemented in software projects within chosen IT companies. This design helps in understanding the implementation of scope management activities regarding the current practice.

The explanatory research design was used to examine the causal relationship between project scope management practices (scope planning and scope control) and software project success. This design is suitable because the study aims to test the effect of independent variables on the dependent variable.

A quantitative research approach was employed in this study. This approach is considered suitable because it allows for the collection of numerical data that can be analyzed statistically to determine the relationship among variables and as well as conducting SPSS analysis to test relations among variables.

3.3. Study Area

The study was undertaken in the selected IT firms engaged in software development projects in Addis Ababa, Ethiopia. The selected firms are primarily involved in developing software projects. Such organizations are engaged in designing, developing, testing, and deploying software-based systems to meet the requirements of various clients.

The selected IT firms undertake software projects such as system development, web-based application, ERP system, e-learning platform, etc. Hence, the selected firms are considered appropriate to examine the impact of scope management practices on IT projects.

3.4. Target Population

The target population of this research was made up of professionals involved in software development projects within selected IT organizations in Addis Ababa who are directly engaged in software development and the execution of IT projects. The above-mentioned individuals include project managers, systems analysts, software developers, quality assurance specialists, and project coordinators. The selection of the above-mentioned respondents was done on the basis that they take part in critical project scope management processes like scope planning, scope definition, scope control, as well as processing of change requests, in addition to executing projects.

Based on preliminary assessment, the total population of IT professionals involved in the selected projects was estimated at 164 respondents across different IT projects, as shown below.

Table 3. 1. Target population

No	Projects	Number of staffs involved in the project

1	RPSNP	33
2	Financial technology	16
3	Online learning	17
4	ERP implementation	16
5	College SMIS	20
6	Ethio post E-commerce	13
7	Ride hailing system	21
8	E-learning	15
9	ehealth system implementation	13
	Total	164

3.5. Sample Size

The population targeted in this research is made up of professionals employed in IT companies involved in software project development in Addis Ababa, Ethiopia. For the purpose of this research, the sample frame was constructed from the lists of IT professionals provided by selected IT companies and project documentations in addition to consultations made with project coordinators.

This study sampled seven (7) selected IT companies undertaking software development projects. In each company, there were nine (9) software development projects under undertaking, which include projects of system development, enterprise application, e-learning systems, e-health systems, and other IT projects. In each project, there are professionals playing various roles, such as project managers, system analysts, software developers, and quality assurance officers. Consequently, the total population of this study is comprised of one hundred sixty-four (164) IT professionals.

In order to have a statistically representable sample size, a sample had to be taken from the total population. The sample size in this study was calculated from the population by using the statistical formula proposed by Taro Yamane (1967).

n= required sample size

N= Total population size

e= is the estimated standard error which is 5% for 95% confidence level.

$$n = N / (1 + N(e)^2)$$

Where

$N = 164$ $\quad n = 164 / (1 + 164(0.05)^2)$

$e = 0.05$ $\quad n = 164 / (1 + 164(0.0025))$

$n = 164 / (1 + 0.41)$

$n = 164 / 1.34 = 116$ respondents

3.6. Sampling technique

Sampling was conducted using multistage sampling in choosing both organizations and the respondents.

Firstly, purposive sampling technique was applied when selecting IT companies which implement software development projects. Two main factors were considered in the selection; the presence of ongoing or completed software projects and the organization's willingness to share information. The selected IT firms were chosen because they contain several software projects, thus making them an ideal environment for identifying appropriate respondents. It is critical to consider these factors in order to have relevant data since this research required organizations with practical knowledge about the process of project scope management and success of IT projects.

Second, software projects that are found in the chosen organization were deliberately chosen because of their relevance to the software development process, including ERP software systems, e-learning software, e-health software, and other web-based applications.

Thirdly, stratified sampling was applied in order to categorize participants based on their job responsibilities, which include project managers, system analysts, software developers, quality assurance testers, and project coordinators. This ensure that all major stakeholders engaged in the implementation of software projects were represented.

Finally, simple random sampling (lottery technique) was adopted in the selection of respondents within each stratum. This guaranteed that all members of the population had equal chances of being

selected. In total, 116 respondents were selected out of 164 professionals using the Yamane formula.

Table 3. 2 sample size of the study

No.	Project	Project Manager	Software Developer	System Analyst	Quality Assurance	IT Support Officer	Total Sample
1	RPSNP	2	11	5	3	2	23
2	Financial technology	1	5	2	2	1	11
3	Online learning	1	6	3	2	1	13
4	ERP implementation	1	7	3	2	1	14
5	College SMIS	1	5	3	2	1	12
6	Ethio post E-commerce	1	7	3	2	1	14
7	Ride hailing system	1	5	2	1	1	10
8	E-learning	1	3	3	1	1	10
9	ehealth system implementation	1	4	2	1	1	10
Total							116

3.7. Type and Sources of Data

This research was based on the collection of primary data that came directly from the respondents who participated in software project activities. Primary data were was considered appropriate because they are authentic and reliable sources of data relating to scope management processes and software project success.

Primary data were gathered through a well-designed questionnaire that used a five-point Likert scale rating system, including options from “Strongly Disagree” to “Strongly Agree.” The questions were divided into various categories, namely demographic data, scope planning processes, scope control processes, and measures of software project success.

3.8. Data Analysis Methods

Once the data is gathered, the questionnaires will be reviewed to confirm they are thoroughly and consistently filled out. The data will subsequently be coded to facilitate processing and analysis using the Statistical Package for Social Sciences (SPSS).

Data analysis will involve both descriptive and inferential statistics. The descriptive form of the statistics will include frequency, percentage, means, and standard deviations, which will be used to describe the study participants and the key study variables. On the other hand, inferential statistics will comprise correlation and regression analysis, which will be used to find the relationship between the practices of the project scope management and the success of software projects.

$$Y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \beta_n x_n + \varepsilon$$

Where:

- **Y** = is the measured value of project success or the value of the dependent variable
- Independent variables

  x_1 = The measured value of Scope Planning

  x_2 = The measured value of Scope Control

- β_0= Constant term (coefficient of intercept)
- β_1 β_2= Coefficients of the independent variables (regression coefficient).
- ε = Error term

  β represents the coefficients of independent variables, X represents column vectors for Scope planning, and control, and ϵ represents prediction errors.

3.9. Validity and reliability

Validity

Validity is concerned with the degree to which a measurement tool is able to accurately assess what it is supposed to assess. In this study, validity was assured by incorporating and modifying questionnaire items that have been validated in previous researches concerning project management and software project success.

Reliability

Reliability pertains to the dependability of a measurement tool. Prior to the actual data gathering, a pilot test was carried out and the internal consistency of the constructs of scope planning, scope control, and software project success was determined using Cronbach's Alpha through SPSS. Any value of 0.70 or higher was deemed reliable (Tavakol & Dennick, 2011).

Table 3. 3. Cronbach's alpha values

Variables	Cronbach's alpha
Scope planning	0.901
Scope control	0.847
Project success	0.876

Source: Survey Data, 2026

3.10. Ethical Considerations

The ethical concerns will be taken into consideration while implementing the research. The research will only involve volunteers. Moreover, the intended aims of conducting the research will be clearly defined to them prior to applying the questionnaire to them. It will be ensured that no one is identified by his/her name to respect the confidentiality and privacy of the respondents. Secondly, there will be no negative consequence for them if they withdraw from the research at any point of time.

CHAPTER 4

4. DATA PRESENTATION, ANALYSIS AND INTERPRITATION

4.1. Introduction

Data analysis is the focus of this chapter where data were obtained to evaluate the effect of scope management on software project success in Addis Ababa. Data were primarily obtained using a questionnaire administered to certain respondents. The collected data were subjected to statistical analysis using the IBM SPSS Statistics program.

The following are the findings from the data analysis carried out based on the research objectives. The findings are systematically presented using tables and other statistical data presentations. Descriptive and inferential statistics were utilized in this regard; they include mean and standard deviation for data description, Cronbach Alpha test for reliability analysis, and Pearson correlation and multiple regressions for data relationship and effects testing.

4.2. Response rate

A structured questionnaire was distributed among 116 respondents who had been selected from IT professionals employed by the chosen IT firms and software developments in Addis Ababa. Among the total number of questionnaires that have been distributed, 108 were effectively filled out. This corresponds to a 93% response rate. The response rate was deemed sufficient for analysis purposes.

4.3. Demographic characteristics of the respondents

For an accurate description of the sample and a more detailed explanation of the results obtained from this research, the investigator conducted an analysis of the demographic features of the respondents. The demographic analysis centers on the personal information of the respondents, particularly their gender, age, educational attainment, job status, and experience at work. The results of the investigation are summarized in the following tables.

Table 4. 1. Distribution of Respondents by gender

	Frequency	Percent
Male	75	69.4
Female	33	30.6
Total	108	100.0

Source: Survey Data, 2026

According to Table 4.1 below, the distribution of respondents by gender reveals that there are more male respondents than female respondents in the survey. Male respondents constituted 69.4% (n=75), while female respondents accounted for 30.6% (n=33).

Table 4. 2. Distribution of Respondents by Age

	Frequency	Percent
21-29	38	35.2
30-40	45	41.7
41-49	15	13.9
50 and above	10	9.3
Total	108	100.0

Source: Survey Data, 2026

As can be seen from Table 4.2 below, the largest proportion of respondents, 41.7% (n = 45), belong to the age category of 30-40 years old. The second largest category of respondents is 35.2% (n = 38) aged 21-29 years. Moreover, 13.9% (n = 15) of respondents are 41-49 years old, whereas the rest, 9.3% (n = 10) of them, belong to the older than 50-year age category.

This data implies that the majority of respondents belong to the category of people who are in their active age, which is considered to be between 21 and 40 years old and actively involved in IT

projects. The use of respondents from different age categories will allow obtaining information from various experienced people.

Table 4. 3. Distribution of Respondents by educational status

	Frequency	Percent
1st Degree	71	65.7
2nd Degree and above	37	34.3
Total	108	100.0

Source: Survey Data, 2026

From the data in Table 4.3, the academic status of the participants reveals that most of them (65.7%) possess a first-degree academic qualification, while the rest of them (34.3%) have second-degree academic qualifications and above. In total, all the respondents (100%) have attained at least first-degree level of education.

The high academic qualifications of the participants imply that they have the mental aptitude and experience required to comprehend and give correct answers to the problems of project scope management and IT projects.

Table 4. 4. Distribution of Respondents by Experience

	Frequency	Percent
1-5 years	43	39.8
6-10 years	46	42.6
11-15 years	24	11.1
More than15 years	7	6.5
Total	108	100.0

Source: Survey Data, 2026

From Table 4.4, it can be seen that 42.6% of all respondents have between 6 to 10 years of work experience, implying that the majority of respondents have medium-level experience with respect

to project-related activities. The percentage of employees with 1 to 5 years of work experience is 39.8%. Furthermore, 11.1% of the respondents have between 11 to 15 years of work experience, whereas 6.5% of the respondents have more than 15 years of work experience.

As seen from the table, respondents who have varied amounts of experience in terms of working with projects are included in this study. Respondents who have less experience and also moderate experience may affect their approach towards the implementation of project scope management. Moreover, inclusion of respondents with varied experience increases the validity of the results regarding project scope management and IT project success.

Table 4. 5. Distribution of Respondents by position

	Frequency	Percent
Project Manager	9	8.3
Software developer	40	37.0
System analysts	18	16.7
Quality assurance / Testers	18	16.7
IT project team leader	23	21.3
Total	108	100.0

Source: Survey Data, 2026

From the table below (Table 4.5), the survey questions addressed the occupational position of the respondents. As revealed, 37.0% (n = 40) of the respondents are software developers, 21.3% (n = 23) are IT project team leaders. Moreover, 16.7% (n = 18) of the respondents are system analysts, 16.7% (n = 18) are quality assurance/testers, and the remaining 8.3% (n = 9) are project managers.

It can be seen from the above analysis that there are various occupational positions among the respondents involved in the research, meaning that it is conducted on individuals who are in various capacities within an IT project team. With a high presence of technical personnel like software developers, system analysts, and testers, it can be concluded that the research findings will significantly reflect practical experiences within the field of interest, IT projects' scope management.

4.4. Descriptive Statistics

The descriptive statistics for the study variables, including Scope Planning, Scope Control, and Project Success, are provided in this section. In describing the descriptive statistics, the mean and standard deviation (SD) were utilized to provide interpretation and summary for the respondents' responses.

The interpretation of the findings from the survey questions was achieved through the application of the five-point Likert scale. According to the scale, a rating of 1.00 to 1.80 denotes "Strongly Disagree," 1.81 to 2.60 denotes "Disagree," 2.61 to 3.40 denotes "Neutral," 3.41 to 4.20 denotes "Agree," and 4.21 to 5.00 denotes "Strongly Agree" (Sözen & Güven, 2019).

Table 4. 6. Scope planning

Items	**N**	**Mean**	**SD**
The initial project scope is clearly defined and documented before the commencement of software project.	108	3.31	1.181
Stakeholders are actively involved in the process of defining project scope requirements.	108	3.26	1.171
There is a documented scope management plan outlining how changes to the project scope will be handled.	108	3.38	1.251
The project team utilizes a Work Breakdown Structure (WBS) to break down the project into manageable components	108	3.43	1.240
Changes to the project scope are systematically reviewed and approved through a formalized change control process.	108	3.50	1.037
The project scope takes into account potential risks and uncertainties that Might impact the project.	108	3.31	1.220
The project team regularly reviews and updates the scope documentation throughout the project lifecycle.	108	3. 39	1.151
Aggregate mean	108	3.36	1.178

Source: Survey Data, 2026

The table above (Table 4.6) indicates that respondents have a moderately neutral or positive perception about scope planning practices in software projects. The mean score of 3.31 (SD =

1.181) shows that respondents moderately agree that initial scope definition is adequately documented before software projects begin. In the same light, the mean of 3.26 (SD = 1.171) demonstrates that stakeholders are involved in the development of project scope requirement.

The mean of 3.38 (SD = 1.251) means that there is a documented scope management plan for how to manage change in project scope that respondents slightly agree with. Moreover, the mean of 3.43 (SD = 1.240) implies that a work breakdown structure is used to break down the project into smaller parts. Additionally, the mean of 3.50 (SD = 1.037) implies that project scope changes are systematically reviewed and managed through a formalized change control process.

The mean of 3.31 (SD = 1.220) shows that respondents neutrally agree with the idea that project scope takes care of possible risks and uncertainties that may arise from the project. The mean of 3.39 (SD = 1.151) means that respondents moderately agree that project scope is reviewed and updated at certain intervals during the project life cycle.

In conclusion, the aggregate mean of 3.36 (SD = 1.178) implies that scope planning practices are moderately performed in software projects. Therefore, it can be argued that while some aspects of scope management such as change control and work breakdown structures are well executed in software projects, others such as stakeholder involvement and risk considerations need to improve to enhance software project success.

Table 4. 7. Scope control

Items	N	Mean	SD
Changes to the project scope undergo a formalized approval process involving key project stakeholders.	108	2.72	1.049
companies have established clear procedures for handling scope changes during the execution of software projects	108	2.74	1.122
The project team actively uses change control mechanisms to prevent unauthorized alterations to the project scope.	108	2.85	1.048
Regular scope verification is conducted to ensure that project deliverables align with the agreed-upon scope.	108	2.77	.992
The project team effectively communicates any approved changes to the project scope to relevant stakeholders.	108	2.76	1.126

Scope performance measurements, including progress on deliverables, are regularly monitored and reported.	108	2.87	1.120
companies actively prevent scope creep by closely managing and controlling any deviations from the original project scope.	108	2.82	1.031
Aggregate mean	108	2.79	1.069

Source: Survey Data, 2026

As seen in Table 4.7 above, respondents have a level of disagreement to neutral disagreement on the issues of scope control within software projects. This is shown through a mean of 2.72 (SD = 1.049) indicating that there is no formal approval process of changes in the project scope within the software projects. On the other hand, the mean of 2.74 (SD = 1.122) indicates that organizations do not have procedures to manage changes in the software project scopes.

The mean of 2.85 (SD = 1.048) indicates that there is a slight agreement to neutrality that the software projects team utilizes the change control mechanism to prevent any unauthorized change in the software project scope. Also, the mean of 2.77 (SD = 0.992) indicates that there is a neutral stance on the issue of conducting scope verification to confirm if the project deliverables meet the requirements of the agreed project scope.

Additionally, the mean of 2.76 (SD = 1.126) indicates a neutral stance towards the issue of communicating changes in scope to interested stakeholders. On the other hand, the mean of 2.87 (SD = 1.120) indicates a neutral towards the issue of measuring scope performance which includes tracking progress of project deliverables. Lastly, the mean of 2.82 (SD = 1.031) shows a neutral towards the issue of preventing scope creep by closely managing the changes in the software project scope.

In conclusion, it can be said that aggregate mean score of 2.79 (Standard deviation = 1.069) clearly shows that there is low to moderate implementation of scope control processes in software projects. It means that although some control mechanisms are being carried out, formal process for approval and scope control is missing and needs to be improved.

Table 4. 8. Project success

Items	N	Mean	SD
The quality of project deliverables in information technology projects meets or exceeds the specified standards and requirements.	108	3.18	1.198
The project was completed within the scheduled timeline.	108	3.13	1.208
The project was completed within the authorized budget and financial constraints.	108	3.15	1.092
Stakeholder satisfaction with the outcomes of information technology projects is actively assessed.	108	3.01	1.156
The project team actively monitors and addresses any deviations from the planned scope during project execution.	108	3.23	1.124
Risks related to project performance are systematically identified, assessed, and managed.	108	3.16	1.104
Lessons learned from previous projects are applied to the success of subsequent projects.	108	3.07	1.158
Aggregate mean	108	3.13	1.143

Source: Survey Data, 2026

As depicted in the Table 4.8 above, it can be seen that the respondents have a neutral perception concerning the success of the project. This has been shown by the mean score of 3.18 (SD = 1.198), which means that the respondents moderately agreed that project deliverables were up to the required standards. The same applies for the second statement, with the mean being 3.13 (SD = 1.208), meaning that the project was completed within the scheduled time.

The mean score of 3.15 (SD = 1.092) indicates that the respondents moderately agreed that projects were completed within the allowed budget. Furthermore, the third mean score of 3.01 (SD = 1.156) shows that respondents had a neutral perception about stakeholder satisfaction being measured in terms of project results.

The mean score of 3.23 (SD = 1.124) reveals that there is moderate agreement between the respondents that the teams monitor and correct any deviations in the planned scope. Also, the mean of 3.16 (SD = 1.104) demonstrates moderate agreement among the respondents about the identification and management of performance-related risks. Similarly, the mean of 3.07 (SD =

1.158) reveals a neutral perspective on the use of lessons learned from past projects for better future outcomes.

To summarize, the aggregate mean of 3.13 (SD = 1.143) suggests that the level of success in the projects in information technology is moderate. It can be seen that although certain variables such as deliverable quality and scope monitoring have been successfully undertaken, others such as measuring satisfaction levels and organizational learning need improvement in order to increase success rates.

4.5. Correlation analysis

In this research, correlation analysis was carried out in order to establish the correlation among the study variables, which are Scope Planning, Scope Control, and Project Success. The correlation among the variables was assessed based on the Pearson correlation coefficient, which falls within the -1.00 to +1.00 range. In assessing the Pearson correlation coefficient, a positive symbol indicates a positive correlation, whereas a negative symbol implies a negative correlation.

Table 4. 9. Correlation analysis

Correlations

		TotalSP	TotalSC	TotalPS
TotalSP	Pearson Correlation	1	.699**	.749**
TotalSC	Pearson Correlation	.699**	1	.686**
TotalPS	Pearson Correlation	.749**	.686**	1

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

Source: Survey Data, 2026

From Table 4.10, the correlation (r = 0.749 and p = 0.000) between scope planning and project success shows that there is a significant positive relationship between the two variables. In the same way, the positive correlation (r = 0.686 and p = 0.000) suggests that scope control and project success have a significant positive relationship as well. Moreover, the positive relationship

between scope planning and scope control has been observed to be significant (r = 0.699 and p = 0.000).

In summary, all three variables (scope planning, scope control, and project success) under consideration are significantly and positively related to each other. The correlations are significant because all the p-values are 0.000, which is lower than 0.05. These findings clearly suggest that there is a significant association between scope management activities and project success. Therefore, regression analysis should follow as the next step to analyze these findings.

4.6. Regression analysis

The type of relationship between the independent and dependent variables was determined through multiple regression analysis. The summary of the findings from the regression analysis is provided below in the subsequent sub-sections.

4.6.1 common assumption test

Normality Test

Normality of the data was tested by skewness and kurtosis of descriptive statistics that included Scope Planning, Scope Control, and Project Success.

The normality test refers to a method used to assess whether a dataset conforms to a normal distribution. This assumption is crucial for various statistical tests, such as regression, where it ensures the validity and reliability of the results.

Table 4. 10. Normality Test

	N	Mean	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
TotalSP	108	3.3690	-.237	.233	-.865	.461
TotalSC	108	2.7910	.174	.233	-.810	.461
TotalPS	108	3.1323	-.126	.233	-.911	.461

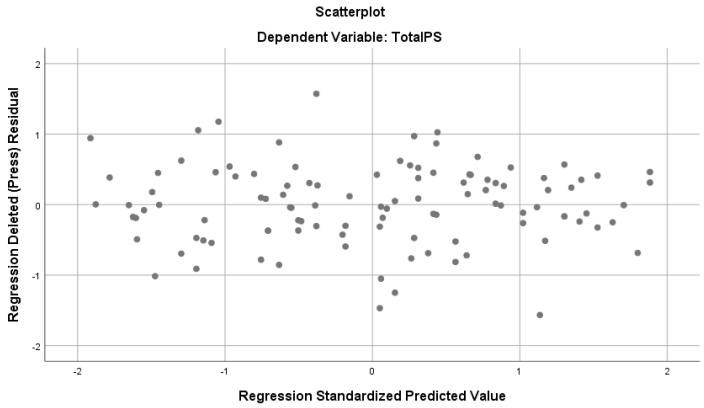
Valid N (listwise)	108					

According to the result presented, skewness was found to be between -0.237 and 0.174, a value lying between -1 to +1, which means that the data is approximately normally distributed.

Also, the value of kurtosis obtained was between -0.911 and 0.810, a value that lies within -2 and +2 range, thereby confirming the normality of the data distribution.

Linearity test

The degree of association between a change in the dependent variable and a change in the independent variable can be described by the linearity of the relationship between the dependent variable and the independent variable (Hair, 1998). In simple terms, linear models estimate values that fall in a straight line using a constant change of units (slope) of the dependent variable in exchange for a constant change of units of the independent variable (Hair, 1998).



Source: Survey Data, 2026

Figure 2 Frequency distribution of standardized residuals

The graph reveals that the points are scattered around zero without showing any particular shape or curve. The implication is that there exists a linear association between the independent and the dependent variables, and hence the assumption of linearity is met.

Multicollinearity test

Multicollinearity test refers to a statistical tool that helps to check for the presence of high correlations between independent variables in a multiple regression analysis. This test is necessary because multicollinearity can influence the results of the analysis. In SPSS, multicollinearity is tested by using values of tolerance and variance inflation factor (VIF), which should be greater than 0.1 and less than 10 (or more strictly below 5), respectively, indicating the absence of multicollinearity issues in the model.

Table 4. 11 multicollinearity test

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	TotalSP	.511	1.957
	TotalSC	.511	1.957

Source: Survey Data, 2026

Based on the results of the collinearity statistics, both independent variables, TotalSP and TotalSC, their tolerance statistic is equal to 0.511 while their VIF statistic is equal to 1.957. Given that the tolerance statistics are greater than 0.1 and the VIF statistics are less than 5, it can be concluded that there is no problem of multicollinearity among the two independent variables.

Checking the assumption Model Summary for Regression Analysis

Table 4. 12. Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.783[a]	.613	.605	.54673

a. Predictors: (Constant), TotalSC, TotalSP

There is a strong positive relationship between Scope Planning, Scope Control and Project Success, with an R value of 0.783. Hence, there is a high association between scope management and project success.

The high R Square value of 0.613 indicates that 61.3% of the variations in project success can be accounted for by the variables, Scope Planning and Scope Control. This signifies that these variables have high importance in determining project success.

The value of 0.605 of Adjusted R Square indicates that 60.5% of the variance in project success is explained by the model, which means that the model has good predictive power.

Overall, according to the regression analysis results, Scope Planning and Scope Control play an important role in achieving project success. Consequently, managing the scope of software projects is vital for project success.

ANOVA summary interpretation

Table 4. 13. ANOVA table

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	49.623	2	24.811	83.005	.000[b]
	Residual	31.386	105	.299		
	Total	81.008	107			

a. Dependent Variable: TotalPS

b. Predictors: (Constant), TotalSC, TotalSP

Regression model using SP and SC as predictor variables is statistically significant in predicting the success of the project based on the information given in the ANOVA table. This is because the higher the value of F = 83.005, the greater the amount of variability accounted for by the regression model than the error term. Also, the significance level (Sig. = 0.000) is lower than 0.05, indicating that the regression model is statistically significant. As such, this suggests that at least one of the independent variables (SP and SC) has a considerable impact on the dependent variable (PS). Additionally, from the above ANOVA table, the F-value is high, implying that the regression model has a high degree of prediction ability when it comes to explaining the dependent variable. However, ANOVA does not reveal which of the predictors influence the regression model significantly. Consequently, coefficient analysis should be carried out to determine their significance.

Table 4. 14. Beta coefficient of the study variable

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	T	Sig.
1	(Constant)	.484	.213		2.272	.025
	SP	.490	.079	.526	6.195	.000
	SC	.358	.096	.318	3.744	.000

a. Dependent Variable:PS

Starting with scope planning, the coefficient (B = 0.490, p = .000) shows that scope planning influences project success positively and significantly. It means that improvements in scope planning lead to better project outcomes. Indeed, the statistical significance is indicated by the p-value (0.000) being lower than 0.05, which proves that scope planning is an essential predictor of project success.

Moving on to scope control, the coefficient (B = 0.358, p = .000) reveals that scope control affects project success positively and significantly. In other words, effective monitoring and controlling of project scope contributes to better outcomes. Therefore, scope control is an important predictor of project success.

Finally, comparing the two factors, it is evident that scope planning (β = 0.526) has a stronger influence on project success more than scope control (β = 0.318).

From the coefficients table, the following regression model was fitted

$$Y= 0.484 + 0.490X1 + 0.358X2$$

Table 4. 15. Summary of hypothesis

Hypothesis	Result	Decision
H1: The effect of scope planning (scope definition) on project success is statistically significant and positive.	Significant (B = .490), positive (p = .000)	Hypothesis Accepted
H2: The effect of scope control (including management of change requests) on project success is statistically significant and positive.	Significant (B = .358), positive (p = .000)	Hypothesis Accepted

CHAPTER FIVE

5. CONCLUSION AND IMPLICATIONS

5.1. Introduction

This chapter discusses the conclusion of the study, the implications of the results obtained, recommendations, and future research suggestions. The conclusions and discussions made in this section are entirely based on the empirical data found in Chapter Four regarding the impact of scope planning and scope control on the success of projects in selected IT companies in Addis Ababa. Descriptive statistics, correlation, and multiple regressions were employed to establish the relationship between the independent variables and project success.

5.2. Summary of Findings

The results obtained from this research proved that there is a positive relationship between scope planning and scope control on the success of IT projects in Addis Ababa. The descriptive analysis showed that the practice of scope planning is moderately practiced in the companies studied, which gives an average score of 3.36. This means that scope definition, work breakdown structure and change documentation have been performed adequately, even though stakeholder participation and risks management are still weak.

However, the application of scope management techniques was determined to be weak to moderately weak, with an average value of 2.79. This implies that there is not much effort in the implementation of formal change control procedures, scope validation techniques, and systematic monitoring systems within the IT project. Scope creep management and scope change approval are not very common either.

As far as the success of the project is concerned, it was found that the success was moderate to an aggregate mean of 3.13. It implies that even though some projects have been successful in terms of quality and budget requirements, there are other dimensions of success that have not been realized.

As per the correlation analysis, there exists a strong positive relationship between scope planning and project success ($r = 0.749$), and there also exists a positive relationship between scope control

and project success ($r = 0.686$). This shows that any improvements in scope management lead to increased project success.

In addition, the regression analysis showed that the two variables of scope planning and scope control accounted for 61.3% of the variability of project success ($R^2 = 0.613$). The model proved to be statistically significant ($F = 83.005$, $p < 0.05$), indicating that scope management was a good predictor of project success.

On the other hand, concerning individual impact, scope planning showed more impact on the success of projects ($\beta = 0.526$, $p < 0.05$) than scope control ($\beta = 0.318$, $p < 0.05$). This means that having good planning for project scope at the very beginning is more significant than controlling at later stages.

5.3 Conclusion

Based on findings obtained empirically, it is clear that scope management has a critical part to play when it comes to the success of software projects within IT organizations in Addis Ababa. In addition, the research shows that scope planning and scope control have an effect on project success.

It can be concluded from the results that scope planning is carried out much better than scope control, which means that IT companies care more about planning the scope of their projects rather than managing and controlling it. This leads to difficulties like the absence of control over changes and inefficiency of projects.

In addition, the research shows that the scope planning variable has the highest influence on the success of projects compared to the other two variables being studied. It is thus evident that clear definition of project requirements and scope boundaries is important for the success of projects.

Generally, poor implementation of the scope control processes is the main limitation affecting project success.

5.4. Recommendations

From the results of this research, several recommendations are given to better scope management practices and hence increase the success rate of software development projects at Addis Ababa IT firms.

Scope control methods need to be improved first because the results showed that there is weak scope control in the organization. The company must have a process for implementing changes to the project scope by ensuring that these changes are approved and communicated before anything is implemented.

Second, even though scope planning has been done better, it still needs improvement through increased stakeholder involvement in requirements gathering. From the findings, stakeholder involvement in scope planning has been found to be moderate; however, from the literature, good stakeholder involvement ensures project success.

Third, IT companies need to improve the continuous process of monitoring and verifying the project scope in the entire project life cycle. Given that the regression analysis reveals that the control of project scope is important for project success, it is crucial to develop good tracking systems.

Finally, organizations need to engage in capacity-building activities for project teams through training on requirement management, change control, and project monitoring. This will enhance the effectiveness of both scope planning and scope control.

5.5. Suggestions for Future Research

Scope management within IT projects can be investigated further in the future by expanding the scope of study to include other types of projects, which may involve network projects, infrastructure projects, cybersecurity projects, and system implementation projects.

Moreover, further studies could consider employing research designs that use qualitative or a mix of methods including case studies and interviews to better understand scope management processes.

Comparative studies that would compare IT firms with public sector organizations on the basis of their scope management practices and project success would be very informative.

In conclusion, other fields of project management may also be investigated by future researchers, including cost management, time management, risk management, and how new technologies affect project success.

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APPENDIX

ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

M.A Research on Project Management

Dear Respondent,

I want to thank you for agreeing to take part in this survey. In order to partially fulfill the requirements for the Master of Arts (M.A.) in Project Management at Addis Ababa University, this questionnaire was created as part of the data collection process.

Examining how project scope management techniques affect the success of IT projects in Addis Ababa is the primary goal of this study. The success of this study will be substantially enhanced by your invaluable experience and professional insight.

The information you provide will be used strictly for academic purposes only. All the answers will be treated with the highest level of confidentiality, and the anonymity of the respondents will be fully maintained.

You are kindly requested to answer the following questions by indicating the level of your agreement or disagreement with the given statements based on your experience in the field of IT projects. Please mark the answer with a tick (√) in accordance with the following scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

Your honest and thoughtful responses are highly appreciated and will significantly contribute to the quality and reliability of this research.

Thank you very much for your time, cooperation, and support.

Name: Tsion Gachena

Email: tsiondebele4@gmail.com

Section I: Demographic profile

Please respond to the following questions by marking (✓) sign:

1. Sex

Male ☐ Female ☐

2. Age

21-29 ☐ 30-40 ☐ 41-49 ☐ 50 and above ☐

3. Educational status

Diploma ☐ 1st Degree ☐ 2nd Degree & above ☐ Other ☐

4. How long have you been working in your company?

1-5-year ☐ 6-10-year ☐ 11-15-year ☐ More than 15 Years ☐

5. What is your position in your company?

Project Manager ☐ Software Development officer ☐

Project Management Officer ☐ If any other _____

6. In which IT project/s you were involved? _____

Section II: PROJECT SUCCESS FACTORS

The following set of statements relate to your feelings about the effect of scope management on the success of IT projects. Read and show to what extent you agree.

NB. 5- SA = Strongly Agree 4- A = Agree 3- N = Neutral

2- D = Disagree 1- SD = Strongly Disagree

1. **Scop planning**

No	Description	SA	A	N	D	SD

1.1	The initial project scope is clearly defined and documented before the commencement of software project.					
1.2	Stakeholders are actively involved in the process of defining project scope requirements.					
1.3	There is a documented scope management plan outlining how changes to the project scope will be handled.					
1.4	The project team utilizes a Work Breakdown Structure (WBS) to break down the project into manageable components					
1.5	Changes to the project scope are systematically reviewed and approved through a formalized change control process.					
1.6	The project scope takes into account potential risks and uncertainties that Might impact the project.					
1.7	The project team regularly reviews and updates the scope documentation throughout the project lifecycle.					

2. Scope control

No	**Description**	**SA**	**A**	**N**	**D**	**SD**
2.1	Changes to the project scope undergo a formalized approval process involving key project stakeholders.					

2.2	companies have established clear procedures for handling scope changes during the execution of software projects.					
2.3	The project team actively uses change control mechanisms to prevent unauthorized alterations to the project scope.					
2.4	Regular scope verification is conducted to ensure that project deliverables align with the agreed-upon scope.					
2.5	The project team effectively communicates any approved changes to the project scope to relevant stakeholders.					
2.6	Scope performance measurements, including progress on deliverables, are regularly monitored and reported.					
2.7	companies actively prevent scope creep by closely managing and controlling any deviations from the original project scope.					

3. Project performance

No	**Description**	**SA**	**A**	**N**	**D**	**SD**
3.1	The quality of project deliverables in information technology projects meets or exceeds the specified standards and requirements.					
3.2	The project was completed within the scheduled timeline.					

3.3	The project was completed within the authorized budget and financial constraints.					
3.4	Stakeholder satisfaction with the outcomes of information technology projects is actively assessed.					
3.5	The project team actively monitors and addresses any deviations from the planned scope during project execution.					
3.6	Risks related to project performance are systematically identified, assessed, and managed.					
3.7	Lessons learned from previous projects are applied to the success of subsequent projects					