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DEPARTMENT OF MANAGEMENT STUDIES
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EFFECT OF PROJECT MANAGER'S COMPETENCIES ON
PROJECT MANAGEMENT SUCCESS AND PROJECT
SUCCESS OF ENGINEERS

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This thesis is submitted to the Board of Examiners in partial fulfillment of the requirements for the degree of Master of Business Administration (MBA).

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ACCEPTANCE

This is to certify that the thesis entitled “**Effect of Project Manager’s Competencies on Project Management Success and Project Success of Engineers**” has been accepted by the Examination Board for awarding Master of Business Administration (MBA) degree.

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ABSTRACT

The objectives of this study are to analyze the mediating effect of project characteristics on the relationship between company specific factors and project manager's competencies, to analyze the mediating effect of project manager's competencies on the relationship between project characteristics and project management success, to analyze the mediating effect of project manager's competencies on the relationship between company specific factors and project management success, to analyze the mediating effect of project characteristics on the relationship between company specific factors and project management success and to analyze the effect of project management success on project success of Myanmar Engineering Council's License Holders. There are 348 members of professional engineers in Myanmar Engineering Council. Using the Yamane Formula, the sample size is 186 out of 348 members are selected by using simple random sampling method. Online survey is conducted to collect primary data. To analyze the collected data in descriptive statistics and multiple regression methods are used. The research findings indicate that there is the mediating effect of project characteristics on the relationship between company specific factors and project manager's competencies. Moreover, project manager's competencies mediate between project characteristics and project management success. Furthermore, there is the mediating effect of project manager's competencies on the relationship between company specific factors and project management. In addition, there is the mediating effect of project characteristics on the relationship between company specific factors and project management success. Finally, project management success has positive and significant effect on project success.

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LIST OF ABBREVIATIONS

ASEAN	- Association of Southeast Asian Nations
CAD	- Computer-aided Design
COC	- Company & Organization
CPD	- Continuing Professional Development
EEAC	- Engineering Education Accreditation Committee
EECR	- Engineering Experiences and Competency Report
FEIAP	- Federation of Engineering Institutions of Asia and the Pacific
GIS	- Geographic Information System
IR & PR	- International Relation and Public Relations
MBE	- Myanmar Board of Engineers
MEngC	- Myanmar Engineering Council
MRA	- Mutual Recognition Arrangements
NIR	- National Infrastructure Rating
PE	- Professional Engineer
PMT	- Project Management Institute
RNE	- Registered Senior Engineers

CHAPTER 1

INTRODUCTION

Project management has emerged as a critical discipline within the engineering sector, where the successful execution of projects is essential for maintaining competitiveness and achieving strategic objectives (Pinto, 2019). The field of project management encompasses a range of factors that influence both project management success and project success.

Company-specific factors, such as organizational structure, leadership style, and resource availability, directly affect how engineering projects are planned and executed, influencing overall project management success. Project characteristics like size, complexity, and technology requirements such as shape the scope, timeline, and risk profile, requiring tailored management approaches. The project manager's competencies, including technical expertise, leadership, communication, and decision-making skills, are crucial for aligning team efforts, resolving issues, and ensuring stakeholder satisfaction. Together, these elements interact to determine both the effectiveness of project management processes and the ultimate success of engineering projects in terms of time, cost, quality, and sustainability (Sutrisna et al., 2023; Pandi et al., 2024).

Company-specific factors refer to the internal attributes of an organization that can affect project execution (Hofmann & Archibald, 2021). These factors include organizational culture, resources, leadership style, and strategic alignment with project goals. A strong organizational culture can foster teamwork and collaboration, which are essential for managing projects effectively (Cameron & Quinn, 2011). Organizational resistance to change can hinder project adaptability and responsiveness, thereby affecting both management and project outcomes (Kotter, 1996).

Project characteristics is the dimension such as project complexity, size, duration, and type (Turner & Müller, 2003). Higher level of project complexity is often associated with increased uncertainty and risk, which can challenge project management processes. Large-scale infrastructure projects often demand more extensive coordination, stakeholder engagement, and resource management, all of which are vital for project success (Morris, 2013).

Project manager's competencies refer to the set of skills, knowledge, abilities, and behaviors that enable a project manager to effectively lead projects and achieve organizational goals (Duncan, 2007). These competencies encompass technical skills related to project management processes, as well as leadership, communication, and interpersonal skills essential for stakeholder engagement and team management. Core competencies often include strategic and business management skills, leadership abilities, problem-solving, and adaptability for successful project delivery (Duncan, 2007).

Project management success refers to the effectiveness of the management processes, methodologies, and tools used in executing a project (Sullivan, 2021). Beyond merely delivering the project outputs, success also involves realizing the intended benefits and value for the organization, which emphasizes the importance of strategic alignment and stakeholder satisfaction (Shenhar et al., 2001). Success in project management can be viewed from multiple perspectives, including traditional criteria such as scope, schedule, and cost, as well as broader considerations like customer satisfaction, team performance, and organizational impact (Atkinson, 1999).

Project success is defined as the extent to which a project meets its objectives, satisfies stakeholder requirements, and delivers value within the constraints of scope, time, and cost (Pinto & Prescott, 1988). A project is succeeded when it is finished on time, within the planned budget, and meets all the necessary requirements. Success also involves stakeholder satisfaction and the achievement of strategic goals they propose a multidimensional view of project success such as project efficiency, impact on the customer, business success (Shenhar et al., 2001). Project success extends beyond mere management effectiveness and includes the fulfillment of stakeholder expectations, long-term impacts, and benefits realization (Atkinson, 1999). A project can be deemed successful if it achieves its intended goals, enhances stakeholder satisfaction, and contributes positively to the organization's strategic objectives.

In Myanmar, ongoing infrastructural developments necessitate a deeper understanding of these characteristics within local project execution. The country's distinct landscape and diverse regulatory environment can impose specific constraints and opportunities, thus influencing project management practices. Where project management practices are continually evolving due to external pressures and internal demands, enhancing the competency levels of project managers is vital. The combination of local knowledge, cultural sensitivity, and technical expertise can enable project managers to

modify their approaches to the specific challenges faced within the region. Therefore, it is important to understand how project management works in the engineering sector in Myanmar. This study will help align company factors, project details, and project manager skills with successful project results. By exploring these areas, stakeholders will be better prepared to handle the challenges of project management in Myanmar, leading to better performance and sustainable growth in the engineering field.

Myanmar Engineering Council (MEngC) was established on 11 December 2013. Its purpose is to develop engineering education in Myanmar. It also aims to maintain internationally recognized standards of professional competence and ethics. This includes awarding and retaining professional titles. The objective of MEngC is to develop the Engineering Education to get the ASEAN standard, FEIAP standard, and Full Signatory status of Washington Accord.

1.1 Rationale of the Study

The construction and engineering sector in Myanmar are growing rapidly and developing driven by urbanization, infrastructural expansion, and economic reforms. As projects become more complex, diverse, and demanding, understanding the factors that influence project outcomes becomes critically important. This study aims to explore the effect of company-specific factors, project characteristics, on both project management success and project success and competencies of project managers who are getting licensed from Myanmar Engineering Council (MEngC).

Project success is important for any project-based organization. And it is the achievement of project objectives concerning scope, time, cost, quality, and stakeholder satisfaction. It signifies the tangible and intangible benefits realized upon project completion such as increased customer trust, improved team morale, enhanced organizational learning, and a stronger position. Successful project contributes to long-term strategic goals, foster innovation and provide a foundation for continuous improvement and also the key driver of sustainability and growth.

Project management success is critically important because it ensures that projects are not only delivered according to expectations but are also executed in a manner that is sustainable, efficient, and aligned with organizational goals. It pertains to the effectiveness and efficiency of the processes, methodologies, and competencies employed during project

execution. This includes how well the project is planned, monitored, communicated, and controlled throughout its life cycle. Understanding these aspects is vital because a project may be deemed successful based on its final outcomes such as being delivered on time, within budget, and meeting the required scope yet may have experienced significant challenges in its management processes. Project management success is essential because it focused on process. This allows organizations to identify specific areas for improvement, build better project governance structures, and develop competencies that contribute not only to individual project success but also to long-term organizational performance.

Recognizing what contributes to project success and project management success is critical for stakeholders (clients, project managers, engineers, and policymakers) to implement strategies that improve performance. For Myanmar, where project complexities are increasing due to technological advancements and globalization, these principles enhance project outcomes and fostering sustainable development.

Project management success is important to deliver projects on time, within budget, and quality standards. It ensures efficient resource use, risk mitigation, regulatory compliance, and effective communication. Without it, projects can face delays, cost overruns, and quality issues, ultimately affecting safety, client satisfaction, and overall project outcomes.

Project manager's competencies are vital, where projects are often complex, high-risk, and resource-intensive. A competent project manager brings strong leadership, technical understanding, problem-solving skills, and the ability to coordinate multidisciplinary teams. Their expertise ensures proper planning, risk management, quality control, cost-efficiency and communication across all project stages. In Myanmar, the Myanmar Engineering Council (MEngC) mandates that engineers who are seeking a license must be fulfilled specific competencies, including leadership, communication, and technical expertise what they are stipulated. Applicants undergo assessments based on education, professional experience, and adherence to the ASEAN Engineering Register framework. Successful candidates receive certification, confirming their capability to manage engineering projects responsibly and professionally under national and regional standards.

Project characteristics is the important attributes such as size, complexity, scope, technology, and stakeholder involvement. These factors play a critical role in shaping the

planning, execution, and overall outcomes of projects. Larger or more complex projects are often associated with increased risks and necessitate the implementation of advanced management approaches. A clear understanding of how these specific project features affect success helps project managers choose better management strategies. This makes it more likely to meet the project's goals. It also helps to fulfill the project's needs.

Company-specific factors are crucial because they create the environment within which projects are executed. It includes internal characteristics and conditions such as organizational culture, resources, management practices, policies, and overall capacity. Companies with strong management systems and sufficient resources are better equipped to handle project uncertainties and complexities. In Myanmar, numerous engineering firms are still developing their project management maturity. Therefore, investigating the effect of organizational attributes on project success can facilitate the identification of areas requiring enhancement. Furthermore, projects are becoming more varied. So, it is important to understand how different project features affect their success. Infrastructure projects often have many stakeholders. They also use complex technology. These factors create special challenges that need specific management approaches. By studying these factors, project managers can find potential risks and key factors for success. This helps them plan ways to reduce problems and improve the chances of meeting project goals. As a result, projects are more likely to succeed and provide long-term benefits.

The Myanmar Engineering Council (MEngC) is important. It regulates engineering practices in Myanmar. It also sets standards for engineering. As the licensing authority for professional engineers (PEs) and others, MEngC issues licenses based on defined competencies, which are derived from educational qualifications, work experience, and demonstrated expertise. The project experience of its members as professional engineers working in various companies forms the basis for licensing and continuous professional development.

The engineering license from MEngC shows that a manager has the right skills and knowledge, which helps improve project results. By understanding how these skills affect project success, it can be seen how effective certification and training are. This information can help improve licensing rules and professional development programs to raise the quality of project management in Myanmar.

1.2 Objectives of the Study

The objectives of the study are as follows:

- (1) To analyze the mediating effect of project characteristics on the relationship between company specific factors and project manager's competencies of engineers
- (2) To analyze the mediating effect of project manager's competencies on the relationship between project characteristics and project management success of engineers
- (3) To analyze the mediating effect of project manager's competencies on the relationship between company specific factors and project management success of engineers
- (4) To analyze the mediating effect of project characteristics on the relationship between company specific factors and project management success of engineers and
- (5) To analyze the effect of project management success on project success of engineers.

1.3 Scope and Method of the Study

This study focuses on how project manager's competencies effect on project management success and project success of engineers who got license from Myanmar Engineering Council (MEngC). Primary and secondary data are both used for the study. There are 348 engineers who hold professional engineer's license from Myanmar Engineering Council in February, 2025. This study focuses on these engineers. The sample size is 186 out of 348 engineers by using Yamane Formula and applied by simple random sampling methods. A structured questionnaire with a five-point Likert scale is distributed to the respondents by making primary data and collected through an online survey with a structured questionnaire. Secondary data is sourced from a variety of materials, including academic research articles, textbooks, journals, online articles, and relevant documents from Myanmar Engineering Council. To analyze the collected data, descriptive statistics and regression analysis are used.

1.4 Organization of the Study

The study is organized into five chapters. In first chapter, the study's introduction, rationale of the study, objectives, scope and method, and organization of the study are cover. In Chapter 2 includes theoretic review of the study, explaining factors on project management success and project success, previous studies and conceptual framework of the study. The profile and organizational structure of Myanmar Engineering Council (MEngC), demographic profile of respondents and reliability analysis are covered in Chapter 3. In Chapter 4, engineer perception and analysis on the mediating effect of company specific factors, project characteristics and project manager's competencies on project management success and project success of project managers of engineers and then regression analysis are included. And chapter 5 is the conclusion with findings and discussions, suggestions and recommendations, and needs for further research.

CHAPTER 2

THEORETICAL BACKGROUND

This chapter aims to present the literature related to the research and provide the theoretical background of company specific factors, project characteristics, project manager's competencies, project management success, project success, previous studies and conceptual framework of the study.

2.1 Company-Specific Factors

Company-specific factors referred to the internal characteristics, capabilities, and conditions unique to a particular organization that influence its ability to manage and execute projects successfully (Patanakul & Milosevic, 2009). These factors are often regarded as essential determinants of project success, as they shape the strategic, operational, and resource-related decisions that directly affect project outcomes (Patanakul & Milosevic, 2009). Company-specific factors come from the idea of organizational capabilities. This theory indicated that a company's strengths and weaknesses, like how it uses its resources and its workplace culture, shape its competitive edge and overall success (Barney, 1991). A company's financial stability, technological infrastructure, and organizational structure could significantly influence the planning, execution, and final delivery of a project (Kerzner, 2017).

Company-specific factors was organizational culture, which was the shared values, beliefs, and norms within an organization. Organizational culture played a significant role in shaping employee behavior, decision-making processes, and leadership approaches, all of which contribute to project success (Schein, 2010). A positive organizational culture that fostered collaboration, innovation, and trust can enhance team dynamics, encourage knowledge sharing, and improve project performance. In contrast, a toxic culture marked by poor communication, hierarchical barriers, and lack of support can lead to delays, cost overruns, and reduced project effectiveness (Kerzner, 2017; Schein, 2010).

Another company-specific factor was organizational structure, which referred to how a company organizes its resources, including people, processes, and technology, to achieve its goals. The structure could be centralized or decentralized, and it affects

decision-making authority, coordination among departments, and the allocation of resources to projects (Mintzberg, 1980). A flexible and adaptable structure allowed for quicker decision-making, resource reallocation, and risk management, while a rigid structure can create bottlenecks and slow down project progress.

Technological capability is another company-specific factor that plays a pivotal role in the success of projects. Technological advancements can provide organizations with the tools necessary to streamline operations, enhance communication, and improve project monitoring and control. Companies that invest in new technology and provide their teams with training and resources usually do a better job of managing complex projects (Davies & Brady, 2000). Companies lacking adequate technological infrastructure may face difficulties in data management, project coordination, and execution, which can ultimately hinder project success.

Financial resources were also company-specific factors. A company with a strong financial base could allocate adequate budgets to projects, ensuring the availability of necessary resources for timely project completion. Financial constraints, on the other hand, can limit the scope of the project, force compromises on quality, and lead to schedule delays (Meredith & Mantel, 2017). Proper financial management, including cost estimation, budgeting, and risk analysis, is essential to mitigate financial risks and ensure the efficient use of resources.

The leadership style and competencies of senior management and project managers also constituted company-specific factors that affected project success. The leadership approaches taken by top management can significantly influence project outcomes. A supportive and visionary leadership style can motivate teams, align project objectives with company goals, and ensure that resources are allocated effectively. On the other hand, poor leadership can result in miscommunication, unclear project goals, and lack of motivation among project teams (Turner & Muller, 2005).

Company-specific factors were essential to understanding how projects are managed and executed within an organization. Factors such as organizational culture, structure, technology, financial resources, and leadership competencies contribute to the overall effectiveness and success of projects. Organizations could enhance their project management practices, mitigate risks, and increase the likelihood of achieving project success.

2.2 Project Characteristics

Project characteristics referred to the distinct features and attributes that define the nature, scope, execution, and outcome of a project (Kerzner, 2017). These characteristics are integral to the project management process as they influence how a project is planned, executed, and controlled. In the field of project management, understanding and managing project characteristics is essential to achieving project success. According to PMI (2017), these characteristics could be broadly classified into several key areas, including project scope, time, cost, quality, resources, risk, and stakeholder involvement. Each of these elements plays a pivotal role in determining the overall success of a project and requires careful attention throughout the project's lifecycle .

One important part of a project was its scope, which described what the project aims to achieve and what it will deliver. The scope explained what is included in the project and what was not, setting clear limits for how the project will be done. Managing the scope well was essential because if changes happen that are not controlled—called scope creep—it could cause delays, overspend the budget, and lead to results that do not match what was intended. (Kerzner, 2018). Establishing a well-defined scope at the beginning was important. It provided a roadmap for the project. It helps everyone understand the project's goals. It also clarified the deliverables.

Time was another essential project characteristic, encompassing the project's timeline, milestones, and deadlines. Time management involves planning the project's schedule, allocating time for each task, and ensuring that the project is completed within the prescribed time frame. Delays in project completion can lead to cost overruns, reduced stakeholder satisfaction, and lost business opportunities. Effective time management was crucial for maintaining project momentum and ensuring that all tasks were completed in a timely manner (Lock, 2013). The use of tools such as Gantt charts and critical path method analysis could assist project managers in monitoring and controlling project timelines effectively.

Cost was a key aspect of any project, as it relates to the money needed to finish it. Cost management involved estimating how much the project will cost, creating a budget, and keeping track of spending throughout the project. Staying within the budget is crucial, as going over budget can lead to project failure and disappointment for those involved. There was a concept in project management called the iron triangle, which showed how time, cost, and quality were connected. If someone changed one part, like trying to complete the project faster, it could affect the other two—such as increasing costs or lowering quality (Meredith & Mantel, 2017).

Quality meant how well a project's results match the expected standards and requirements. Quality management was the process of planning, checking, and controlling the quality of what was produced in a project to meet the needs of stakeholders. Good quality results made clients happy, improved the company's reputation, and supported long-term success. Low quality could lead to costly rework. It could also cause delays. It might make stakeholders unhappy. Using quality management methods like Six Sigma and Total Quality Management (TQM) was often necessary for successful projects (Juran, J.M. 1999).

Resources were including human, technological, and material resources—were another critical project characteristic. Resource management contained planning, acquiring, and efficiently utilizing the necessary resources to complete the project. Proper resource allocation ensured that the right people and materials were available when needed and that project activities could be completed without unnecessary delays or shortages. Resource optimization can significantly impact the efficiency and cost-effectiveness of a project, and effective project managers must balance resource availability with project requirements (Pinto, 2016).

Risk was inherent in all projects and referred to the uncertainties and potential threats that may affect project objectives. Risk management involved identifying, assessing, and mitigating risks throughout the project's duration. A proactive approach to risk management enables project managers to anticipate potential issues and develop contingency plans to address them, thus minimizing their impact on the project's success. Risk factors could include financial instability, changes in market conditions, resource shortages, and unforeseen technical challenges (Hillson & Murray, 2007).

Stakeholder involvement was an essential project characteristic, as the interests, expectations, and engagement of stakeholders could directly impact the project's success. Effective communication and stakeholder management ensured that all parties were aligned with the project's goals and that their needs and concerns are addressed in a timely manner. Stakeholders might include clients, project team members, suppliers, regulatory bodies, and other external parties who had a vested interest in the project's outcome (Freeman, 1984). Managing stakeholder relationships was crucial for obtaining necessary support, ensuring smooth project execution, and achieving project success.

2.3 Project Manager's Competencies

Project manager's competencies referred to the combination of skills, knowledge, abilities, and behaviors that enable a project manager to effectively lead projects, achieve project objectives, and contribute to organizational success (Dulewicz, 2005). Project manager's competencies were widely acknowledged as fundamental determinants of project success. In project management, competency referred to a person's ability to do tasks well using knowledge, skills, and abilities. These helped an individual perform effectively in a specific professional setting (Crawford, 2005). Competencies were not limited to technical expertise; they also included interpersonal abilities, decision-making capacity, and an understanding of the organizational environment in which projects are carried out.

According to the Project Management Institute (2017), competencies were the measurable or observable knowledge, skills, abilities, and behaviors critical to successful job performance. In project management, these competencies included communication, leadership, stakeholder engagement, conflict resolution, and strategic alignment, among others. These competencies enabled project managers to plan, coordinate, and oversee projects from initiation through completion while managing constraints such as time, cost, scope, and quality.

Crawford (2005) emphasized that competencies in project management were multidimensional and evolved with the changing nature of project environments. The emphasis on competencies has grown significantly due to the increasing complexity of projects, the need for adaptive leadership, and the dynamic expectations of stakeholders. In essence, project manager competencies encompassed both hard skills, such as scheduling and budgeting, and soft skills, such as communication and emotional intelligence.

The concept of competency was rooted in organizational behavior and human resource development literature. One key foundation was competency-based theory, which highlights that individuals achieve high levels of performance when they possess and apply competencies that match the demands of their roles. This theory supported the idea that project success was largely contingent on the competencies of the project manager, particularly in complex and uncertain environments (Spencer & Spencer, 1993).

Another important point came from human capital, which emphasizes that individuals' knowledge and skills are forms of capital that contribute to organizational

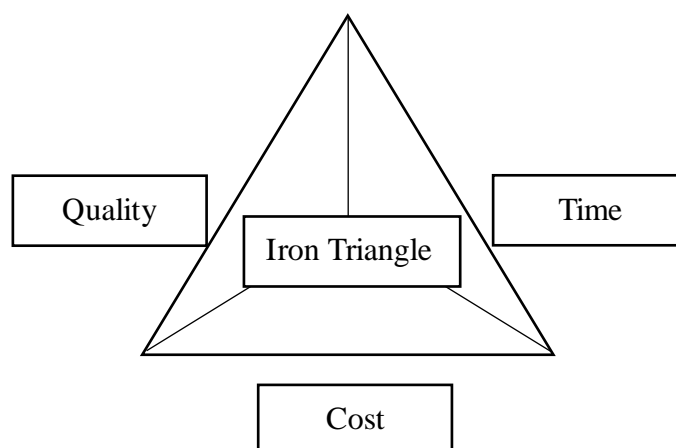
performance (Becker, 1964). In this view, a competent project manager represented a valuable asset to the organization, enhancing not only the success of individual projects but also the organization's strategic capability. Project managers with higher competencies were seen as contributors to efficiency, innovation, and risk management.

Roles are shaped by social systems, and people in these roles are expected to do specific tasks and responsibilities. A project manager's role includes organizing teams from different departments, solving disagreements, and making sure the project supports the company's goals (Katz & Kahn, 1978). The project manager played an important role by helping different parts of the system work together and communicate effectively. A skilled project manager was essential for keeping the system stable and making sure the project goals are met within the organization (Kerzner, 2018).

2.4 Project Management Success

Project management success was a key concern for organizations across sectors, as it directly impacts the efficient use of resources, timely delivery of outputs, and fulfillment of stakeholder expectations. Success was often differentiated between project management success which refers to the efficiency of the project execution and project success, which reflected the long-term outcomes and benefits derived from the project (De Wit, 1988).

Figure (2.1) Iron Triangle



Source: Atkinson (1999)

Project management success was generally defined as the achievement of predefined project objectives within the constraints of scope, time, cost, and quality as per Figure (2.1), (Atkinson, 1999). This “iron triangle” of project management remains a foundational concept, highlighting the importance of delivering the project output as planned. Turner (1999) expanded this definition by including the achievement of project deliverables according to client expectations, effective risk management, and efficient use of resources as essential indicators of success.

According to the Project Management Institute (2017), success in project management referred to using knowledge, skills, tools, and techniques effectively. This helped complete project activities. The goal was to meet the project requirements. This definition emphasized the systematic approach of project management and underscores the importance of integrating planning, execution, monitoring, and control to ensure successful project delivery.

Project management success was grounded in goal-setting theory, which affirms that specific and challenging goals lead to higher performance (Locke & Latham, 2002). Applying this to project management, setting clear objectives for time, cost, and scope motivated the project team to strive for efficiency and effectiveness. This theory also emphasized the importance of feedback and progress tracking, aligning with the monitoring and control phases in project management methodologies.

Systems theory comprised of interdependent elements working together to achieve a common goal (Kerzner, 2018). From this perspective, project management success is the result of optimizing interactions among various components, including people, processes, and technology. A systems approach ensured that project managers consider the project holistically and understand how decisions in one area may impact others.

Contingency theory also played a critical role in explaining project management success. This theory asserted that there is no one-size-fits-all approach to management; instead, success depends on the alignment of project management practices with the specific context and environment in which a project operates (Burns & Stalker, 1961).

Project management success had also been linked to stakeholder theory, which emphasized the importance of identifying and satisfying the needs of all stakeholders involved in the project (Freeman, 1984). A project might be considered successful from a management perspective but may still be perceived as a failure if stakeholder expectations are not met. Therefore, aligning project deliverables with stakeholder needs is a critical dimension of project management success (Freeman & Beale, 1992; PMI, 2017).

2.5 Project Success

Project success was a concept that extends beyond the traditional parameters of time, cost, and scope. While project management success emphasizes the efficient execution of a project, project success encompasses the overall impact, value, and long-term benefits delivered to the organization and its stakeholders. Project success was vital for evaluating whether engineering projects meet their intended goals, satisfy stakeholder expectations, and contribute to broader organizational and national development objectives.

A commonly accepted definition of project success was the achievement of project objectives, fulfillment of stakeholder requirements, and realization of expected outcomes and benefits (Shenhar et al., 2001). Baccarini (1999) distinguished between project management success, which is concerned with project execution, and project success, which was measured by the value and utility derived from the project after completion. This broader view recognizes that a project can be delivered on time and within budget but still fail to deliver value or satisfy key stakeholders if the outcomes are not aligned with strategic objectives.

The Project Management Institute (2017) supported a definition of project success, stating that success is determined by the extent to which the project met its business objectives and delivers the intended benefits to the organization. This included both tangible outputs—such as infrastructure or systems—and intangible outcomes such as improved service delivery, stakeholder satisfaction, or enhanced institutional capacity.

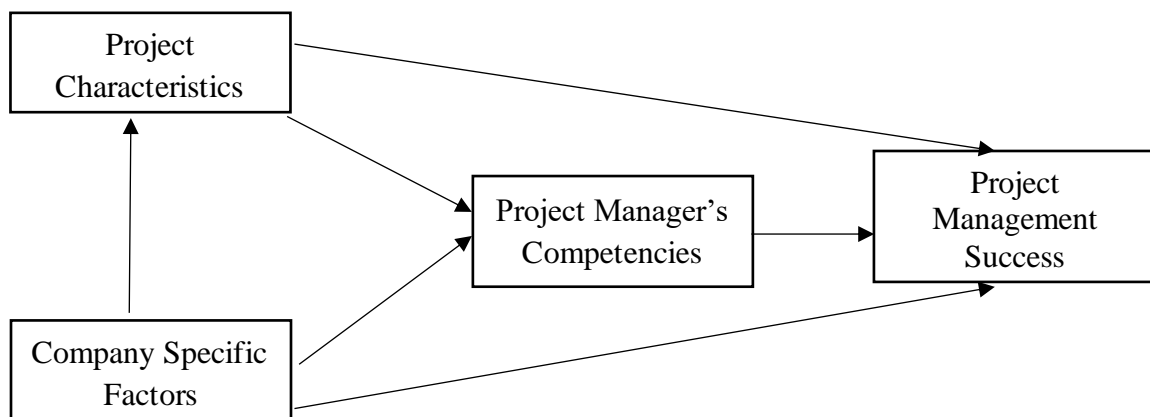
From a theoretical perspective, goal-setting theory provides a foundational framework for understanding project success. This theory, developed by Locke and Latham (2002), asserted that clearly defined, challenging goals lead to higher performance. In projects, setting specific success criteria aligned with organizational goals can drive team focus and guide decision-making throughout the project lifecycle. When these goals were met or exceeded, the project can be considered successful from both a performance and strategic standpoint.

Projects often involved multiple parties with differing expectations, including clients, end-users, government agencies, and community members. Therefore, success must be assessed not only by technical or financial performance but also by how well the project satisfied the needs and expectations of its various stakeholders (Freeman, 1984). Project success was emphasized by the importance of delivering planned benefits after the project is completed (Zwikael & Smyrk, 2012).

2.6 Previous Studies

This section presents related previous studies about the effect of company specific factors, project characteristics and project manager's competencies on project management success and project success. Ozorhon et al. (2018) made a study about influence of project manager's competencies on project management success. This study aimed to evaluate the effect of project manager competencies on project management (PM) success in the construction industry, recognizing the dynamic challenges presented by budget, technology, and development uncertainties. A questionnaire survey was administered via e-mail to members of the Turkish Construction Employers Association, Turkish Contractors Association, and the Association of Turkish Consulting Engineers and Architects. The research gathered data from 80 completed questionnaires representing 80 projects across 38 construction companies. The conceptual framework of this first previous study is shown in Figure (2.2).

Figure (2.2) Conceptual Framework of Ozorhon et al.,

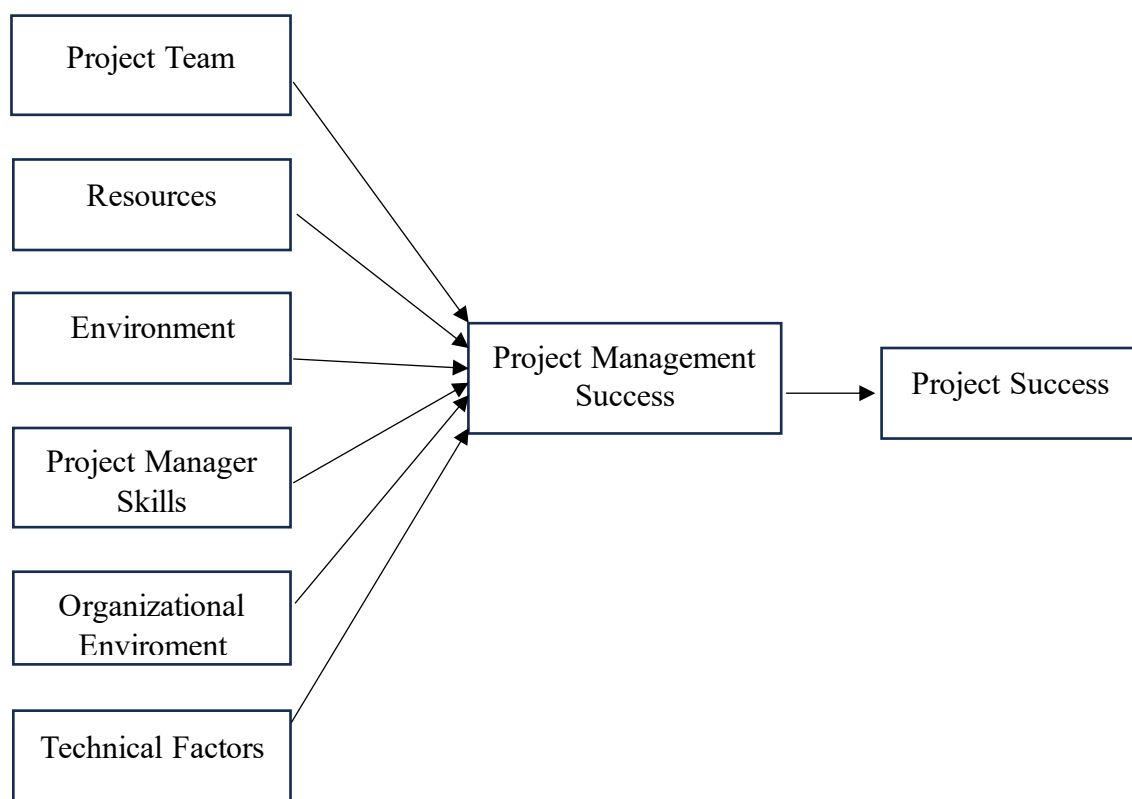


Source: Ozorhon et al., (2018)

The findings demonstrated that project manager's competencies had the direct influence highly on the project management success. Company specific factors both directly and implicitly affected the project management success. While their direct effect was at moderate level, they had an additional implicit effect on project management success by affecting project manager's competencies. It also found that the interaction between project characteristics and the PM success was insignificant.

The second previous study was done by Sudhakar (2016) conducted a study about understanding the meaning of project success. This paper aimed to define project success by exploring various critical success factors (CSFs) that influenced outcomes within Fortune 500 organizations employing project management methodologies. Utilizing a systematic literature review as its primary method, the research analyzed a sample of prominent empirical studies and foundational works. The second previous study is shown in Figure (2.3).

Figure (2.3) Conceptual Framework of Sudhakar



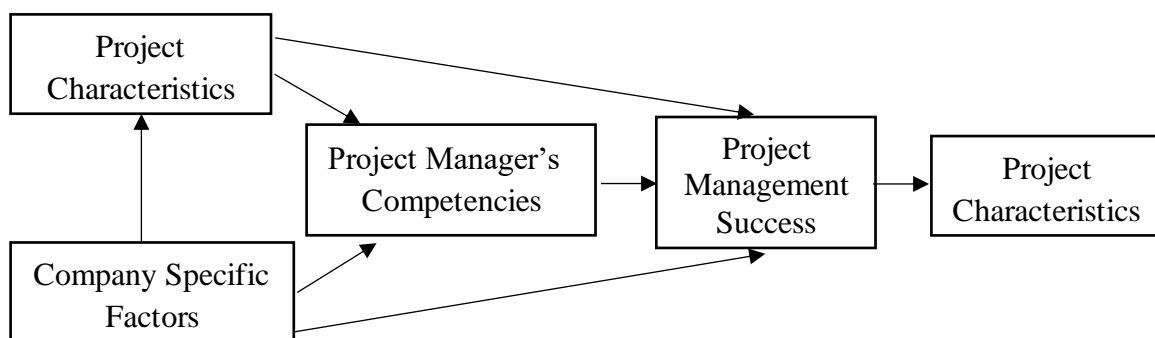
Source: Sudhakar (2016)

The results found that the factors such as project team, resources, environment, project manager skills, organizational environment and technical factors affected the project success in organizations.

2.7 Conceptual Framework of the Study

The conceptual framework is developed based on previous studies to effect of company specific factors, project characteristics and project manager's competencies on project management success and project success of project managers who are getting licensed from Myanmar Engineering Council. Figure (2.4) presents the conceptual framework of this study.

Figure (2.4) Conceptual Framework of the Study



Source: Own Compilation (2025)

In the first of this study, company specific factors and project characteristics are independent variables while project manager's competencies are dependent variables. In the second part, project characteristics and project manager's competencies are independent variables while project management success is dependent variable. In the third part, company specific factors and project manager's competencies are independent variables while project management success is dependent variable. In the fourth part, company specific factors and project characteristics are independent variables while project management success is dependent variable. In the last part, project management success is independent variable and project success is dependent variable. This study examines the influence of project manager's competencies on project management success and project success of licensed professional engineers.

CHAPTER 3

PROFILE, PROJECT CHARACTERISTICS AND PROJECT MANAGER'S COMPETENCIES OF ENGINEERS

In this chapter, profile of Myanmar Engineering Council, organizational structure of Myanmar Engineering Council, project characteristics, project manager's competencies, reliability analysis and demographic profile of respondents are explained.

3.1 Profile of Myanmar Engineering Council

The Myanmar Engineering Council (MEngC) is a key professional organization established by the Union Parliament Law in December 2013. Its primary mandate is to advance engineering education and uphold internationally recognized standards of competence and ethics among engineering professionals within Myanmar. The nation's capital is Naypyidaw, while Yangon remains its largest city and former capital. Myanmar has been an active member of the Association of Southeast Asian Nations (ASEAN) since 1997, facilitating regional cooperation and mutual recognition arrangements among member states.

The formation of MEngC is situated within Myanmar's broader efforts to align its engineering standards with regional and international frameworks. Prior to the establishment of the council, Myanmar engaged in ASEAN initiatives such as the Bali Concord II in 2003 and the signing of Mutual Recognition Arrangements (MRA) in 2005, which encompassed engineering services among eight professional sectors. During this period, the government designated the Ministry of Construction as the Focal Ministry, establishing a Professional Regulatory Authority and Monitoring Committee responsible for overseeing engineering practices. The Myanmar Board of Engineers (MBE) commenced issuing registered professional engineer (PE) certificates from January 2012, representing a significant advancement toward formal professional recognition.

The vision of MEngC is to regulate and upgrade the dignity, ethics and quality of Myanmar engineers, technologist and technicians who are practicing engineering works.

The mission of MEngC is to hold paramount the safety, health and welfare of the public. The aim of MEngC is Myanmar engineers, Myanmar technologists and Myanmar

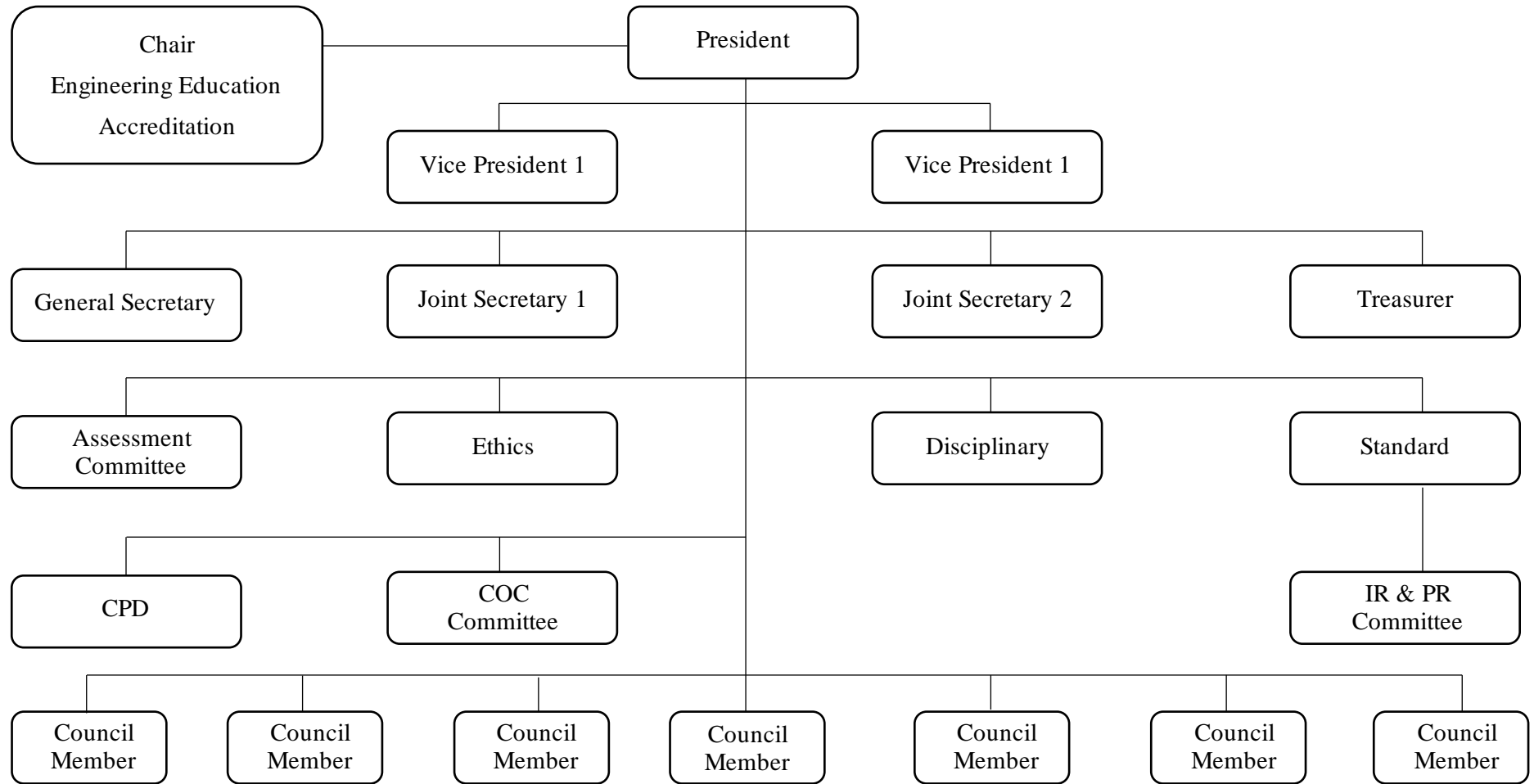
technicians whom to achieve the quality of international Standard. The objectives of MEngC are: To uphold and upgrade the dignity, ethics, and quality of the Myanmar engineers, technologist and technicians who practice in engineering services; To explore good methodology, research and development activities in conjunction with natural and human resources of the country with least impact on the environment by using engineering and information technology; To carry out guidance and supervision, and to take necessary actions to meet the stipulated technical standards, proper methods, and safety rules, by keeping high ethical standard in the fields of engineering and technology and also by promoting education, researches, and services; `To offer engineering services and technology- related functions and duties beneficial for the country as required by the relevant Ministry and organizations.

The governance structure of MEngC comprises a diverse council of experienced professionals. This includes senior engineers from the Focal Ministry and related government agencies, representatives of engineering universities, colleges, and institutes, as well as retired senior engineers from governmental and educational sectors. The council also benefits from the expertise of seasoned engineers affiliated with non-governmental engineering associations and external eminent engineers. Such a broad assembly of professionals ensures a comprehensive approach to regulation and development within Myanmar's engineering sector. These collective efforts aim to create a professional environment that meets international standards. The goal is to achieve ASEAN recognition. Compliance with the Federation of Engineering Institutions of Asia and the Pacific (FEIAP) standards is also pursued. Attaining Full Signatory status of the Washington Accord is another objective. These achievements will enhance the global credibility of Myanmar's engineering professionals. They will also improve the mobility of these professionals worldwide.

3.2 Organizational Structure of Myanmar Engineering Council

The Myanmar Engineering Council's (MEngC) organizational structure is designed to ensure effective governance within the engineering sector. At the top of this structure, there is the president, who provides strategic leadership and direction for the Council. There are two vice presidents who support the president, each responsible for assisting in decision-making and managing specific operational areas to ensure the smooth functioning of the organization. Organization chart of MEngC can be seen in Figure (3.1).

Figure (3.1) Organization Chart of Myanmar Engineering Council



Source: Myanmar Engineering Council, 2025

There are Engineering Education Accreditation Committee (EEAC), vice president 1 and vice president 2 who report directly to the presidents, including the general secretary, joint secretary 1, joint secretary 2, and the treasurer. EEAC evaluates and accredits engineering programs to ensure they meet national and international standards to produce qualified engineers. It evaluates curricula, faculty, facilities, and outcomes to maintain quality assurance. The committee conducts assessments and submits its findings and recommendations to MEngC for final decisions. The general secretary oversees daily operations and administrative functions of the council, while the joint secretaries assist in various administrative and operational responsibilities. The treasurer manages the financial affairs, ensuring transparency and accountability in the council's budgeting and expenditures.

There are several specialized committees under these officers that handle specific areas of the council's functions. The assessment committee evaluates qualifications and competencies of engineers for registration and licensing, and reports its findings to the executive committee of the council, while the accreditation committee ensures standards are maintained across engineering institutions. The ethics committee monitors how engineers behave ethically. The disciplinary committee handles cases where professional standards are broken. Under these committees, there are committees which are operating as the standard committee, CPD (Continuing Professional Development) Committee, COC (Company & Organization) Committee, and IR & PR (International Relation and Public Relations) committee, each focusing on their respective mandates to uphold the integrity, professionalism, and development of engineering in Myanmar.

Finally, the structure includes seven council members who serve as vital members of the decision-making body, contributing their expertise and insights to guide the council's policies and initiatives. This organized hierarchy ensures that the Myanmar Engineering Council (MEngC) functions efficiently, maintains high standards, and promotes the ongoing growth and professionalism of the engineering sector in Myanmar.

3.3 Project Characteristics

In Myanmar's engineering sector, project characteristics generally include clear objectives, defined scope, allocated budget, and specific timelines. Projects typically involve multidisciplinary collaboration among civil, electrical, mechanical, and

environmental engineers. Due to geographical and infrastructural diversity, site conditions and local resource availability significantly influence planning and execution. Government regulations, environmental considerations, and community engagement are also key factors. Most projects follow international or national standards, with increasing emphasis on sustainable and resilient design. Challenges such as limited technical capacity, funding constraints, and logistic difficulties in remote areas are common. Nonetheless, innovation and foreign investment are gradually shaping project development.

In recent years, public infrastructure projects such as roads, bridges, energy facilities, and water management systems have gained prominence, driven by the need to modernize outdated systems and improve connectivity. Urban centers like Yangon and Mandalay are witnessing rapid development, which demands more sophisticated engineering solutions and stronger project management frameworks. Simultaneously, rural areas are beginning to benefit from community-based infrastructure projects, often supported by international aid and NGOs. These efforts not only provide essential services but also foster skills transfer and local employment opportunities.

Furthermore, digital technologies are gradually being integrated into engineering practices, albeit at a slower pace compared to more developed countries. Building Information Modeling (BIM), Geographic Information Systems (GIS), and other digital tools are being introduced in large-scale or high-profile projects, particularly those involving international contractors. This digital transition is helping to improve accuracy, efficiency, and collaboration among stakeholders. However, widespread adoption remains limited due to gaps in training, technology access, and awareness. Overcoming these hurdles will be crucial for Myanmar's engineering sector to enhance productivity and align with global best practices.

3.4 Project Manager's Competencies

The project manager's competencies in Myanmar, particularly in the Engineering Experiences and Competency Report (EECR) for Registered Senior Engineers (RNE), are rooted in a comprehensive set of professional skills and experiences. These competencies are essential for ensuring effective engineering practice, leadership, and contribution to national development.

The Myanmar Engineering Council (MEngC) issues Engineer licenses based on candidates' academic qualifications and professional experience. The process involves accreditation or examinations administered by relevant bodies such as the Assessment Committee, Engineering Education Accreditation Committee (EEAC), and the Ethics Committee. Applicants must pass a prescribed examination before submitting an Engineering Experiences and Competency Report (EECR), which contains eight competency elements are- apply engineering knowledge, methods, and techniques; use of engineering technology, tools, and equipment; safeguarding public Safety; recognizing the impacts of engineering on environment, economy, and society; managing engineering activities; communicating engineering information; working collaboratively and maintaining and enhancing engineering skills and knowledge.

This report is assessed through document reviews and interviews conducted by designated evaluators. Upon successful evaluation, the Engineer license is granted with a two-year validity period. For license renewal, engineers must fulfill continuing professional development (CPD) requirements, accumulating between 25 to 60 hours through approved learning activities such as formal courses, seminars, workshops, conferences, and practical industry involvement. This system ensures that licensed engineers consistently maintain professional competence and adhere to national engineering standards.

3.5 Reliability Analysis

To establish the reliability of a measurement instrument, both consistency and stability must be assessed. Consistency refers to the degree to which items that evaluate a specific variable are interrelated. Cronbach's alpha is a commonly employed reliability coefficient that quantifies the internal consistency among a set of items. This coefficient serves as an indicator of the instrument's reliability by reflecting the extent to which the items are correlated, thereby ensuring that the measurement is minimally affected by random error (Sekaran & Borgue, 2009). The value of Cronbach's alpha ranges from 0 to 1. Higher values indicate greater internal consistency among the questionnaire items. The specific ranges of Cronbach's alpha coefficients and their associated levels of reliability are summarized in Table (3.1).

Table (3.1) Rule about Cronbach's Coefficient Alpha

Sr No.	Coefficient of Cronbach's Alpha	Reliability Level
1	More than 0.9	Excellent
2	0.80 – 0.89	Good
3	0.70 – 0.79	Acceptable
4	0.60 – 0.69	Questionable
5	0.50 – 0.59	Poor
6	Less than 0.59	Unacceptable

Source: Sekaran & Bougie (2009)

Table (3.2) presents the validity test results for all variables examined in the study. These variables include company specific factors, project characteristics, project manager's competencies, project management success and project success.

Table (3.2) Results of Cronbach's Alpha Value

Sr No	Scale	No. of Items	Cronbach's Alpha	Reliability Level
1	Company Specific Factors	5	0.794	Acceptable
2	Project Characteristics	5	0.745	Acceptable
3	Project Manager's Competencies	6	0.893	Good
4	Project Management Success	5	0.906	Excellent
5	Project Success	5	0.898	Good

Source: Survey Data (2025)

Table (3.2) shows that the scales for project manager's competencies and project success have Alpha values above 0.80, which are considered "Good" according to the reliability level interpretation. This indicates that the items within these scales are highly

consistent and reliable in measuring the intended constructs. The scales for company specific factors and project characteristics have Cronbach's Alpha values of 0.794 and 0.745 respectively, which are categorized as "Acceptable." The scale for project management success has the value of Cronbach's Alpha 0.906 which is assumed as "Excellent".

3.6 Demographic Profile of Respondents

This study surveyed 186 professional engineers who got license form Myanmar Engineering Council, regarding their perceptions of company specific factors, project characteristics, project manager's competencies, project management success and project success. The demographic profile of the respondents is presented in Table (3.3).

Table (3.3) Demographic Profile of Respondents

Sr No.	Particular	No. of Respondents	Percentage	
1	Total	186	100	
2	Gender	Male	97	52
		Female	89	48
3	Age (Years)	21-30	85	46
		31-40	48	26
		41-50	25	13
		> 50	28	15
4	Marital Status	Married	85	46
		Single	100	54
5	Education (Level)	Bachelor's Degree	116	62
		Master's Degree	53	29
		Doctorate's Degree	17	9

6	Position in Company	General Secretary	29	16
		Project Manager	43	23
		Assistant Project Manager	30	16
		Project Engineer	45	24
		Assistant Project Engineer	39	21
7	Years of Experience in Engineering Industry (Years)	Less than 5	52	28
		5-10	57	31
		11-15	29	16
		More than 15	48	25
8	Implemented Projects	1-5	61	33
		6-10	54	29
		11-15	17	9
		More than 15	54	29
9	Types of Projects	Government Projects	30	16
		Private Sector Projects	59	32
		International Projects	27	14
		Mixed (Government and Private)	70	38

Source: Survey Data (2025)

According to Table (3.3), the respondents are almost evenly split between males (52%) and females (48%). This balanced gender representation indicates that both male and female professionals are actively engaged in project management roles within Myanmar's engineering sector.

The majority of respondents are young professionals aged 21-30 (46%), indicating a predominantly youthful workforce. This implies that the industry is attracting or relies heavily on early-career engineers and project managers. The presence of respondents up to >50 years (15%) shows experienced professionals are also represented. Slightly more respondents are single (54%) and married (46%). This distribution indicates that younger or early-career professionals, who are often single, constitute a significant portion of the workforce, possibly affecting their availability and work-life balance.

A majority hold a Bachelor's Degree (62%), with a considerable portion having Master's (29%) and Doctorate degrees (9%). This indicates a relatively well-educated respondent group, which could influence their understanding of project management principles and competencies. The respondents occupy various roles, with project engineers (24%) and assistant project engineers (21%) being prominent, along with project managers (23%). The distribution indicates a mix of technical and managerial personnel, providing a comprehensive view of project dynamics.

Most respondents have 5-10 years of experience (31%) or less than 5 years (28%), indicating a relatively young or mid-career workforce. Experienced professionals with more than 15 years also constitute 25%, ensuring insights from seasoned practitioners. A significant portion has managed or been involved in 1-5 projects (33%) or 6-10 projects (29%), reflecting a workforce with moderate project exposure. The presence of respondents involved in more than 15 projects (29%) highlights that some respondents have extensive experience. The respondents work across various project types, with the largest group involved in mixed projects (38%), followed by private sector projects (32%), and government projects (16%). International projects constitute 14%. This diversity indicates exposure to different project environments, which may shape their understanding of success factors.

In summary, the survey gender among respondents are 52% male and 48% female in Myanmar's engineering sector. A youthful workforce is evident, with 46% aged 21-30, and 54% single who are early-career professionals. Apart from this, 15% are over 50, showing experienced professionals. Mostly are holding Bachelor's degree (62%), with 38% having advanced degrees that are indicating strong educational backgrounds. Key roles include project engineers (24%), assistant project engineers (21%), and project managers (23%) that are reflecting a mix of technical and managerial staff. Experience levels range from under 5 years (28%) to over 15 years (25%), with 29% involved in more than 15

projects that are showing varied experience levels. Project exposure spans are mixed (38%), private (32%), government (16%), and international (14%) projects that are highlighting diverse industry involvement.

CHAPTER 4

ANALYSIS ON EFFECT OF PROJECT MANAGER'S COMPETENCIES ON PROJECT MANAGEMENT SUCCESS AND PROJECT SUCCESS OF ENGINEERS

This chapter represents the analysis and discussion of the study. The chapter is composed of two parts. The first part is engineer perception such as overall mean and mean value of company specific factors, project characteristic, project manager's competencies, project management success and project success of engineers who got license from MEngC. The second part discusses the regression analysis and the analysis on the mediating analysis.

The questionnaires are distributed from 186 professional engineers out of 348 active license holders in Myanmar Engineering Council. For data analysis, Best (1977) identification is based. According to Best (1977), scale for mean scores, as outlined in Table (4.1), which categorizes the range of mean scores accordingly.

Table (4.1) Rule about Mean Score

Sr. No.	Mean Score	Interpretation
1	4.21 – 5.00	Strongly Agree
2	3.41 – 4.20	Agree
3	2.61 – 3.40	Neutral
4	1.81 – 2.60	Disagree
5	1.00 – 1.80	Strongly Disagree

Source: Best (1977)

With the scoring system: 1.00 – 1.80 represents "Strongly Disagree," 1.81 – 2.60 represents "Disagree," 2.61 – 3.40 represents "Neutral," 3.41 – 4.20 represents "Agree," and 4.21 – 5.00 represents "Strongly Agree." Data analysis includes both descriptive and regression analyses.

4.1 Engineer Perception on Company Specific Factors, Project Characteristics, Project Manager’s Competencies, Project Management Success and Project Success

The analysis of engineer perception is concerning about company specific factors, project characteristics, project manager’s competencies, project management success and project success is carried out using descriptive analysis. This approach involves calculating the mean values for each question item related to these variables.

4.1.1 Company Specific Factors

The study assessed company specific factors utilizing a five-item scale. The mean values and standard deviations are computed based on a 5-point Likert scale and are displayed in Table (4.2).

Table (4.2) Company Specific Factors

Sr. No.	Description	Mean	Standard Deviation
1	Ensuring the project's success through effective communication with the relevant authorities.	4.22	.576
2	Supporting from top management directly contributes to project management success.	3.79	.723
3	Affecting the outcomes of a project with effective planning, monitoring, and management directly	3.80	.877
4	Achieving effective project management through a clear and simple organizational structure	4.30	.575
5	Making current projects more successful with experience similar projects	3.93	.907
	Overall Mean	4.01	

Source: Survey Data (2025)

According to the Table (4.1), the mean values including overall mean except 4.22 and 4.30 are between 3.41 and 4.20 at agree level. It can be concluded that respondents agree with company specific factors. Respondents agree that supporting from top management influences project management success. They agree that well planning, monitoring, and management affects the results of a project and they agree that experience with similar projects makes current projects more successful.

Moreover, the mean value 4.22 and 4.30 fall between 4.21 and 5.00 at strongly agree level. Therefore, respondents strongly agree that effective communication with the relevant authorities helps ensure the project's success and a clear and simple organizational structure facilitates effective project management.

4.1.2 Project Characteristics

This study investigates the project characteristics with five items, with the mean values and standard deviations for each item presented in Table (4.3).

Table (4.3) Project Characteristics

Sr. No.	Description	Mean	Standard Deviation
1	Ensuring the project's success involves effective communication with the relevant authorities	4.06	.552
2	Ensuring the project's success requires clearly defined project objectives	3.89	.977
3	Ensuring the project's success depends on the completeness of the contract	4.12	.638
4	Ensuring the project's success is influenced to time limits.	4.40	.773
5	Ensuring the project's success necessitates meeting quality requirements.	4.18	.629
	Overall Mean	4.13	

Source: Survey Data (2025)

According to the Table (4.3), the mean values except 4.40 including overall mean fall between 3.41 and 4.20 at agree level. It indicates that respondents generally agree with all the aspects of project characteristics. Respondents agree that working together among everyone involved in a project helps it perform better, clearly defined objectives of projects help ensure the project's success, completeness of the contract is crucial for ensuring project success and meeting quality requirements is essential for the success of the project.

However, the mean value 4,40 is between 4.21 and 5.00 at strongly agree level. Therefore, respondents strongly agree that time limits play a big role in how successful the project.

4.1.3 Project Manager's Competencies

This study examines project manager's competencies with six question items. The mean values and standard deviation for each of these items are provided in Table (4.4).

Table (4.4) Project Manager's Competencies

Sr. No.	Description	Mean	Standard Deviation
1	Processing the leadership and decision-making within the company enhances project management success.	4.40	.773
2	Achieving project success, strong communication and social interaction among team members are essential	3.76	.875
3	Approaching encouragement of innovativeness seek opportunities that lead to project management success.	4.08	.888
4	Ensuring the technical experience of the project manager plays a crucial role for engineering projects success.	4.19	.602
5	Ensuring a high level of responsibility and commitment from the project manager is vital for the successful project's completion.	4.39	.666
6	Prioritizing affectively and enforcing safety measures is vital for the successful project outcomes.	4.14	.807
	Overall Mean	4.16	

Source: Survey Data (2025)

According to Table (4.4), the mean scores except 4.40 and 4.39 including overall mean are between 3.41 and 4.20 at agree level. This highlights that respondents agree with the aspects of project manager's competencies. They agree that strong communication and social interaction among team members are essential for achieving project success, encouragement of innovativeness and a proactive approach to seeking opportunities are key factors that lead to project management success, the technical experience of the project manager plays a crucial role for the success of engineering projects. They also agree that affectively prioritized and enforced safety measures is vital for the successful project outcomes.

On the other hand, the mean value 4.40 and 4.39 are between 4.21 and 5.00 at strongly agree level. Therefore, respondents strongly agree that the leadership and decision-making processes within the company enhances project management success and a high level of responsibility and commitment from the project manager is vital for the successful completion of projects.

4.1.4 Project Management Success

Table (4.5) presents the mean values and standard deviation for the five items used to assess project management success within this study.

Table (4.5) Project Management Success

Sr. No.	Description	Mean	Standard Deviation
1	Effectively communicates with upper management the project's vision and objectives, ensure alignment with the project team.	4.37	.483
2	Processing collaboratly decision-making between upper management and the project team, enhance the chances of project success.	4.23	.423
3	Actively engaging the project team in regular status meetings, can progress and challenge as well as leading to timely resolutions.	4.23	.423
4	Tracking a documented process for project milestones and deliverables, which helps ensure project timelines are met.	4.48	.501
5	Practicing stakeholder engagement to keep everyone informed and involved throughout the project.	4.33	.718
	Overall Mean	4.33	

Source: Survey Data (2025)

The Table (4.5) states the mean scores including overall mean fall between 4.21 and 5.00 at strongly agree level. It can be concluded that respondents strongly agree with project management success. Respondents strongly agree that Upper management effectively communicates the project's vision and objectives, ensuring alignment with the project team. Respondents strongly agree that collaborative decision-making processes between upper management and the project team enhance the chances of project success. Respondents strongly agree that the project team actively engages in regular status meetings to discuss progress and challenges, leading to timely resolutions. Respondents strongly agree that there is a documented process for tracking project milestones and deliverables, which helps ensure project timelines are met. Respondents strongly agree that stakeholder engagement practices are used to keep everyone informed and involved throughout the project.

4.1.5 Project Success

The study identifies five key items of project success. The mean values and standard deviation for these items, as derived from the analysis, are presented in Table (4.6).

Table (4.6) Project Success

Sr. No.	Description	Mean	Standard Deviation
1	Finish the project within the budget	4.31	.615
2	Finish the project within on time	4.40	.773
3	Without slipping the critical tasks and delivery dates	4.30	.610
4	Deliver the project with the customer fulfill and requirements.	4.48	.501
5	Meet the project with its business objectives	3.85	.989
	Overall Mean	4.27	

Source: Survey Data (2025)

According to Table (4.6), the mean scores including overall mean except 3.85 are between 4.21 and 5.00 at strongly agree level. It means that respondents strongly agree with project success of Myanmar Engineering Council's License Holders. Respondents strongly agree that the project was finished on or under budget. Respondents strongly agree that the project was finished on time. Respondents strongly agree that the critical tasks and delivery dates were not slipping. Respondents strongly agree that the project deliverables always fulfil the customer requirements.

However, the mean value 3.85 is between 3.41 and 4.20 at agree level. Therefore, respondents generally agree that the project meets its business objectives.

4.2 Analysis on the Mediating Effect of Project Characteristics on the Relationship between Company Specific Factors and Project Manager's Competencies of Engineers

To test the mediating effect of project characteristics on the relationship between company specific factors and project manager's competencies, the following steps are followed:

1. Total effect through regression analysis on effect of independent variable on dependent variable.
2. Regression analysis on effect of independent variable on mediating variable.
3. Regression analysis on effect of independent variable and mediating variable on dependent variable.
4. Sobel test for significance of mediating variable.
5. Finding indirect effect, direct effect and total effect.

4.2.1 Analysis on Effect of Company Specific Factors on Project Manager's Competencies

As a first step, effect of company specific factors (independent variable) on project manager's competencies (dependent variable) is analyzed. The results are shown in Table (4.7).

Table (4.7) Effect of Company Specific Factors on Project Manager’s Competencies

Dependent Variable: Project Manager’s Competencies	Unstandardized Coefficients		β	t	Sig.
	B	Std. Error			
(Constant)	.680	.216		3.146	.002
Company Specific Factors	.868***	.053	.768	16.246	.000
R Square	.589				
Adjusted R Square	.587				
F Value	263.934***				
Durbin Watson	1.133				

Source: Survey Data, 2025

Statistically significant levels are indicated as: *** at the 1% level, ** at the 5% level, and * at the 10% level.

As shown in Table (4.7), the total effect of company specific factors on project manager’s competencies is 0.868 at 1% significant level. Then, the effect of company specific factors (independent variable) on project characteristics (mediating variable) is analyzed and the result is shown in Table (4.8).

Table (4.8) Effect of Company Specific Factors on Project Characteristics

Dependent Variable: Project Characteristics	Unstandardized Coefficients		β	t	Sig.
	B	Std. Error			
(Constant)	.961	.147		6.519	.000
Company Specific Factors	.791***	.036	.848	21.702	.000
R Square	.719				
Adjusted R Square	.718				
F Value	470.967***				
Durbin Watson	1.437				

Source: Survey Data (2025)

Statistically significant levels are indicated as: *** at the 1% level, ** at the 5% level, and * at the 10% level.

As shown in Table (4.8), the coefficient value is 0.791 at 1% significant level and standard error is 0.036 for the effect of company specific factors on project characteristics (effect of independent variable and mediating variable). After doing the analysis on effect of company specific factors (independent variable) on project characteristics (mediating variable), the third step of testing mediating effect is continued. In this step, company specific factors and project characteristics are independent variables and dependent variable is project manager's competencies that the results are shown in Table (4.9).

Table (4.9) Effect of Company Specific Factors and Project Characteristics on Project Manager's Competencies

Dependent Variable: Project Manager's Competencies	Unstandardized Coefficients		β	t	Sig.
	B	Std. Error			
(Constant)	.192	.226		.852	.395
Company Specific Factors	.467***	.095	.413	4.921	.000
Project Characteristics	.508***	.102	.419	4.991	.000
R Square	.638				
Adjusted R Square	.634				
F Value	161.573***				
Durbin Watson	1.047				

Source: Survey Data (2025)

Statistically significant levels are indicated as: *** at the 1% level, ** at the 5% level, and * at the 10% level.

As shown in Table (4.9), the coefficient value of company specific factors on project manager's competencies is 0.467 at 1% significant level. The coefficient value of project characteristics on project manager's competencies is 0.508 at 1% significant level and standard error value is 0.102. To test the mediating effect of project characteristics in the relationship between company specific factors and project manager's competencies, the Sobel test is conducted. The result is shown in Table (4.10).

Table (4.10) Sobel Test Result for Mediating Test for Project Characteristics on the Relationship between Company Specific Factors and Project Manager’s Competencies

Input:			Test statistic	Std. Error:	p-value:
a	0.791	Sobel test:	4.85717835	0.08272869	0.00000119
b	0.508	Aroian test:	4.8524008	0.08281014	0.00000122
S _a	0.036	Goodman test:	4.86197005	0.08264716	0.00000116
S _b	0.102	Reset all	Calculate		

Source: Survey Data (2025)

Statistically significant levels are indicated as: *** at the 1% level, ** at the 5% level, and * at the 10% level.

a = raw regression coefficient for the company specific factors between project characteristics

b = raw coefficient for the association between project characteristics and project manager’s competencies

S_a = standard error of a.

S_b = standard error of b.

P-value = 0 is less than 0.01. Thus, there is the mediating effect of project characteristics on the relationship between company specific factors and project manager’s competencies at 1% significant level.

The total effect, direct effect and indirect effect are as follows:

Total Effect = 0.868

Direct Effect = 0.467

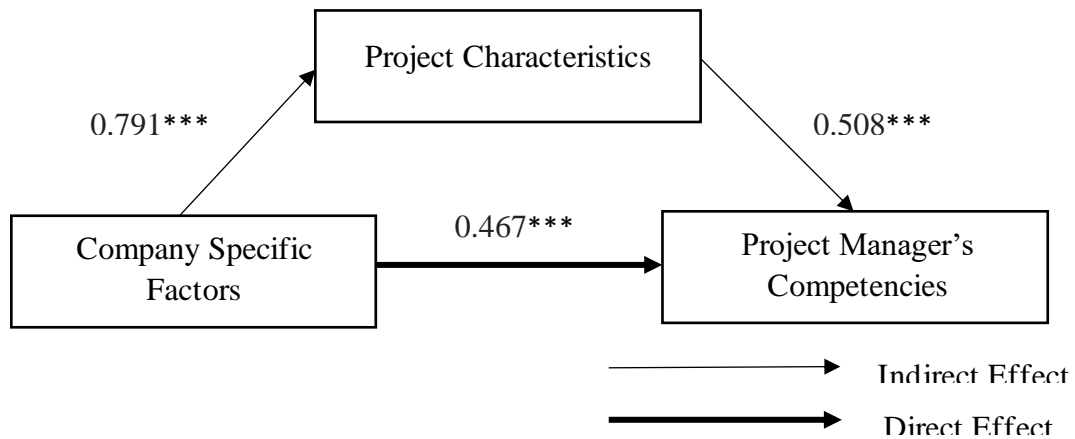
Indirect Effect = 0.791 * 0.508 = 0.401

Direct Effect + Indirect Effect = Total Effect

0.467 + 0.401 = 0.868

The direct effect and indirect effect can be seen in Figure (4.1).

Figure (4.1) Mediating Effect of Project Characteristics on the Relationship between Company Specific Factors and Project Manager’s Competencies



Source: Survey Data (2025)

Statistically significant levels are indicated as: *** at the 1% level, ** at the 5% level, and * at the 10% level.

As shown in Figure (4.1), there has a positive and significant on the relationship between company-specific factors and project manager’s competencies. This means that when an organization provides a strong foundation through its structure, policies, resources, and support systems, project managers are more likely to develop and demonstrate stronger competencies. These competencies include leadership, planning, problem-solving, and decision-making abilities essential for successful project implementation.

The results show that there has also a positive and significant on the relationship between company-specific factors and project characteristics. This indicates that when organizations invest in effective internal systems and strategic practices, it leads to improved planning, execution, and control within projects. In this way, company-specific factors contribute to strengthening the overall quality and structure of project characteristics.

Finally, project characteristics have a mediating effect on the relationship between company-specific factors and project manager’s competencies. This means that company-specific factors not only directly influence project manager competencies but also enhance project characteristics, which further support the development of those competencies. The presence of both direct and indirect effects highlights the importance of aligning organizational elements with project requirements. For professional engineers who got license from Myanmar Engineering Council, focusing on internal company factors and structured project characteristics can lead to stronger managerial capabilities and more successful project outcomes.

4.3 Analysis on the Mediating Effect of Project Manager’s Competencies on the Relationship between Project Characteristics and Project Management Success of Engineers

To test the mediating effect of project manger’s competencies on the relationship between project characteristics and project management success, the following steps are conducted.

4.3.1 Analysis on Effect of Project Characteristics on Project Management Success

As a first step, effect of project characteristics (independent variable) on project management success (dependent variable) is analyzed. The results are shown in Table (4.11).

Table (4.11) Effect of Project Characteristics on Project Management Success

Dependent Variable: Project Management Success	Unstandardized Coefficients		β	t	Sig.
	B	Std.Error			
(Constant)	1.480	.158		9.394	.000
Project Characteristics	.689***	.038	.802	18.207	.000
R Square	.643				
Adjusted R Square	.641				
F Value	331.488***				
Durbin Watson	1.054				

Source: Survey Data (2025)

Statistically significant levels are indicated as: *** at the 1% level, ** at the 5% level, and * at the 10% level.

As shown in Table (4.11), the total effect of project characteristics on project management success is 0.689 at 1% significant level. Then, the effect of project characteristics (independent variable) on project manager’s competencies (mediating variable) is analyzed and the result is shown in Table (4.12).

Table (4.12) Effect of Project Characteristics on Project Manager’s Competencies

Dependent Variable: Project Manager’s Competencies	Unstandardized Coefficients		β	t	Sig.
	B	Std. Error			
(Constant)	.310	.238		1.301	.195
Project Characteristics	.932***	.057	.769	16.292	.000
R Square	.591				
Adjusted R Square	.588				
F Value	265.442***				
Durbin Watson	0.987				

Source: Survey Data (2025)

Statistically significant levels are indicated as: *** at the 1% level, ** at the 5% level, and * at the 10% level.

As shown in Table (4.12), the coefficient value is 0.932 at 1% significant level and standard error is 0.057 for the effect of project characteristics on project manager’s competencies (effect of independent variable and mediating variable). After doing the analysis on effect of project characteristics (independent variable) on project manager’s competencies (mediating variable), the third step of testing mediating effect is continued. In this step, the independent variables are project characteristics and project manager’s competencies and dependent variable is project management success. The results are shown in Table (4.13).

Table (4.13) Effect of Project Characteristics and Project Manager’s Competencies on Project Management Success

Dependent Variable: Project Management Success	Unstandardized Coefficients		β	t	Sig.
	B	Std. Error			
(Constant)	1.416	.151		9.398	.000
Project Characteristics	.495***	.056	.575	8.785	.000
Project Manager’s Competencies	.209***	.046	.295	4.501	.000
R Square	.679				
Adjusted R Square	.675				
F Value	193.221***				
Durbin Watson	1.089				

Source: Survey Data (2025)

Statistically significant levels are indicated as: *** at the 1% level, ** at the 5% level, and * at the 10% level.

As shown in Table (4.13), the coefficient value of project characteristics on project management success is 0.495 at 1% significant level. The coefficient value of project manager’s competencies on project management success is 0.209 at 1% significant level and standard error value is 0.046. To test the mediating effect of project manager’s competencies between project characteristics and project management success, the Sobel test is conducted. The result is shown in Table (4.14).

Table (4.14) Sobel Test Result for Mediating Test for Project Manager's Competencies on the Relationship between Project Characteristics and Project Management Success

Input:			Test statistic	Std. Error:	p-value:
a	0.932	Sobel test:	4.37761441	0.04449638	0.000012
b	0.209	Aroian test:	4.37003397	0.04457357	0.00001242
S _a	0.057	Goodman test:	4.38523443	0.04441906	0.00001159
S _b	0.046	Reset all	Calculate		

Source: Survey Data (2025)

Statistically significant levels are indicated as: *** at the 1% level, ** at the 5% level, and * at the 10% level.

a = raw regression coefficient for project characteristics and project manager's competencies

b = raw coefficient for the association between project manager's competencies and project management success

S_a = standard error of a.

S_b = standard error of b.

P-value = 0 is less than 0.01. Thus, there is the mediating effect of project manager's competencies on the relationship between project characteristics and project management success at 1% significant level.

The total effect, direct effect and indirect effect are as follows:

Total Effect = 0.689

Direct Effect = 0.495

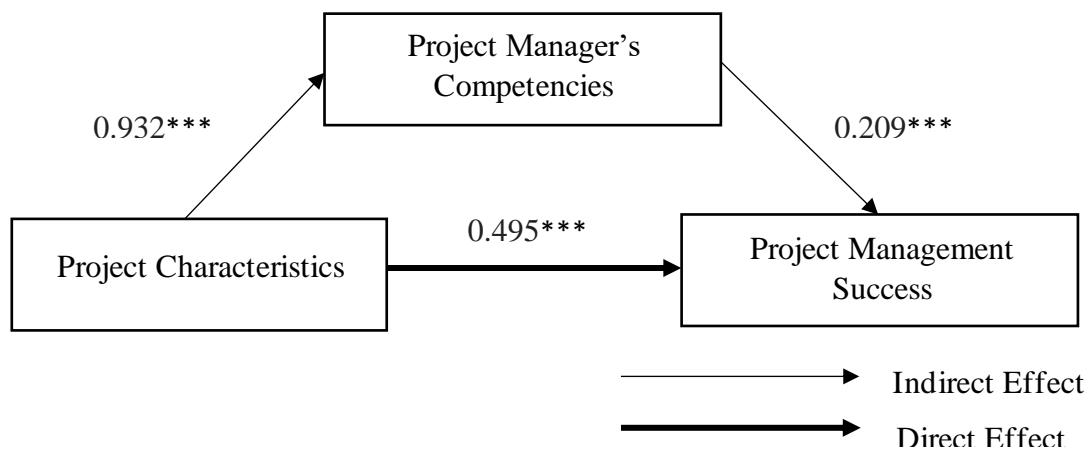
Indirect Effect = $0.932 * 0.209$ = 0.194

Direct Effect + Indirect Effect = Total Effect

0.495 + 0.194 = 0.689

The direct effect and indirect effect can be seen in Figure (4.2).

Figure (4.2) Mediating Effect of Project Manager’s Competencies on the Relationship between Project Characteristics and Project Management Success



Source: Survey Data (2025)

Statistically significant levels are indicated as: *** at the 1% level, ** at the 5% level, and * at the 10% level.

As shown in Figure (4.2), there has a positive and significant on the relationship between project characteristics and project management success. This means that when a project is clearly defined with well-structured objectives, scope, and resources, it is more likely to achieve successful outcomes. Well-characterized projects contribute to improved planning, execution, and control, which enhance the likelihood of success. Within the context, strong project characteristics are essential for delivering effective project results.

The results also show that there has a positive and significant on the relationship between project characteristics and project manager’s competencies. This means that the nature and clarity of a project can directly influence the skills and capabilities of project managers. Clearly outlined project requirements and expectations help managers to better develop and apply their competencies, such as communication, leadership, problem-solving, and decision-making. At the Myanmar Engineering Council, project characteristics play a key role in shaping the effectiveness of project managers.

Finally, project manager’s competencies serve as a mediating variable between project characteristics and project management success. This means that project characteristics not only have a direct effect on project success but also enhance the competencies of project managers, which in turn contribute to achieving better project outcomes. The presence of both direct and indirect effects highlights the critical importance of project manager development in ensuring project success. For the Myanmar Engineering Council, investing in both project definition and competency-building for project managers can significantly improve project performance and organizational effectiveness.

4.4 Analysis on the Mediating Effect of Project Manager’s Competencies on the Relationship between Company Specific Factors and Project Management Success of Engineers

To test the mediating effect of project manager’s competencies on the relationship between company specific factors and project management success, the following steps are conducted.

4.4.1 Analysis on Effect of Company Specific Factors on Project Management Success

As a first step, effect of company specific factors (independent variable) on project management success (dependent variable) is analyzed. The results are shown in Table (4.15).

Table (4.15) Effect of Company Specific Factors on Project Management Success

Dependent Variable: Project Management Success	Unstandardized Coefficients		β	t	Sig.
	B	Std. Error			
(Constant)	1.798	.147		12.198	.000
Company Specific Factors	.631***	.036	.788	17.333	.000
R Square	.620				
Adjusted R Square	.618				
F Value	300.419***				
Durbin Watson	1.449				

Source: Survey Data (2025)

Statistically significant levels are indicated as: *** at the 1% level, ** at the 5% level, and * at the 10% level.

As shown in Table (4.15), the total effect of company specific factors on project management success is 0.631 at 1% significant level. Then, the effect of company specific factors (independent variable) on project manager’s competencies (mediating variable) is analyzed and the result is shown in Table (4.16).

Table (4.16) Effect of Company Specific Factors on Project Manager's Competencies

Dependent Variable: Project Manager's Competencies	Unstandardized Coefficients		β	t	Sig.
	B	Std. Error			
(Constant)	.680	.216		3.146	.002
Company Specific Factors	.868***	.053	.768	16.246	.000
R Square	.589				
Adjusted R Square	.587				
F Value	263.934***				
Durbin Watson	1.133				

Source: Survey Data, 2025

Statistically significant levels are indicated as: *** at the 1% level, ** at the 5% level, and * at the 10% level.

As shown in Table (4.16), the coefficient value is 0.868 at 1% significant level and standard error is 0.053 for the effect of company specific factors on project manager's competencies (effect of independent variable and mediating variable). After doing the analysis on effect of company specific factors (independent variable) on project manager's competencies (mediating variable), the third step of testing mediating effect is continued. In this step, the independent variables are company specific factors and project manager's competencies and dependent variable is project management success. The results are shown in Table (4.17).

Table (4.17) Effect of Company Specific Factors and Project Manager's Competencies on Project Management Success

Dependent Variable: Project Management Success	Unstandardized Coefficients		β	t	Sig.
	B	Std. Error			
(Constant)	1.642	.143		11.491	.000
Company Specific Factors	.433***	.054	.540	8.063	.000
Project Manager's Competencies	.228***	.047	.322	4.815	.000
R Square	.663				
Adjusted R Square	.659				
F Value	179.914***				
Durbin Watson	1.352				

Source: Survey Data (2025)

Statistically significant levels are indicated as: *** at the 1% level, ** at the 5% level, and * at the 10% level.

As shown in Table (4.17), the coefficient value of company specific factors on project management success is 0.433 at 1% significant level. The coefficient value of project manager's competencies on project management success is 0.228 at 1% significant level and standard error value is 0.047. To test the mediating effect of project manager's competencies between company specific factors and project management success, the Sobel test is conducted. The result is shown in Table (4.18).

Table (4.18) Sobel Test Result for Mediating Test for Project Manager’s Competencies on the Relationship between Company Specific Factors and Project Management Success

Input:			Test statistic	Std. Error:	p-value:
a	0.868	Sobel test:	4.65130585	0.04254805	0.0000033
b	0.228	Aroian test:	4.64335491	0.04262091	0.00000343
S _a	0.053	Goodman test:	4.65929777	0.04247507	0.00000317
S _b	0.047	Reset all	Calculate		

Source: Survey Data (2025)

Statistically significant levels are indicated as: *** at the 1% level, ** at the 5% level, and * at the 10% level.

a = raw regression coefficient for company specific factors and project manager’s competencies

b = raw coefficient for the association between project manager’s competencies and project management success

S_a = standard error of a.

S_b = standard error of b.

P-value = 0 is less than 0.01. Thus P-value = 0 is less than 0.01. Thus, there is the mediating effect of project manager’s competencies on the relationship between company specific factors and project management success at 1% significant level.

The total effect, direct effect and indirect effect are as follows:

Total Effect = 0.631

Direct Effect = 0.433

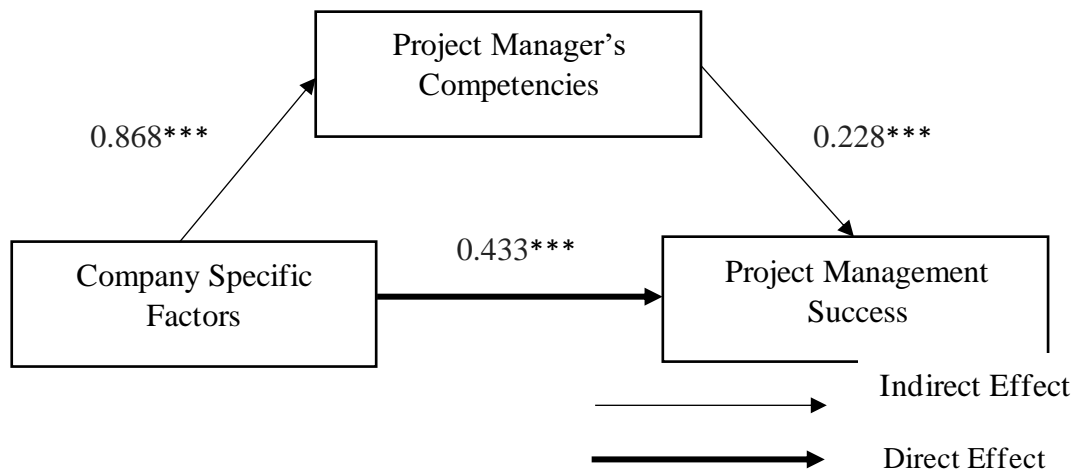
Indirect Effect = 0.868* 0.228 = 0.198

Direct Effect + Indirect Effect = Total Effect

0.433 + 0.198 = 0.631

The direct effect and indirect effect can be seen in Figure (4.3).

Figure (4.3) Meditating Effect of Project Manager’s Competencies on the Relationship between Project Characteristics and Project Management Success



Source: Survey Data (2025)

Statistically significant levels are indicated as: *** at the 1% level, ** at the 5% level, and * at the 10% level.

As shown in Figure (4.3), there is a positive and significant on the relationship between company specific factors and project management success. This means that when a company maintains effective communication with relevant authorities and implements a clear and simple organizational structure, project management outcomes tend to improve. Such company specific factors create an environment that supports efficient coordination and decision-making, which contributes directly to project success within the Myanmar Engineering Council.

The results also reveal a positive and significant on the relationship between company specific factors and project manager’s competencies. This indicates that a supportive organizational environment plays a crucial role in developing and enhancing the skills and abilities of project managers. Effective communication channels and streamlined structures enable managers to perform better by fostering their competencies in leadership, problem-solving, and project coordination.

Finally, project manager’s competencies act as a mediating variable on the relationship between company specific factors and project management success. This means that company specific factors not only have a direct effect on project success but also indirectly influence outcomes by strengthening the competencies of project managers.

The combined presence of direct and indirect effects underscores the vital role of managerial capabilities in leveraging organizational factors for better project performance. For organizations under the Myanmar Engineering Council, investing in both favourable company-specific conditions and the development of project managers' competencies can significantly enhance project management success.

4.5 Analysis on the Mediating Effect of Project Characteristics on the Relationship between Company Specific Factors and Project Management Success of Engineers

To test the mediating effect of project characteristics on the relationship between company specific factors and project management success, the following steps are conducted.

4.5.1 Analysis on Effect of Company Specific Factors on Project Management Success

As a first step, effect of company specific factors (independent variable) on project management success (dependent variable) is analyzed. The results are shown in Table (4.19).

Table (4.19) Effect of Company Specific Factors on Project Management Success

Dependent Variable: Project Management Success	Unstandardized Coefficients		β	t	Sig.
	B	Std. Error			
(Constant)	1.798	.147		12.198	.000
Company Specific Factors	.631***	.036	.788	17.333	.000
R Square	.620				
Adjusted R Square	.618				
F Value	300.419***				
Durbin Watson	1.449				

Source: Survey Data (2025)

Statistically significant levels are indicated as: *** at the 1% level, ** at the 5% level, and * at the 10% level.

As shown in Table (4.19), the total effect of company specific factors on project management success is 0.631 at 1% significant level. Then, the effect of company specific factors (independent variable) on project characteristics (mediating variable) is analyzed and the result is shown in Table (4.20).

Table (4.20) Effect of Company Specific Factors on Project Characteristics

Dependent Variable: Project Characteristics	Unstandardized Coefficients		β	t	Sig.
	B	Std. Error			
(Constant)	.961	.147		6.519	.000
Company Specific Factors	.791***	.036	.848	21.702	.000
R Square	.719				
Adjusted R Square	.718				
F Value	470.967***				
Durbin Watson	1.437				

Source: Survey Data (2025)

Statistically significant levels are indicated as: *** at the 1% level, ** at the 5% level, and * at the 10% level.

As shown in Table (4.20), the coefficient value is 0.791 at 1% significant level and standard error is 0.036 for the effect of company specific factors on project characteristics (effect of independent variable and mediating variable). After doing the analysis on effect of company specific factors (independent variable) on project characteristics (mediating variable), the third step of testing mediating effect is continued. In this step, the independent variables are company specific factors and project characteristics and dependent variable is project management success. The results are shown in Table (4.21).

Table (4.21) Effect of Company Specific Factors and Project Characteristics on Project Management Success

Dependent Variable: Project Management Success	Unstandardized Coefficients		β	t	Sig.
	B	Std. Error			
(Constant)	1.403	.149		9.386	.000
Company Specific Factors	.307***	.063	.383	4.882	.000
Project Characteristics	.410***	.067	.477	6.091	.000
R Square	.684				
Adjusted R Square	.681				
F Value	198.235***				
Durbin Watson	1.296				

Source: Survey Data (2025)

Statistically significant levels are indicated as: *** at the 1% level, ** at the 5% level, and * at the 10% level.

As shown in Table (4.21), the coefficient value of company specific factors on project management success is 0.307 at 1% significant level. The coefficient value of project characteristics on project management success is 0.410 at 1% significant level and standard error value is 0.067. To test the mediating effect of project characteristics between company specific factors and project management success, the Sobel test is conducted. The result is shown in Table (4.22)

Table (4.22) Sobel Test Result for Mediating Test for Project Characteristics on the Relationship between Company Specific Factors and Project Management Success

Input:			Test statistic	Std. Error:	p-value:
a	0.791	Sobel test:	5.89504547	0.05501399	0
b	0.410	Aroian test:	5.88938777	0.05506684	0
S _a	0.036	Goodman test:	5.90071951	0.05496109	0
S _b	0.067	Reset all	Calculate		

Source: Survey Data (2025)

Statistically significant levels are indicated as: *** at the 1% level, ** at the 5% level, and * at the 10% level.

a = raw regression coefficient for company specific factors and project characteristics

b = raw coefficient for the association between project characteristics and project management success

S_a = standard error of a.

S_b = standard error of b.

P-value = 0 is less than 0.01. Thus, there is the mediating effect of project characteristics on the relationship between company specific factors and project management success at 1% significant level.

The total effect, direct effect and indirect effect are as follows:

Total Effect = 0.631

Direct Effect = 0.307

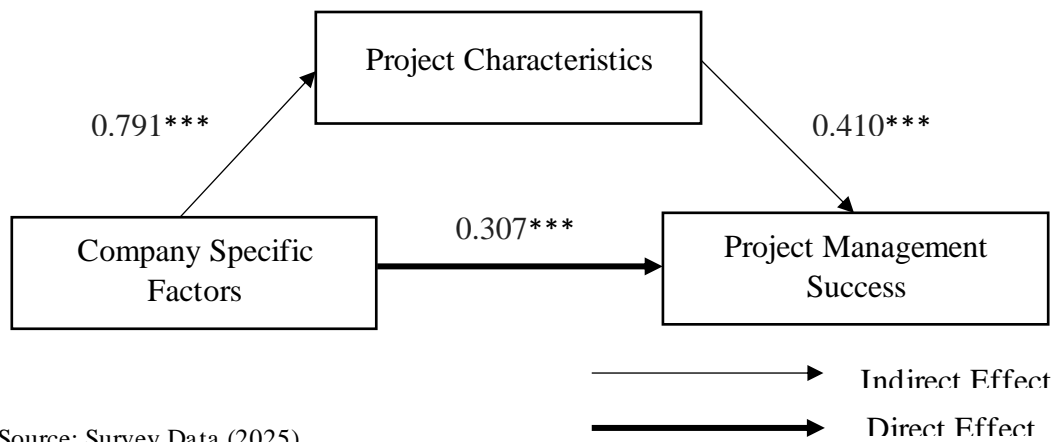
Indirect Effect = 0.791 * 0.410 = 0.324

Direct Effect + Indirect Effect = Total Effect

0.307 + 0.324 = 0.631

The direct effect and indirect effect can be seen in Figure (4.4).

Figure (4.4) Meditating Effect of Project Characteristics on the Relationship between Company Specific Factors and Project Management Success



Source: Survey Data (2025)

Statistically significant levels are indicated as: *** at the 1% level, ** at the 5% level, and * at the 10% level.

As shown in Figure (4.4), there is a positive and significant on the relationship between company specific factors and project management success. This means that when an organization maintains strong company-specific capabilities—such as clear communication, efficient structures, and effective resource management—projects are more likely to succeed. These company factors create a supportive environment that fosters project success within the Myanmar Engineering Council.

The results also show a positive and significant on the relationship between company specific factors and project characteristics. This means that strong company factors help shape important project attributes such as scope, complexity, and resource allocation. In other words, companies with effective internal environments are better able to define and structure their projects in ways that increase the likelihood of success.

Finally, project characteristics act as a mediating variable on the relationship between company specific factors and project management success. This means that company specific factors not only directly influence project success but also indirectly enhance outcomes by improving project characteristics. The presence of both direct and indirect effects highlights the crucial role project characteristics play as a pathway through which company capabilities impact project results. For organizations under the Myanmar Engineering Council, investing in strengthening company factors and optimizing project characteristics can lead to higher rates of project success and overall organizational effectiveness.

4.6 Analysis on Effect of Project Management Success on Project Success

Linear regression analysis is conducted to examine the effect of independent variable (project management success) on the dependent variable (project success). The findings of this regression analysis are presented in Table (4.23).

Table (4.23) Effect of Project Management Success on Project Success

Dependent Variable: Project Success	Unstandardized Coefficients		β	t	Sig.
	B	Std. Error			
(Constant)	-.492	.259		-1.902	.059
Project Management Success	1.096***	.059	.805	18.429	.000
R Square	.649				
Adjusted R Square	.647				
F Value	339.620***				
Durbin Watson	.957				

Source: Survey Data (2025)

Statistically significant levels are indicated as: *** at the 1% level, ** at the 5% level, and * at the 10% level.

The Table (4.23) indicates that project management success of companies under Myanmar Engineering Council influence project success. The R-squared value of 0.649 indicates that approximately 64.9% of the variance in project success can be explained by project management success. This suggests as a strong explanatory of the model.

The findings show that project management success has a significant and positive effect on project success at 1% significant level ($p < 0.01$). This demonstrates that effective project management practices are critically important for achieving successful project outcomes. By contributing to project management success such as effective communication, collaborative decision-making, regular engagement, documentation, and stakeholder involvement and practicing collectively enhance project execution with intended objectives can lead project management to achieve project success.

CHAPTER 5

CONCLUSION

This chapter outlines the findings and discussion based on the analysis of data related to the influence of company-specific factors, project characteristics, and project manager competencies on project management success and project success within the Myanmar Engineering Council. It includes suggestions, recommendations, and identified areas for future research.

5.1 Findings and Discussions

The study aims to analyze the mediating effect of project characteristics on the relationship between company specific factors and project manager's competencies, to analyze the mediating effect of project manager's competencies on the relationship between project characteristics and project management success, to analyze the mediating effect of project manager's competencies on the relationship between company specific factors and project management success, to analyze the mediating effect of project characteristics on the relationship between company specific factors and project management success and to analyze the effect of project management success on project success of Myanmar Engineering Council's license holder.

According to the findings from the demographic profile of respondents, respondents display a balanced gender representation, indicating active engagement of both men and women in project management within Myanmar's engineering sector. The workforce is predominantly young, with many professionals in the early stages of their careers, though experienced practitioners are also present. A slight majority of respondents are single, reflecting a younger demographic that may influence their work-life balance and availability. The educational background of the participants is strong, with most holding bachelor's degrees and a significant portion possessing advanced degrees, which enhances their understanding of project management principles. The roles represented encompass both technical and managerial positions, indicating a comprehensive perspective on project operations. The experience levels vary, with many having several years of involvement, and a considerable number having managed multiple projects. The projects they work on span different sectors, including mixed, private, government, and international projects, demonstrating diverse exposure that can influence their insights into what constitutes project success.

According to the findings of the mean scores, respondents generally agree that company-specific factors recognize the importance of support from top management, effective planning, monitoring, and management practices, as well as the value of experience with similar projects. However, there is a strongly agree that clear communication with relevant authorities and a simple organizational structure are crucial for achieving successful project outcomes.

Regarding project characteristics, respondents agree that collaborative teamwork and well-defined objectives contribute positively to project performance. They also emphasize the importance of comprehensive contracts and meeting quality standards. But they strongly agree that belief strict time management is essential for success. These insights highlight the significance of clear project goals, thorough planning, and effective coordination in ensuring project success.

In terms of project manager competencies, respondents agree that communication skills and social interaction are vital for success. They also value proactive leadership, encouragement of innovation, and technical expertise, particularly emphasizing the role of safety measures. However effective leadership, decision-making, and a high level of responsibility and commitment from project managers are strongly agree by respondents.

In terms of project management success, with respondents strongly agree that effective communication from upper management, collaborative decision-making, and active stakeholder engagement are fundamental. They also highlight the importance of structured processes for tracking progress and ensuring timely completion, reinforcing the significance of good governance and communication in project success. However, they agree in Collaborative decision-making processes between upper management and the project team actively engages in regular status meetings to discuss progress and challenges.

Respondents express that they strongly agree with project success as projects are completed within budget and on schedule, with critical tasks well managed. They also affirm that project deliverables consistently meet customer requirements but generally agree with business objectives, highlighting the effectiveness of project management practices within the organization.

According to the regression analysis, there is the mediating effect of project characteristics on the relationship between company specific factors and project manager's competencies. The first objective is to analyse the mediating effect of project characteristics

on the relationship between company-specific factors and project manager's competencies of Myanmar Engineering Council's license holders. The findings indicate that company-specific factors have a positive and significant effect on project manager competencies. This means that when organizations establish strong internal systems—such as clear communication channels, supportive leadership, and structured processes—project managers are more likely to develop essential competencies. Additionally, project characteristics mediate this relationship, suggesting that well-defined project scope, objectives, and resource planning further reinforce the development of managerial capabilities such as leadership, planning, and problem-solving.

Moreover, project manager's competencies mediate between project characteristics and project management success. The second objective is to examine the mediating effect of project manager's competencies on the relationship between project characteristics and project management success. The findings show that project characteristics positively and significantly influence project management success. Projects with clear direction, scope, and well-managed resources enhance the planning and execution phases. Project manager's competencies serve as a mediating variable, implying that these well-structured projects not only promote success directly but also help project managers perform more effectively. Managers are empowered to lead, coordinate, and resolve challenges efficiently, which further contributes to successful project outcomes under the Myanmar Engineering Council.

Furthermore, there is the mediating effect of project manager's competencies on the relationship between company specific factors and project management. The third objective is to analyse the mediating effect of project manager's competencies on the relationship between company-specific factors and project management success. The results indicate a strong and significant relationship, where company-specific factors directly influence project management success and also indirectly enhance outcomes through improved project manager competencies. This implies that a supportive organizational environment contributes to stronger leadership, coordination, and communication abilities among project managers, which are essential for delivering successful projects. These findings emphasize the importance of investing in both organizational infrastructure and managerial development to achieve optimal project outcomes.

In Addition, there is the mediating effect of project characteristics on the relationship between company specific factors and project management success. The fourth

objective is to analyse the mediating effect of project characteristics on the relationship between company-specific factors and project management success. The findings demonstrate that project characteristics significantly mediate this relationship. This means that organizations with efficient structures and strategic planning are better equipped to define and manage projects. In turn, well-structured projects lead to greater success in project management. Therefore, strengthening internal company-specific elements positively influences project outcomes both directly and through the quality and clarity of the projects they support.

Finally, project management success has positive and significant effect on project success. The fifth objective is to analyse the effect of project management success on project success. The results show a positive and significant relationship between project success and project management success. This highlights the critical role that effective project management practices—such as communication, stakeholder engagement, documentation, and decision-making—play in achieving successful project completion. These practices create an environment of collaboration, transparency, and accountability that directly supports overall project success for Myanmar Engineering Council’s licensed professionals.

5.2 Suggestions and Recommendations

The analysis of this study provides a number of suggestions and recommendations aimed at improving company-specific practices, project management success, and overall project outcomes for license holders of the Myanmar Engineering Council. Based on the results, company-specific factors have a positive and significant effect on project manager competencies. This indicates that organizations that establish strong internal systems such as clear communication structures, supportive leadership, and resource availability enable project managers to develop critical competencies. Therefore, companies under the Myanmar Engineering Council should invest in building robust organizational infrastructures that promote collaboration, professional development, and strategic alignment. Enhancing internal systems will create an enabling environment for project managers to thrive and perform effectively.

The study also found that project characteristics mediate the relationship between company-specific factors and project manager competencies. This suggests that clearly

defined project structures further strengthen managerial capabilities. Organizations should therefore prioritize the planning phase of projects by setting clear objectives, defining scope, and allocating resources effectively. Establishing well-structured projects can facilitate better decision-making, leadership, and coordination, which are essential for successful project delivery. Companies should adopt standardized project planning templates, invest in project management software, and promote continuous improvement practices to ensure clarity and consistency in project implementation.

Another important finding is that project manager competencies mediate the relationship between both company-specific factors and project management success, as well as between project characteristics and project management success. This highlights the critical role of capable and competent project managers in achieving desired project outcomes. As such, organizations should invest in training programs that enhance project management skills, including leadership, communication, stakeholder engagement, and risk management. Establishing a culture of continuous learning and mentorship can help build a pipeline of competent project leaders who are well-equipped to handle complex project environments.

Furthermore, the findings show that project characteristics significantly mediate the relationship between company-specific factors and project management success. This implies that effective internal structures lead to well-defined projects, which in turn improve the likelihood of successful project execution. Organizations should develop policies and procedures that emphasize the importance of project definition, scope management, and stakeholder alignment at the early stages. Project review mechanisms and stage-gate processes can help monitor the quality and alignment of project characteristics with organizational goals.

Finally, the study demonstrates that project management success has a strong and significant effect on overall project success. It is clear that sound project management practices are foundational to achieving organizational objectives. To sustain this, organizations should focus on key project management practices such as regular team engagement, collaborative decision-making, effective documentation, and proactive stakeholder involvement. Establishing project management offices (PMOs), promoting certification and professional development, and applying international standards can further institutionalize best practices across engineering projects.

Overall, organizations under the Myanmar Engineering Council should adopt a holistic approach to project development by aligning company-specific factors, project characteristics, and project manager competencies. This alignment will strengthen project planning, execution, and evaluation, ultimately leading to improved project management and project success. By focusing on organizational support, skill development, and structured project planning, the engineering sector in Myanmar can enhance its performance, sustainability, and long-term impact.

5.3 Needs for Further Research

While the study provides valuable insights into the influence of company-specific factors, project characteristics, and project manager competencies on project management success and project success within the Myanmar Engineering Council, there are several areas to further investigate. Future research should explore the development of organizational environments that foster effective communication and clear structural frameworks. Investigating how different organizational practices and leadership styles contribute to creating such environments can help identify best practices in Myanmar.

Further studies are needed to examine the specific training and professional development programs that most effectively enhance project manager competencies. Research could focus on identifying the key skills and knowledge areas that lead to improved project performance. This will enable the formulation of targeted capacity-building strategies that align with the evolving demands of engineering projects in Myanmar.

Moreover, there is a need to deepen the understanding of how project characteristics can be optimized through company specific factors. Future research should analyze the mechanisms through which organizational policies and practices influence these project features and identify effective methods for their implementation. Such studies can contribute to the development of standardized guidelines and best practices that facilitate well-structured project management processes.

Furthermore, the mediating role of project manager competencies indicates that enhancing organizational support can have a multiplier effect on project success. Investigating the specific policies and leadership approaches that most effectively elevate managerial skills will provide practical insights for policy formulation. Future research could also explore the effect of transparent organizational processes and leadership commitment on the development of project management capabilities.

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APPENDIX – I

SURVEY QUESTIONNAIRE

Section (A)

Demographic Profile

Please put a tick mark on the racket of the correct answer to the following questions.

1. What is your gender?

- Male
- Female

2. What is your age range?

- 21–30 years old
- 31–40 years old
- 41–50 years old
- 51 years old and above

3. What is your marital status?

- Married
- Single

4. What is educational attainment?

- Bachelor's Degree
- Master's Degree
- Doctorate Degree

5. What is your position in company?

- General Secretary
- Project Manager
- Assistant Project Manager
- Project Engineer
- Assistant Project Engineer

6. How many years of years of experience in the engineering industry?

- Less than 5 years
- 5–10 years
- 11–15 years
- More than 15 years

7. How many years of number of projects handled?

- 1–5 projects
- 6–10 projects
- 11–15 projects
- More than 15 projects

8. In which type of projects involved in?

- Government Projects
- Private Sector Projects
- International Projects
- Mixed (Government and Private)

Section (B)

Please choose one answer for each question to indicate how agreeable you are with the following.

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

Company Specific Factors		1	2	3	4	5
1.	Effective communication with the relevant authorities helps ensure the project's success.					
2.	The support from top management influences project management success.					
3.	Well planning, monitoring, and management affects the results of a project.					
4.	A clear and simple organizational structure facilitates effective project management.					
5.	Experience with similar projects makes current projects more successful.					

Project Characteristics		1	2	3	4	5
1.	Working together among everyone involved in a project helps it perform better.					
2.	Clearly defined project objectives help ensure the project's success.					
3.	The completeness of the contract is crucial for ensuring project success.					
4.	Time limits play a big role in how successful the project is.					
5.	Meeting quality requirements is essential for the success of the project.					

Project Manager Competencies		1	2	3	4	5
1.	The leadership and decision-making processes within the company enhances project management success.					
2.	Strong communication and social interaction among team members are essential for achieving project success.					
3.	Encouragement of innovativeness and a proactive approach to seeking opportunities are key factors that lead to project management success.					
4.	The technical experience of the project manager plays a crucial role for the success of engineering projects.					
5.	A high level of responsibility and commitment from the project manager is vital for the successful completion of projects.					
6	Affectively prioritized and enforced safety measures is vital for the successful project outcomes.					

Project Management Success		1	2	3	4	5
1.	Upper management effectively communicates the project's vision and objectives, ensuring alignment with the project team.					
2.	Collaborative decision-making processes between upper management and the project team enhance the chances of project success.					
3.	The project team actively engages in regular status meetings to discuss progress and challenges, leading to timely resolutions.					
4.	There is a documented process for tracking project milestones and deliverables, which helps ensure project timelines are met.					
5.	Stakeholder engagement practices are used to keep everyone informed and involved throughout the project.					

Project Success		1	2	3	4	5
1.	The project was finished on or under budget.					
2.	The project was finished on time.					
3.	The critical tasks and delivery dates were not slipping.					
4.	The project deliverables fulfil the customer requirements.					
5.	The project meets its business objectives.					

APPENDIX II

SPSS OUTPUT

Reliability Statistics

Cronbach's Alpha	N of Items
.794	5

Item Statistics

	Mean	Std. Deviation	N
CSF1	4.22	.576	186
CSF2	3.79	.723	186
CSF3	3.80	.877	186
CSF4	4.30	.575	186
CSF5	3.93	.907	186

Grand Mean = 4.01

Reliability Statistics

Cronbach's Alpha	N of Items
.745	5

Item Statistics

	Mean	Std. Deviation	N
PC1	4.06	.552	186
PC2	3.89	.977	186
PC3	4.12	.638	186
PC4	4.40	.773	186
PC5	4.18	.629	186

Grand Mean = 4.13

Reliability Statistics

Cronbach's Alpha	N of Items
.893	6

Item Statistics

	Mean	Std. Deviation	N
PMC1	4.40	.773	186
PMC2	3.76	.875	186
PMC3	4.08	.888	186
PMC4	4.19	.602	186
PMC5	4.39	.666	186
PMC6	4.14	.807	186

Grand Mean = 4.16

Reliability Statistics

Cronbach's Alpha	N of Items
.906	5

Item Statistics

	Mean	Std. Deviation	N
PMSU1	4.37	.483	186
PMSU2	4.23	.423	186
PMSU3	4.23	.423	186
PMSU4	4.48	.501	186
PMSU5	4.33	.718	186

Grand Mean = 4.33

Reliability Statistics

Cronbach's Alpha	N of Items
.898	5

Item Statistics

	Mean	Std. Deviation	N
PS1	4.31	.615	186
PS2	4.40	.773	186
PS3	4.30	.610	186
PS4	4.48	.501	186
PS5	3.85	.989	186

Grand Mean = 4.27

**Analysis on the Mediating Effect of Project Characteristics on the Relationship
between Company Specific Factors and Project Manager's Competencies of
Engineers**

Effect of Company Specific Factors on Project Manager's Competencies

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
					R Square Change	F Change	df1	df2	Sig. Change	Durbin-Watson
1	.768 ^a	.589	.587	.40250	.589	263.934	1	184	.000	1.133

a. Predictors: (Constant), CSFM

b. Dependent Variable: PMCM

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	42.760	1	42.760	263.934	.000 ^b
	Residual	29.810	184	.162		
	Total	72.570	185			

a. Dependent Variable: PMCM

b. Predictors: (Constant), CSFM

Coefficients^a

Model		Unstandardized Coefficients	Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Beta			Tolerance	VIF
1	(Constant)	.680		3.146	.002		
	CSFM	.868	.768	16.246	.000	1.000	1.000

a. Dependent Variable: PMCM

Effect of Company Specific Factors on Project Characteristics

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
					R Square Change	F Change	df1	df2	Sig. Change	F Durbin-Watson
1	.848 ^a	.719	.718	.274331714141958	.719	470.967	1	184	.000	1.437

a. Predictors: (Constant), CSFM

b. Dependent Variable: PCM

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	35.444	1	35.444	470.967	.000 ^b
	Residual	13.847	184	.075		
	Total	49.291	185			

a. Dependent Variable: PCM

b. Predictors: (Constant), CSFM

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.961	.147		6.519	.000		
	CSFM	.791	.036	.848	21.702	.000	1.000	1.000

a. Dependent Variable: PCM

Effect of Company Specific Factors and Project Characteristics on Project Manager's Competencies

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
					R Square Change	F Change	df1	df2	Sig. Change	F Durbin-Watson
1	.799 ^a	.638	.634	.378652	.638	161.573	2	183	.000	1.047
				633445636		73				

a. Predictors: (Constant), PCM, CSFM

b. Dependent Variable: PMCM

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	46.332	2	23.166	161.573	.000 ^b
	Residual	26.238	183	.143		
	Total	72.570	185			

a. Dependent Variable: PMCM

b. Predictors: (Constant), PCM, CSFM

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.192	.226		.852	.395		
	CSFM	.467	.095	.413	4.921	.000	.281	3.560
	PCM	.508	.102	.419	4.991	.000	.281	3.560

a. Dependent Variable: PMCM

Analysis for the Mediating Effect of Project Manager's Competencies on the Relationship between Project Characteristics and Project Management Success of Engineers

Effect of Project Characteristics on Project Management Success

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
					R Square Change	F Change	df1	df2	Sig. Change	F Durbin-Watson
1	.802 ^a	.643	.641	.265856841832314	.643	331.488	1	184	.000	1.054

a. Predictors: (Constant), PCM

b. Dependent Variable: PMSUM

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	23.430	1	23.430	331.488	.000 ^b
	Residual	13.005	184	.071		
	Total	36.435	185			

a. Dependent Variable: PMSUM

b. Predictors: (Constant), PCM

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error				Beta	Tolerance
1	(Constant)	1.480	.158		9.394	.000		
	PCM	.689	.038	.802	18.207	.000	1.000	1.000

a. Dependent Variable: PMSUM

Effect of Project Characteristics on Project Manager's Competencies

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
					R Square Change	F Change	df1	df2	Sig. Change	F
1	.769 ^a	.591	.588	.401830087021835	.591	265.442	1	184	.000	.987

a. Predictors: (Constant), PCM

b. Dependent Variable: PMCM

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	42.860	1	42.860	265.442	.000 ^b
	Residual	29.710	184	.161		
	Total	72.570	185			

a. Dependent Variable: PMCM

b. Predictors: (Constant), PCM

Coefficients^a

Model		Unstandardized Coefficients	Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta		Tolerance	VIF
1	(Constant)	.310	.238		1.301	.195	
	PCM	.932	.057	.769	16.292	.000	1.000

a. Dependent Variable: PMCM

Effect of Project Characteristics and Project Manager's Competencies on Project Management Success

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
					R Square Change	F Change	df1	df2	Sig. Change	F Durbin-Watson
1	.824 ^a	.679	.675	.252948863882679	.679	193.221	2	183	.000	1.089

a. Predictors: (Constant), PMCM, PCM

b. Dependent Variable: PMSUM

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24.726	2	12.363	193.221	.000 ^b
	Residual	11.709	183	.064		
	Total	36.435	185			

a. Dependent Variable: PMSUM

b. Predictors: (Constant), PMCM, PCM

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients		Collinearity Statistics		
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	1.416	.151		9.398	.000		
	PCM	.495	.056	.575	8.785	.000	.409	2.443
	PMCM	.209	.046	.295	4.501	.000	.409	2.443

a. Dependent Variable: PMSUM

Analysis for the Mediating Effect of Project Manager's Competencies on the Relationship between Company Specific Factors and Project Management Success of Engineers

Effect of Company Specific Factors on Project Management Success

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
					R Square Change	F Change	df1	df2	Sig. Change	F Durbin-Watson
1	.788 ^a	.620	.618	.274249	.620	300.419	1	184	.000	1.449

a. Predictors: (Constant), CSFM

b. Dependent Variable: PMSUM

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22.595	1	22.595	300.419	.000 ^b
	Residual	13.839	184	.075		
	Total	36.435	185			

a. Dependent Variable: PMSUM

b. Predictors: (Constant), CSFM

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients		Collinearity Statistics		
		B	Std. Error	Beta	t	Sig.	Tolerance	VIF
1	(Constant)	1.798	.147		12.198	.000		
	CSFM	.631	.036	.788	17.333	.000	1.000	1.000

a. Dependent Variable: PMSUM

Effect of Company Specific Factors on Project Manager's Competencies

Model Summary^b

Model	R	Adjusted R Square	Std. Error of the Estimate	Change Statistics						
				R Square Change	F Change	df1	df2	Sig. Change	F	Durbin-Watson
1	.768 ^a	.589	.402505	.589	263.934	1	184	.000		1.133

a. Predictors: (Constant), CSFM

b. Dependent Variable: PMCM

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	42.760	1	42.760	263.934	.000 ^b
	Residual	29.810	184	.162		
	Total	72.570	185			

a. Dependent Variable: PMCM

b. Predictors: (Constant), CSFM

Coefficients^a

Model		Unstandardized Coefficients	Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta		Tolerance	VIF
1	(Constant)	.680	.216		3.146	.002	
	CSFM	.868	.053	.768	16.246	.000	1.000

a. Dependent Variable: PMCM

Effect of Company Specific Factors on Project Manager's Competencies on Project Management Success

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				Sig. Change	F	Durbin-Watson
					R Square Change	F Change	df1	df2			
1	.814 ^a	.663	.659	.259075355912934	.663	179.914	2	183	.000	1.352	

a. Predictors: (Constant), PMCM, CSFM

b. Dependent Variable: PMSUM

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24.152	2	12.076	179.914	.000 ^b
	Residual	12.283	183	.067		
	Total	36.435	185			

a. Dependent Variable: PMSUM

b. Predictors: (Constant), PMCM, CSFM

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.642	.143		11.491	.000		
	CSFM	.433	.054	.540	8.063	.000	.411	2.434
	PMCM	.228	.047	.322	4.815	.000	.411	2.434

a. Dependent Variable: PMSUM

Analysis on the Mediating Effect of Project Characteristics on the Relationship between Company Specific Factors and Project Management Success of Engineers

Effect of Company Specific Factors on Project Management Success

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
					R Square Change	F Change	df1	df2	Sig. Change	F Durbin-Watson
1	.788 ^a	.620	.618	.274249994901031	.620	300.419	1	184	.000	1.449

a. Predictors: (Constant), CSFM

b. Dependent Variable: PMSUM

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	22.595	1	22.595	300.419	.000 ^b
	Residual	13.839	184	.075		
	Total	36.435	185			

a. Dependent Variable: PMSUM

b. Predictors: (Constant), CSFM

Coefficients^a

Model		Unstandardized Coefficients	Std. Error	Standardized Coefficients	t	Sig.	Collinearity Statistics	Tolerance	VIF
1	(Constant)	1.798	.147		12.198	.000			
	CSFM	.631	.036	.788	17.333	.000	1.000	1.000	

a. Dependent Variable: PMSUM

Effect of Company Specific Factors on Project Characteristics

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
					R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.848 ^a	.719	.718	.27433 171414 1958	.719	470.967	1	184	.000	1.437

a. Predictors: (Constant), CSFM

b. Dependent Variable: PCM

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	35.444	1	35.444	470.967	.000 ^b
	Residual	13.847	184	.075		
	Total	49.291	185			

a. Dependent Variable: PCM

b. Predictors: (Constant), CSFM

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	.961	.147		6.519	.000		
	CSFM	.791	.036	.848	21.702	.000	1.000	1.000

a. Dependent Variable: PCM

Effect of Company Specific Factors and Project Characteristics on Project Management Success

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
					R Square Change	F Change	df1	df2	Sig. Change	F Durbin-Watson
1	.827 ^a	.684	.681	.250750329004642	.684	198.235	2	183	.000	1.296

a. Predictors: (Constant), PCM, CSFM

b. Dependent Variable: PMSUM

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	24.928	2	12.464	198.235	.000 ^b
	Residual	11.506	183	.063		
	Total	36.435	185			

a. Dependent Variable: PMSUM

b. Predictors: (Constant), PCM, CSFM

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	1.403	.149		9.386	.000		
	CSFM	.307	.063	.383	4.882	.000	.281	3.560
	PCM	.410	.067	.477	6.091	.000	.281	3.560

a. Dependent Variable: PMSUM

Effect of Project Management Success on Project Success

Model Summary^b

Model	R	Adjusted R Square	Std. Error of the Estimate	Change Statistics				Sig. Change	F	Durbin-Watson
				R Square	F Change	df1	df2			
1	.805 ^a	.649	.647	.359103840285149	.649	339.620	1	184	.000	.957

a. Predictors: (Constant), PMSUM

b. Dependent Variable: PSM

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	43.796	1	43.796	339.620	.000 ^b
	Residual	23.728	184	.129		
	Total	67.524	185			

a. Dependent Variable: PSM

b. Predictors: (Constant), PMSUM

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.492	.259		-1.902	.059		
	PMSUM	1.096	.059	.805	18.429	.000	1.000	1.000

a. Dependent Variable: PSM