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The Impact of Engineering Project Management Practices on Organizational Performance in Engineering Organizations: A Field Study of Al-Ewan Engineering Consultancy

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أثر ممارسات إدارة المشاريع الهندسية على الأداء التنظيمي في المؤسسات الهندسية: دراسة ميدانية على شركة الإيوان للاستشارات الهندسية

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Abstract

This study examines the impact of engineering project management practices on organizational performance in engineering organizations, with a particular focus on Al-Ewan Engineering Consultancy. The research aims to identify the extent to which key project management practices—such as project planning, time management, cost control, quality management, risk management, and communication—contribute to improving organizational performance.

To achieve the objectives of the study, a quantitative research approach was adopted using a structured questionnaire distributed to a sample of engineers, project managers, and administrative staff at Al-Ewan Engineering Consultancy. The collected data were analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistical methods, reliability tests, correlation analysis, and linear regression analysis were employed to test the research hypotheses and examine the relationships between the study variables.

The findings reveal a statistically significant positive impact of engineering project management practices on organizational performance. The results indicate that effective planning, efficient control of time and costs, and systematic risk management play a crucial role in enhancing productivity, operational efficiency, and overall organizational effectiveness. Based on these findings, the study provides practical recommendations for engineering organizations seeking to improve their performance through the adoption and development of structured project management practices.

Keywords: Engineering Project Management, Organizational Performance, Project Planning, Cost and Time Control, Risk Management.

الملخص

تهدف هذه الدراسة إلى تحليل أثر ممارسات إدارة المشاريع الهندسية على الأداء التنظيمي في المؤسسات الهندسية، مع التركيز على شركة الإيوان الهندسي للأعمال الهندسية والاستشارية. وتسعى الدراسة إلى التعرف على مدى إسهام ممارسات إدارة المشاريع، مثل تخطيط المشاريع، وإدارة الوقت، وضبط التكاليف، وإدارة الجودة، وإدارة المخاطر، والاتصال، في تحسين الأداء التنظيمي.

اعتمدت الدراسة المنهج الكمي من خلال تصميم استبانة وُزعت على عينة من المهندسين ومديري المشاريع والموظفين الإداريين في شركة الإيوان الهندسي. وتم تحليل البيانات باستخدام برنامجSPSS ، حيث استُخدمت الأساليب الإحصائية الوصفية، واختبارات الثبات، وتحليل الارتباط، وتحليل الانحدار الخطي لاختبار فرضيات الدراسة.

وأظهرت نتائج الدراسة وجود أثر إيجابي ذي دلالة إحصائية لممارسات إدارة المشاريع الهندسية على الأداء التنظيمي، حيث تبين أن التخطيط الفعال، والإدارة الجيدة للوقت والتكاليف، والإدارة المنهجية للمخاطر تسهم بشكل واضح في رفع مستوى الإنتاجية والكفاءة التشغيلية وتحسين الأداء العام للمؤسسة. وبناءً على النتائج، قدمت الدراسة مجموعة من التوصيات العملية التي يمكن أن تساعد المؤسسات الهندسية على تحسين أدائها من خلال تبني وتطوير ممارسات إدارة المشاريع.

الكلمات المفتاحية: إدارة المشاريع الهندسية، الأداء التنظيمي، تخطيط المشاريع، ضبط التكاليف والوقت، إدارة المخاطر.

Introduction

Engineering organizations operate in increasingly complex and dynamic environments characterized by rapid technological change, growing competition, limited resources, and rising stakeholder expectations. In such contexts, projects represent the primary mechanism through which engineering organizations deliver value, implement strategies, and achieve their operational and strategic objectives. Consequently, the effectiveness of project management practices has become a critical determinant of organizational success and sustainability.

Engineering project management encompasses a structured set of practices aimed at planning, executing, monitoring, and controlling projects to ensure that objectives related to time, cost, quality, and scope are achieved. These practices include, but are not limited to, project planning, scheduling, cost management, quality assurance, risk management, and communication management. When applied systematically, engineering project management practices provide organizations with the ability to optimize resource utilization, minimize uncertainties, enhance coordination among project stakeholders, and improve decision-making processes.

Organizational performance, on the other hand, reflects the extent to which an organization achieves its goals efficiently and effectively. In engineering organizations, performance is commonly manifested through indicators such as productivity, operational efficiency, project success rates, adherence to schedules and budgets, service quality, and overall organizational effectiveness. Improving organizational performance remains a central concern for engineering firms, particularly in developing and transitional economies where institutional challenges and resource constraints are often pronounced.

Despite the recognized importance of engineering project management, variations in the level of adoption and maturity of project management practices persist across engineering

organizations. In many cases, projects are managed based on experience-driven or ad hoc approaches rather than standardized and integrated management frameworks. This situation raises important questions regarding the extent to which engineering project management practices contribute to enhancing organizational performance in real-world organizational settings.

Within this context, this study seeks to examine the impact of engineering project management practices on organizational performance in engineering organizations, with a specific focus on Al-Ewan Engineering Consultancy. By adopting a quantitative approach and employing statistical analysis, this research aims to provide empirical evidence on the relationship between project management practices and organizational performance. The findings of this study are expected to contribute to both academic knowledge and practical decision-making by offering insights that can support engineering organizations in improving their management practices and overall performance.

Problem Statement

Engineering organizations increasingly rely on projects as a primary means to achieve strategic objectives, deliver services, and maintain competitiveness. Despite the growing recognition of engineering project management as a critical managerial function, many engineering organizations continue to experience challenges related to delays, cost overruns, quality issues, and inefficient use of resources. These challenges often reflect weaknesses in the application of systematic project management practices rather than technical limitations.

In practice, the adoption and implementation of engineering project management practices vary significantly among engineering organizations. In some cases, project management processes are applied inconsistently or informally, relying heavily on individual experience rather than standardized methods and integrated management frameworks. This situation raises concerns regarding the extent to which such practices effectively contribute to improving organizational performance.

In the context of engineering organizations operating in developing and transitional environments, these challenges are further intensified by organizational constraints, limited managerial capabilities, and the absence of empirical evidence that clearly demonstrates the impact of project management practices on organizational performance. As a result, decision-makers may lack reliable information to support the systematic development of project management practices within their organizations.

Research Questions

To what extent are engineering project management practices applied at Al-Ewan Engineering Consultancy?

What is the level of organizational performance at Al-Ewan Engineering Consultancy?

Is there a statistically significant relationship between engineering project management practices and organizational performance at Al-Ewan Engineering Consultancy?

Which engineering project management practices have the most significant impact on organizational performance?

Do engineering project management practices significantly contribute to improving organizational performance at Al-Ewan Engineering Consultancy?

Research Objectives

This study aims to achieve the following objectives:

To assess the level of application of engineering project management practices at Al-Ewan Engineering Consultancy.
To evaluate the level of organizational performance at Al-Ewan Engineering Consultancy.
To examine the relationship between engineering project management practices and organizational performance in engineering organizations.
To determine the impact of engineering project management practices on organizational performance at Al-Ewan Engineering Consultancy.
To identify the most influential engineering project management practices that contribute to improving organizational performance.

Research Hypotheses

Main Hypothesis

H1: Engineering project management practices have a statistically significant impact on organizational performance at Al-Ewan Engineering Consultancy.

Sub-Hypotheses

H1a: Project planning practices have a statistically significant impact on organizational performance.
H1b: Time management practices have a statistically significant impact on organizational performance.
H1c: Cost management practices have a statistically significant impact on organizational performance.
H1d: Quality management practices have a statistically significant impact on organizational performance.
H1e: Risk management practices have a statistically significant impact on organizational performance.
H1f: Communication management practices have a statistically significant impact on organizational performance.

Operational Definitions

1. Engineering Project Management Practices (Independent Variable)

Engineering Project Management Practices are operationally defined in this study as a structured set of managerial activities, methods, and procedures applied throughout the project life cycle to ensure the effective planning, execution, monitoring, and control of engineering projects. These practices aim to achieve project objectives related to time, cost, quality, and scope while optimizing organizational resources and enhancing coordination among stakeholders.

In this research, engineering project management practices are measured quantitatively through respondents' perceptions using a structured questionnaire based on a five-point Likert scale. The construct is operationalized through six interrelated dimensions that collectively represent the core functions of project management in engineering organizations.

a. Project Planning

Project planning is operationally defined as the degree to which project objectives, scope, activities, schedules, resource requirements, responsibilities, and performance criteria are clearly defined, documented, and communicated prior to and during project execution. It reflects the organization's ability to establish realistic plans that guide project implementation and provide a foundation for monitoring and control.

b. Time Management

Time management is operationally defined as the organization's capability to estimate activity durations, develop project schedules, allocate time resources efficiently, and monitor progress to ensure that engineering projects are completed within predefined timeframes. It also reflects the organization's responsiveness to schedule deviations and its ability to implement corrective actions when delays occur.

c. Cost Management

Cost management is operationally defined as the effectiveness of the organization in estimating project costs, preparing budgets, monitoring expenditures, and controlling financial resources throughout the project life cycle. This dimension reflects the organization's ability to prevent cost overruns and ensure that projects are completed within approved financial limits.

d. Quality Management

Quality management is operationally defined as the extent to which quality standards, procedures, and control mechanisms are applied to ensure that project deliverables meet technical specifications, regulatory requirements, and stakeholder expectations. It reflects the organization's commitment to continuous improvement and consistency in project outputs.

e. Risk Management

Risk management is operationally defined as the degree to which potential risks affecting project objectives are systematically identified, analyzed, evaluated, mitigated, and monitored. This dimension reflects the organization's proactive approach to uncertainty and its ability to reduce negative impacts on project performance.

f. Communication Management

Communication management is operationally defined as the effectiveness of information exchange, reporting systems, coordination mechanisms, and feedback processes among project stakeholders. It reflects the clarity, timeliness, and adequacy of communication that supports decision-making and collaboration within engineering projects.

2. Organizational Performance (Dependent Variable)

Organizational performance is operationally defined as the overall level of efficiency and effectiveness with which an engineering organization achieves its strategic and operational objectives. In this study, organizational performance is measured through employees' perceptions using indicators related to productivity, operational efficiency, adherence to project schedules and budgets, quality of services delivered, and overall organizational effectiveness. The construct reflects the organization's ability to convert inputs into outputs effectively, achieve consistent project success, and sustain competitive performance in a dynamic engineering environment.

Study Population

The study population consists of all employees of **Al-Ewan Engineering Consultancy**, including engineers, project managers, and administrative staff involved in the implementation of engineering projects.

Study Sample

The study adopts a **simple random sampling technique**, as it is appropriate for descriptive–analytical studies that aim to measure employees' perceptions and opinions regarding engineering project management practices and organizational performance.

Sample Size

The sample size of the study consists of **80 respondents** selected from Al-Ewan Engineering Consultancy.

Data Collection Method

Data were collected using a **structured questionnaire** distributed to the study sample. The questionnaire was based on a **five-point Likert scale** to measure the study variables.

Previous Studies

Title: *Influence of Project Management on Organizational Efficiency and Effectiveness: An Empirical Study on the UAE Private Sector***Year of Publication:** 2019 **Country:** United Arab Emirates

This study aimed to examine the influence of project management practices on organizational efficiency and effectiveness within the private sector in the United Arab Emirates, with a particular focus on engineering-oriented organizations. The primary objective was to investigate whether structured project management contributes to improved organizational outcomes by enhancing coordination, efficiency, and effectiveness. The study adopted a quantitative research approach, utilizing a structured questionnaire as the main data collection instrument. Statistical analysis was conducted using SPSS and Partial Least Squares Structural Equation Modeling (PLS-SEM). The study sample consisted of 220 valid responses collected from employees working in engineering and project-based private organizations. The findings revealed a statistically significant and positive relationship between project management practices and both organizational efficiency and effectiveness. The results confirmed that organizations with well-developed project management systems tend to achieve higher levels of performance. The study recommended strengthening the institutional adoption of project management practices, investing in professional training for project managers, and aligning project management functions with organizational strategic objectives.

Title: *Effect of Project Management on the Performance of Selected Construction Firms in Nigeria* **Year of Publication:** 2019**Country:** Nigeria

This study sought to assess the effect of project management practices on the performance of selected construction firms in Nigeria. The main objective was to determine how the application of project management principles influences technical and organizational performance in construction projects. A descriptive-analytical research design was employed, and data were collected using a questionnaire distributed among employees involved in project execution and management. The collected data were analyzed using descriptive statistics, Pearson correlation, and linear regression analysis. The study sample comprised 272 respondents drawn from three major construction firms. The results indicated that project management practices were actively applied within the studied firms and that these practices had a positive and statistically significant impact on organizational and project performance. The study concluded that effective project management enhances technical success and operational efficiency. It recommended adopting more formalized project management methodologies, with particular emphasis on quality management, communication, and risk management to further improve organizational performance.

Title: *Organizational Culture and Its Implications for Project Management in an Engineering Consulting Firm* **Year of Publication:** 2025 **Country:** Colombia

This study aimed to explore the role of organizational culture and its implications for project management practices within an engineering consulting firm. The objective was to analyze how prevailing cultural patterns influence the effectiveness of project management processes. The study employed a mixed-methods approach, combining quantitative and qualitative techniques. Quantitative data were collected using the Organizational Culture Assessment

Instrument (OCAI) based on the Competing Values Framework, while qualitative data were obtained through semi-structured interviews. The sample included employees from different organizational levels within an engineering consultancy. The findings revealed that market culture was the dominant cultural type, characterized by a strong focus on results and client satisfaction. However, respondents expressed a preference for strengthening clan and adhocracy cultures to promote teamwork and innovation. The study demonstrated that organizational culture significantly affects project management effectiveness, particularly in areas related to communication, collaboration, and quality outcomes. It recommended fostering a supportive organizational culture that encourages participation, knowledge sharing, and innovation to enhance project and organizational performance.

Title: *The Impact of Project Management Offices on Organizational Performance: A Comprehensive Literature Review* **Year of Publication:** 2024 **Country:** International (Indonesia-based study)

This study aimed to provide a comprehensive review of existing literature examining the impact of Project Management Offices (PMOs) on organizational performance across various sectors. The objective was to identify key performance indicators influenced by PMOs and to analyze differences across technical and non-technical industries. The study adopted a systematic literature review methodology, analyzing a wide range of empirical studies using the Competing Values Framework. The review covered multiple dimensions of organizational performance, including efficiency, effectiveness, knowledge management, and strategic alignment. The findings indicated that PMOs play a crucial role in enhancing organizational performance by standardizing methodologies, improving coordination, and supporting knowledge transfer. The study also highlighted sectoral differences, noting that technology-intensive organizations place greater emphasis on knowledge and innovation, while other sectors focus more on process efficiency. The study recommended adapting PMO structures to organizational context and developing dynamic performance measurement frameworks to maximize their impact on organizational performance.

Title: *Impact of the Core Functions of Project Management on Project Performance: Empirical Analysis in an Emerging Economy* **Year of Publication:** 2022 **Country:** Colombia.

This study aimed to empirically investigate the impact of the core functions of project management on project performance in the context of an emerging economy. The research focused on identifying how essential project management functions jointly contribute to performance outcomes rather than examining isolated effects. A cross-sectional explanatory research design was adopted, and data were collected from project managers working in Colombian organizations. Structural Equation Modeling (SEM) was employed as the primary statistical technique to analyze the relationships among variables. The study sample consisted of 257 project managers selected from various project-based organizations. The findings demonstrated a significant and positive impact of the core project management functions on project performance. In addition, the results revealed indirect effects of project team management and risk management on project performance through stakeholder interaction management. The study concluded that effective alignment among core project management functions enhances overall project success. It recommended that organizations in emerging economies focus on strengthening core project management capabilities, particularly team management and stakeholder engagement, to improve project and organizational performance.

Title: *The Impact of Project Management on Business Performance of Small and Medium Enterprises in the UAE* **Year of Publication:** 2021 **Country:** United Arab Emirates

This study examined the impact of project management practices on the business performance of small and medium enterprises operating in the United Arab Emirates. The objective was to assess how structured project management contributes to organizational growth, profitability, and innovation. The study employed a quantitative research approach using a survey questionnaire distributed to managers and employees in SMEs. Statistical analysis was conducted using SPSS, incorporating descriptive statistics, correlation analysis, and regression analysis. The sample included responses from employees across multiple SMEs in different sectors. The results indicated that project management practices, particularly time management, cost management, quality management, and communication management, have a statistically significant positive effect on SME business performance. The study concluded that effective project management enhances organizational competitiveness and operational efficiency. It recommended that SMEs adopt formal project management frameworks and invest in capacity building to improve long-term business performance.

Title: *The Impact of Project Management Offices on Organizational Performance: A Comparative Review of IT and Non-IT Sectors* **Year of Publication:** 2024 **Country:** International Study

This study aimed to compare the impact of Project Management Offices (PMOs) on organizational performance across IT and non-IT sectors. The research adopted a systematic literature review methodology, analyzing 31 peer-reviewed articles published between 2013 and 2023. The Competing Values Framework was used to categorize organizational performance dimensions. The findings indicated that PMOs significantly contribute to improving organizational performance by standardizing project management practices, enhancing coordination, and supporting knowledge transfer. The study also identified sectoral differences, showing that IT organizations emphasize technological capability and expertise, while non-IT organizations focus more on human relations, centralized support, and process efficiency. The study concluded that PMOs play a strategic role in improving organizational performance when tailored to sector-specific needs. It recommended customizing PMO structures according to organizational context and adopting dynamic performance evaluation mechanisms.

Title: *Organizational Culture and Its Influence on Project Management Effectiveness in Engineering Consulting Firms* **Year of Publication:** 2025 **Country:** Colombia

This study explored the influence of organizational culture on project management effectiveness within an engineering consulting firm. The primary objective was to understand how different cultural dimensions shape project execution and management outcomes. A mixed-methods approach was adopted, combining quantitative data collected through the Organizational Culture Assessment Instrument (OCAI) and qualitative data obtained from open-ended survey responses. The study sample included employees from various organizational levels within an engineering consultancy. The findings revealed that market culture dominated the organizational environment, emphasizing efficiency and results orientation. However, employees expressed a preference for stronger clan and adhocracy cultures to enhance collaboration and innovation. The study demonstrated that organizational culture significantly affects communication, teamwork, and project quality. It recommended promoting a balanced cultural profile that integrates performance orientation with collaboration and adaptability to enhance project and organizational performance.

Title: *Effect of Project Management Practices on Organizational Performance in Construction Firms* **Year of Publication:** 2019 **Country:** Nigeria

This study investigated the effect of project management practices on organizational performance within construction firms. The research aimed to determine the strength and nature of the relationship between project management practices and organizational performance indicators. A quantitative research design was adopted, and data were collected using structured questionnaires. Statistical analysis included Pearson correlation and regression analysis. The study sample consisted of 260 respondents drawn from construction organizations. The results revealed a strong positive relationship between project management practices and organizational performance, with project management practices explaining a substantial proportion of the variance in organizational performance. The study concluded that improved project management practices lead to enhanced organizational effectiveness and efficiency. It recommended strengthening formal project management processes and enhancing managerial competencies to sustain performance improvements.

Title: *Project Management Practices and Sustainability-Oriented Performance in Construction Projects* **Year of Publication:** 2018 **Country:** International

This study examined the role of project management practices in supporting sustainability-oriented performance in construction projects. The research focused on integrating economic, environmental, and social performance dimensions within project evaluation frameworks. A quantitative analytical approach was employed, incorporating project performance indicators related to cost, time, quality, safety, and sustainability. The study highlighted that effective project management practices contribute significantly to improved project performance and sustainability outcomes. The findings emphasized that sustainability-oriented project management enhances long-term organizational value and stakeholder satisfaction. The study recommended incorporating sustainability criteria into project management frameworks and decision-making processes to improve organizational and project performance.

Literature Review

Strategic Planning of Engineering Projects and Its Role in Reducing Uncertainty

Strategic planning of engineering projects is a critical managerial approach adopted by engineering organizations to address complex and uncertain working environments. Engineering projects are often influenced by multiple factors such as technological changes, cost fluctuations, time pressures, and the involvement of multiple stakeholders. As a result, strategic planning plays a vital role in reducing uncertainty and enhancing project predictability.

Strategic planning involves defining a clear project vision, setting long-term and short-term objectives, analyzing internal and external environments, and anticipating potential risks while developing alternative response strategies. Through this process, organizations can proactively identify challenges before they escalate into critical problems. Moreover, strategic planning ensures alignment between project objectives and organizational goals, which contributes to improved coordination, more effective decision-making, and enhanced organizational performance.

2. Time Management in Engineering Projects as a Critical Factor for Execution Efficiency

Time management represents one of the most challenging aspects of engineering project management due to its direct interaction with other project constraints such as cost, quality, and scope. In engineering management, time is considered a strategic resource that must be carefully planned and controlled to ensure successful project execution.

Effective time management includes defining project activities, sequencing tasks, estimating durations, developing realistic schedules, monitoring progress, and implementing corrective

actions when deviations occur. Proper management of time contributes to minimizing delays, improving coordination among project teams, and enhancing execution discipline within the organization. Conversely, weak time management often leads to cascading delays, increased costs, and reduced organizational performance, highlighting its critical role in engineering project success.

3. Financial Governance of Engineering Projects and Its Impact on Organizational Sustainability

Financial governance in engineering projects refers to the set of policies, procedures, and control mechanisms designed to ensure the efficient and transparent use of financial resources. Given the large-scale investments and extended timelines associated with engineering projects, financial governance is a fundamental requirement for maintaining organizational stability and sustainability.

Effective financial governance supports accurate cost estimation, continuous monitoring of expenditures, and strict control of budgets. It also enhances transparency and accountability, which strengthens trust between management and stakeholders. From an organizational perspective, sound financial governance reduces financial risks, limits budget overruns, and supports informed decision-making, thereby contributing to long-term organizational sustainability and improved performance.

4. Quality Culture in Engineering Organizations and Its Role in Achieving Organizational Excellence

Quality culture represents an intangible yet highly influential factor affecting the performance of engineering organizations. It extends beyond the formal application of standards and procedures to encompass shared values, attitudes, and behaviors related to quality among employees at all organizational levels.

A strong quality culture promotes adherence to technical standards, encourages continuous improvement, supports innovation, and reduces errors and rework. Engineering organizations that successfully embed quality culture are better positioned to achieve higher levels of client satisfaction, enhance their reputation, and sustain superior organizational performance. From an engineering management perspective, quality culture is viewed as a strategic asset that supports organizational excellence and long-term competitive advantage.

Data Analysis

The data collected for this study were analyzed using the Statistical Package for the Social Sciences (SPSS). The analysis process was conducted in several systematic stages to ensure accuracy and reliability of the results, in line with the study objectives and research hypotheses.

First, the collected questionnaires were screened and coded to ensure completeness and suitability for statistical analysis. Incomplete or invalid responses were excluded, resulting in a final sample of 80 valid questionnaires used for analysis. Descriptive statistics, including frequencies, percentages, means, and standard deviations, were employed to describe respondents' perceptions of engineering project management practices and organizational performance.

Second, reliability analysis was conducted to assess the internal consistency of the measurement scales used in the questionnaire. Cronbach's alpha coefficient was calculated for each construct, including project planning, time management, cost management, quality management, and organizational performance. The reliability results indicated acceptable

levels of internal consistency, confirming the suitability of the measurement instruments for further analysis.

Table 1. Shows the clarity of project objectives before implementation

Statement	Agree	Neutral	Disagree	Sample Mean	Standard Deviation
Project objectives are clearly defined before project implementation begins.	53	23	4	2.61	0.58

Based on the descriptive statistical analysis of the statement *"Project objectives are clearly defined before project implementation begins"*, the results indicate a generally positive perception among employees of Al-Ewan Engineering Consultancy regarding the clarity of project objectives prior to execution.

The distribution of responses shows that the majority of respondents (53 out of 80) expressed agreement with the statement, while a smaller proportion (23 respondents) remained neutral and only a limited number (4 respondents) disagreed. This pattern suggests that clear definition of project objectives is a commonly adopted practice within the organization, though there remains a segment of employees who perceive room for further clarification or consistency in this practice.

The sample mean value of **2.61** reflects a **moderate level tending toward agreement**, indicating that project objectives are generally defined in advance but not at an optimal level across all projects. The relatively low standard deviation of **0.58** demonstrates a high degree of consistency in respondents' perceptions, implying that views on this issue are largely homogeneous among employees.

From an organizational and managerial perspective, the clarity of project objectives before implementation is a fundamental element of effective project planning. Clear objectives contribute to improved coordination among project team members, better allocation of resources, enhanced monitoring and control, and reduced ambiguity during execution. The findings suggest that Al-Ewan Engineering Consultancy possesses a reasonably structured approach to defining project objectives, which can positively influence project performance and, consequently, organizational performance.

However, the presence of neutral and dissenting responses highlights the need for further strengthening formal planning procedures, particularly in ensuring that project objectives are clearly communicated and consistently documented across all projects. Enhancing this practice may lead to higher levels of employee alignment, reduced project-related risks, and improved overall project outcomes., the results support the importance of project objective clarity as a core component of engineering project management practices and confirm its potential contribution to improving organizational performance within Al-Ewan Engineering Consultancy.

Table 2. Shows the clarity of project scope and requirements documentation

Statement	Agree	Neutral	Disagree	Sample Mean	Standard Deviation
The project scope and requirements are clearly documented and understood by all employees.	50	25	5	2.55	0.60

The results presented in Table 2, which examine the statement *"The project scope and requirements are clearly documented and understood by all employees"*, indicate a generally positive but not fully optimal level of agreement among employees of Al-Ewan Engineering Consultancy regarding this aspect of project planning.

The distribution of responses shows that a majority of respondents (50 out of 80) agreed that project scope and requirements are clearly documented and understood, while a considerable number of respondents (25) selected the neutral option. Only a small proportion of the sample (5 respondents) expressed disagreement. This distribution suggests that documentation and communication of project scope and requirements are largely practiced within the organization; however, they may not be consistently clear or sufficiently detailed across all projects.

The calculated sample mean of **2.55** reflects a **moderate level of agreement**, slightly lower than the mean observed for the clarity of project objectives. This finding implies that, although project scope and requirements are generally documented, there may be variations in the level of clarity, completeness, or accessibility of such documentation for all employees involved in project execution. The standard deviation value of **0.60** indicates a relatively low dispersion of responses, suggesting that employees' perceptions are fairly consistent across the organization.

From a project management perspective, clear documentation and shared understanding of project scope and requirements are critical for preventing scope creep, minimizing misunderstandings, and ensuring alignment between project teams and management. The presence of a substantial neutral response rate highlights the possibility that some employees may not be fully engaged in, or adequately informed about, scope definition processes. This may affect coordination, task execution, and overall project efficiency.

Table 3. Shows the preparation of a detailed project plan before execution

Statement	Agree	Neutral	Disagree	Sample Mean	Standard Deviation
A detailed plan for project tasks and activities is prepared before project execution.	48	26	6	2.52	0.62

The findings presented in Table 3 assess employees' perceptions regarding the preparation of a detailed plan for project tasks and activities prior to project execution. The results reveal a generally positive orientation toward structured planning practices within Al-Ewan Engineering Consultancy, though with indications that such practices are not uniformly applied across all projects.

The response distribution shows that **48 out of 80 respondents** agreed that a detailed project plan is prepared before execution, while **26 respondents** reported a neutral stance and **6 respondents** expressed disagreement. This pattern suggests that detailed task and activity planning is commonly practiced; however, a noticeable proportion of employees either perceive variability in planning quality or are insufficiently aware of the planning processes.

The sample mean of **2.52** indicates a **moderate level of agreement**, slightly lower than the means observed for clarity of objectives and documentation of scope and requirements. This result implies that while planning exists, its depth, consistency, or formalization may vary from one project to another. The standard deviation of **0.62** reflects a relatively low level of dispersion, indicating that respondents' views are generally consistent across the organization.

From a project management standpoint, preparing a detailed plan for tasks and activities is essential for effective scheduling, resource allocation, coordination, and performance monitoring. Insufficiently detailed plans may lead to inefficiencies, role ambiguity, and execution delays. The presence of neutral and disagreeing responses suggests an opportunity to further strengthen planning procedures by standardizing planning templates, improving cross-functional involvement in planning, and ensuring wider communication of project plans , the results indicate that Al-Ewan Engineering Consultancy demonstrates an acceptable but improvable level of practice in preparing detailed project plans prior to execution. Enhancing the consistency and comprehensiveness of task and activity planning is likely to contribute positively to project execution efficiency and overall organizational performance.

Table 4. Shows the realism of project scheduling in relation to project nature

Statement	Agree	Neutral	Disagree	Sample Mean	Standard Deviation
A realistic project schedule is developed in line with the nature of the project.	47	24	9	2.48	0.65

Table 4 presents employees' perceptions regarding the extent to which project schedules are developed realistically in accordance with the nature of engineering projects at Al-Ewan Engineering Consultancy. The results indicate a generally moderate level of agreement, with noticeable variation in respondents' views.

The distribution of responses shows that **47 respondents** agreed that project schedules are realistic, while **24 respondents** selected the neutral option and **9 respondents** disagreed. This distribution suggests that although realistic scheduling is practiced in many cases, it is not consistently achieved across all projects. The relatively higher number of neutral and disagreeing responses compared to previous project planning items indicates potential challenges in aligning schedules with actual project requirements and constraints.

The sample mean of **2.48** reflects a **moderate level of agreement**, slightly lower than the means observed for earlier project planning dimensions. This finding implies that project schedules may sometimes be optimistic or insufficiently aligned with project complexity, resource availability, or external constraints. The standard deviation of **0.65** indicates a moderate level of dispersion, suggesting some differences in perceptions among employees based on their roles or project experiences.

From a project management perspective, developing realistic schedules is essential for effective time control, coordination of activities, and timely project delivery. Unrealistic schedules may lead to frequent delays, increased pressure on project teams, and reduced credibility of planning processes. The findings suggest that Al-Ewan Engineering Consultancy may benefit from enhancing schedule development practices by incorporating more accurate time estimates, historical project data, and stakeholder input during the planning phase , the results indicate that while realistic scheduling is applied to a reasonable extent, there is a clear opportunity for improvement. Strengthening schedule realism is likely to improve project execution efficiency, reduce delays, and contribute positively to overall organizational performance.

Table 5. Shows the regular monitoring of project progress to meet deadlines

Statement	Agree	Neutral	Disagree	Sample Mean	Standard Deviation
Project progress is regularly monitored to ensure adherence to planned deadlines.	52	20	8	2.58	0.61

Table 5 examines employees' perceptions regarding the regular monitoring of project progress to ensure compliance with planned deadlines at Al-Ewan Engineering Consultancy. The results indicate a generally positive perception of progress monitoring practices, with some variation among respondents.

The response distribution shows that **52 out of 80 respondents** agreed that project progress is regularly monitored, while **20 respondents** reported a neutral position and **8 respondents** disagreed. This pattern suggests that monitoring mechanisms are widely applied within the organization; however, their consistency or effectiveness may vary across different projects or departments.

The sample mean of **2.58** reflects a **moderate level of agreement**, indicating that progress monitoring is practiced to a reasonable extent but may not be fully systematic in all cases. The relatively low standard deviation of **0.61** suggests a fair level of consensus among respondents regarding this practice.

From a project management perspective, regular monitoring of project progress is essential for early detection of deviations, timely decision-making, and effective control of project schedules. The findings imply that Al-Ewan Engineering Consultancy has established monitoring practices that support deadline adherence, yet there remains room for improvement in standardizing monitoring tools, reporting frequency, and follow-up procedures.

the results indicate that regular monitoring of project progress is an established practice within the organization and contributes positively to time management. Enhancing the consistency and rigor of monitoring processes is likely to further improve schedule control and overall project performance.

Table 6. Shows the prompt implementation of corrective actions when project delays occur

Statement	Agree	Neutral	Disagree	Sample Mean	Standard Deviation
Prompt corrective actions are taken when delays occur during project implementation.	45	26	9	2.46	0.66

Table 6 presents employees' perceptions regarding the prompt implementation of corrective actions when delays occur during project execution at Al-Ewan Engineering Consultancy. The findings indicate a moderate level of agreement, suggesting that corrective actions are taken in many cases, but not consistently or promptly across all projects.

The distribution of responses shows that **45 respondents** agreed that corrective actions are implemented when delays arise, while **26 respondents** selected the neutral option and **9 respondents** disagreed. This distribution reflects that, although corrective measures are generally applied, a noticeable proportion of employees perceive delays in response or variability in the effectiveness of such actions.

The sample mean of **2.46** indicates a **moderate tendency toward agreement**, which is lower than the mean values observed for other time management practices. This suggests that while

monitoring may be in place, translating monitoring outcomes into timely corrective decisions remains a challenge in certain situations. The standard deviation of **0.66** indicates a moderate level of dispersion, implying some differences in experiences or perceptions among respondents.

From a project management perspective, the timely implementation of corrective actions is critical for minimizing schedule overruns, controlling costs, and maintaining project momentum. Delays in corrective responses can compound project risks and negatively affect overall performance. The results suggest that Al-Ewan Engineering Consultancy may benefit from strengthening escalation procedures, clarifying decision-making authority, and establishing predefined corrective action plans to address delays more effectively ,the findings indicate that while corrective actions are taken when project delays occur, there is room for improvement in ensuring their promptness and consistency. Enhancing this aspect of time management is likely to contribute to improved project control, reduced delays, and stronger organizational performance.

Table 7. Shows the accuracy of project cost estimation before implementation

Statement	Agree	Neutral	Disagree	Sample Mean	Standard Deviation
Project costs are accurately estimated before implementation begins.	49	22	9	2.54	0.64

Table 7 examines respondents' perceptions regarding the accuracy of project cost estimation prior to project implementation at Al-Ewan Engineering Consultancy. The results indicate a generally moderate level of agreement, suggesting that cost estimation practices are applied in many cases, though not uniformly across all projects.

The distribution of responses shows that **49 out of 80 respondents** agreed that project costs are accurately estimated before implementation, while **22 respondents** selected the neutral option and **9 respondents** disagreed. This pattern suggests that although cost estimation is an established practice within the organization, a considerable number of employees perceive variability in estimation accuracy or are uncertain about the robustness of cost estimation procedures.

The sample mean of **2.54** reflects a **moderate tendency toward agreement**, indicating that cost estimates are reasonably accurate but may not consistently reflect actual project requirements, risks, or uncertainties. The standard deviation of **0.64** indicates a moderate level of dispersion, implying some differences in respondents' experiences across projects or functional roles.

From a project management perspective, accurate cost estimation is a critical element of effective financial planning and control. Inaccurate estimates can lead to budget overruns, inefficient resource allocation, and increased financial risk. The findings suggest that Al-Ewan Engineering Consultancy would benefit from strengthening cost estimation methodologies by incorporating historical project data, risk contingencies, and cross-functional input during the budgeting phase, the results indicate that while project cost estimation is generally practiced with an acceptable level of accuracy, there remains scope for improvement. Enhancing estimation accuracy is likely to support better cost control during project execution and contribute positively to overall organizational performance.

Table 8. Shows the continuous monitoring of project costs during implementation

Statement	Agree	Neutral	Disagree	Sample Mean	Standard Deviation
Project costs are continuously monitored during project execution.	51	21	8	2.57	0.62

Table 8 presents respondents' perceptions regarding the continuous monitoring of project costs during project execution at Al-Ewan Engineering Consultancy. The findings indicate a generally positive orientation toward cost monitoring practices, with a moderate-to-high level of agreement among employees.

The distribution of responses shows that **51 respondents** agreed that project costs are continuously monitored, while **21 respondents** expressed a neutral view and **8 respondents** disagreed. This distribution suggests that cost monitoring mechanisms are widely implemented within the organization, although they may not be applied with the same level of rigor or frequency across all projects.

The sample mean of **2.57** reflects a **moderate level tending toward agreement**, indicating that cost monitoring is an established practice but may still lack full consistency or integration in certain project contexts. The standard deviation of **0.62** demonstrates a relatively low dispersion of responses, suggesting a reasonable degree of consensus among employees regarding this practice.

From a project management and financial control perspective, continuous monitoring of project costs is essential for detecting deviations early, enabling timely corrective actions, and preventing budget overruns. The results imply that Al-Ewan Engineering Consultancy has a functional cost monitoring framework; however, further enhancement may be achieved by standardizing cost tracking tools, improving the frequency and transparency of financial reporting, and strengthening coordination between project teams and financial management units, the findings indicate that continuous monitoring of project costs is practiced to a satisfactory extent within the organization. Strengthening this practice is likely to enhance cost control effectiveness, support informed decision-making, and contribute positively to overall project and organizational performance.

Table 9. Shows the role of financial control procedures in reducing budget overruns

Statement	Agree	Neutral	Disagree	Sample Mean	Standard Deviation
Financial control procedures help reduce budget overruns.	54	18	8	2.63	0.60

Table 9 examines employees' perceptions regarding the effectiveness of financial control procedures in reducing budget overruns at Al-Ewan Engineering Consultancy. The results indicate a relatively positive perception of financial control practices, with a clear tendency toward agreement among respondents.

The distribution of responses shows that **54 out of 80 respondents** agreed that financial control procedures contribute to reducing budget overruns, while **18 respondents** selected the neutral option and **8 respondents** disagreed. This distribution suggests that financial controls are generally perceived as effective, although a minority of employees remain uncertain or experience limitations in their application.

The sample mean of **2.63** reflects a **moderate-to-high level of agreement**, representing one of the higher mean values within the cost management dimension. This finding implies that financial control mechanisms—such as budget tracking, approval processes, and expenditure monitoring—play an important role in limiting cost deviations during project execution. The standard deviation of **0.60** indicates a relatively low dispersion, suggesting a reasonable level of consistency in respondents' views.

From a project management and financial governance perspective, effective financial control procedures are essential for ensuring budget discipline, accountability, and transparency. The results indicate that Al-Ewan Engineering Consultancy has established financial control practices that support cost containment and reduce the likelihood of budget overruns. Nevertheless, the presence of neutral and dissenting responses suggests that these procedures could be further strengthened by enhancing staff awareness, improving integration between project and finance teams, and ensuring timely financial reporting , the findings demonstrate that financial control procedures are perceived as a valuable tool in managing project costs and reducing budget overruns. Strengthening and standardizing these controls is likely to further enhance cost management effectiveness and contribute positively to overall organizational performance.

Table 10. Shows adherence to approved quality standards during engineering project execution

Statement	Agree	Neutral	Disagree	Sample Mean	Standard Deviation
Approved quality standards are adhered to during the execution of engineering projects.	55	17	8	2.66	0.59

Table 10 presents respondents' perceptions regarding adherence to approved quality standards during the execution of engineering projects at Al-Ewan Engineering Consultancy. The results indicate a relatively strong positive perception of quality management practices, with a clear tendency toward agreement among employees.

The distribution of responses shows that **55 out of 80 respondents** agreed that approved quality standards are adhered to during project execution, while **17 respondents** selected the neutral option and **8 respondents** disagreed. This distribution suggests that quality standards are generally implemented across projects, although some variability in adherence or awareness may still exist.

The sample mean of **2.66** reflects a **moderate-to-high level of agreement**, representing one of the higher mean values among the examined project management practices. This finding implies that quality considerations are given significant attention during project execution and are embedded within operational processes. The relatively low standard deviation of **0.59** indicates a high level of consistency in respondents' perceptions.

From a quality management perspective, adherence to established standards is essential for ensuring that project deliverables meet technical specifications, regulatory requirements, and client expectations. The findings suggest that Al-Ewan Engineering Consultancy demonstrates a structured approach to quality compliance, which can enhance project outcomes, client satisfaction, and organizational credibility.

, the results indicate that adherence to approved quality standards is a well-established practice within the organization. Further strengthening quality management—through continuous

training, audits, and feedback mechanisms—is likely to reinforce consistent compliance and contribute positively to sustained organizational performance.

Table 11. Shows periodic inspection of the quality of completed work

Statement	Agree	Neutral	Disagree	Sample Mean	Standard Deviation
The quality of completed work is periodically inspected.	53	19	8	2.61	0.60

Table 11 examines employees' perceptions regarding the periodic inspection of the quality of completed work at Al-Ewan Engineering Consultancy. The findings indicate a generally positive perception of quality inspection practices, with a moderate tendency toward agreement among respondents.

The response distribution shows that **53 out of 80 respondents** agreed that the quality of completed work is periodically inspected, while **19 respondents** reported a neutral position and **8 respondents** disagreed. This distribution suggests that quality inspections are commonly conducted; however, they may not be uniformly applied across all projects or stages of execution.

The sample mean of **2.61** reflects a **moderate level tending toward agreement**, indicating that periodic quality inspections are practiced to a reasonable extent but may vary in frequency or rigor. The standard deviation of **0.60** indicates a relatively low dispersion of responses, suggesting a consistent perception among employees regarding this practice.

From a quality management perspective, periodic inspection of completed work is a critical mechanism for ensuring compliance with quality standards, detecting defects early, and supporting continuous improvement. The findings imply that Al-Ewan Engineering Consultancy has established inspection practices that contribute to maintaining acceptable quality levels. Nevertheless, the presence of neutral and dissenting responses highlights the potential need for clearer inspection schedules, standardized checklists, and more transparent reporting of inspection outcomes , the results indicate that periodic inspection of work quality is an established practice within the organization, contributing positively to quality assurance. Enhancing the consistency and formalization of inspection procedures is likely to further strengthen quality management and support improved project and organizational performance.

Table 12. Shows continuous improvement of project output quality

Statement	Agree	Neutral	Disagree	Sample Mean	Standard Deviation
Continuous efforts are made to improve the quality of project outputs.	56	16	8	2.68	0.58

Table 12 explores employees' perceptions regarding the extent to which continuous efforts are made to improve the quality of project outputs at Al-Ewan Engineering Consultancy. The results demonstrate a strong positive orientation toward continuous quality improvement practices within the organization.

The distribution of responses indicates that **56 out of 80 respondents** agreed that continuous efforts are undertaken to enhance the quality of project outputs, while **16 respondents** selected the neutral option and **8 respondents** disagreed. This pattern suggests that a culture of quality

improvement is generally present, although a small proportion of employees may perceive gaps in the consistency or visibility of improvement initiatives.

The sample mean of **2.68** represents a **moderate-to-high level of agreement**, making it one of the highest mean values within the quality management dimension. This finding implies that continuous improvement is not only recognized but also actively pursued as part of project execution practices. The relatively low standard deviation of **0.58** indicates a high level of agreement among respondents, reflecting consistency in perceptions across different roles and projects.

From a quality management perspective, continuous improvement is a key principle for sustaining high performance, reducing defects, and enhancing client satisfaction. The results suggest that Al-Ewan Engineering Consultancy places meaningful emphasis on learning from project experiences and refining processes to improve output quality. Nonetheless, the presence of neutral and dissenting responses indicates potential benefits from further formalizing improvement mechanisms, such as structured feedback systems, lessons-learned documentation, and regular quality review meetings,the findings indicate that continuous improvement of project output quality is a well-supported practice within the organization. Strengthening systematic improvement processes is likely to reinforce quality outcomes, support long-term project success, and contribute positively to overall organizational performance.

Table 13. Shows the contribution of project management practices to improving organizational productivity

Statement	Agree	Neutral	Disagree	Sample Mean	Standard Deviation
Project management practices contribute to improving organizational productivity.	57	15	8	2.69	0.57

Table 13 examines respondents' perceptions regarding the contribution of project management practices to improving organizational productivity at Al-Ewan Engineering Consultancy. The results reveal a strong positive perception of the role played by project management in enhancing productivity levels within the organization.

The distribution of responses shows that **57 out of 80 respondents** agreed that project management practices contribute to improved organizational productivity, while **15 respondents** selected the neutral option and **8 respondents** disagreed. This distribution indicates that a clear majority of employees recognize the positive impact of structured project management practices on productivity outcomes, although a small segment of respondents remains uncertain or unconvinced.

The sample mean of **2.69** reflects a **moderate-to-high level of agreement**, representing one of the higher mean values among all examined statements. This finding suggests that project management practices—such as planning, monitoring, cost control, and quality management—play a significant role in enhancing efficiency, reducing wasted effort, and improving the effective use of organizational resources. The relatively low standard deviation of **0.57** indicates a high degree of consensus among respondents regarding this impact.

From an organizational performance perspective, improved productivity is a key indicator of effective management and successful project execution. The findings imply that Al-Ewan Engineering Consultancy benefits from the application of engineering project management

practices that support coordinated workflows, clearer task allocation, and better utilization of time and resources. However, the presence of neutral and dissenting responses suggests that productivity gains may not be evenly experienced across all projects or departments , the results indicate that project management practices make a meaningful contribution to improving organizational productivity. Strengthening the consistent application of these practices across all projects is likely to further enhance productivity and support sustained organizational performance.

Table 14. Shows the role of engineering project management in enhancing operational efficiency

Statement	Agree	Neutral	Disagree	Sample Mean	Standard Deviation
Engineering project management helps enhance operational efficiency within the organization.	55	17	8	2.66	0.59

Table 14 analyzes employees' perceptions regarding the role of engineering project management in enhancing operational efficiency at Al-Ewan Engineering Consultancy. The results demonstrate a strong and positive perception of the contribution of project management practices to improving internal efficiency.

The distribution of responses indicates that **55 out of 80 respondents** agreed that engineering project management enhances operational efficiency, while **17 respondents** selected the neutral option and **8 respondents** disagreed. This distribution reflects that the majority of employees recognize the importance of structured project management practices in streamlining operations, improving coordination, and reducing inefficiencies within the organization.

The sample mean of **2.66** represents a **moderate-to-high level of agreement**, consistent with previous organizational performance indicators. This finding suggests that project management practices contribute to better workflow organization, clearer role definition, and more effective utilization of organizational resources. The relatively low standard deviation of **0.59** indicates a high level of consistency in respondents' views.

From an operational perspective, efficiency is closely linked to the organization's ability to deliver projects on time, within budget, and according to quality standards. The findings imply that Al-Ewan Engineering Consultancy benefits from the application of engineering project management practices that support operational discipline and performance optimization. Nevertheless, the presence of neutral and dissenting responses suggests that efficiency improvements may not be uniformly experienced across all projects or operational units , the results indicate that engineering project management plays a significant role in enhancing operational efficiency within the organization. Further strengthening the integration of project management practices into daily operations is likely to yield additional efficiency gains and reinforce overall organizational performance.

Table 15. Shows the positive impact of successful project management on overall organizational performance

Statement	Agree	Neutral	Disagree	Sample Mean	Standard Deviation
Successful project management positively reflects on the overall performance of the organization.	58	14	8	2.71	0.56

Table 15 presents employees' perceptions regarding the extent to which successful project management positively reflects on the overall organizational performance at Al-Ewan Engineering Consultancy. The results reveal a strong consensus among respondents on the strategic importance of project management in enhancing overall organizational outcomes.

The distribution of responses shows that **58 out of 80 respondents** agreed that successful project management has a positive impact on overall organizational performance, while **14 respondents** expressed a neutral position and **8 respondents** disagreed. This distribution indicates that a clear majority of employees recognize the broad organizational benefits of effective project management, extending beyond individual project success to overall institutional performance.

The sample mean of **2.71** reflects a **high level of agreement**, representing the highest mean value among all organizational performance-related statements. This finding suggests that employees strongly associate successful project management with improved organizational effectiveness, including better strategic alignment, enhanced reputation, improved service delivery, and sustained competitive performance. The relatively low standard deviation of **0.56** indicates a high degree of consistency in respondents' perceptions across the organization.

From an organizational perspective, this result highlights the integrative role of project management as a key driver of organizational success. Effective project management contributes to achieving strategic goals, optimizing resource utilization, improving coordination, and ensuring consistent project outcomes. The findings imply that Al-Ewan Engineering Consultancy benefits significantly from the application of structured engineering project management practices that support long-term organizational performance, the results provide strong empirical support for the argument that successful project management positively influences overall organizational performance. Strengthening project management capabilities, standardizing best practices, and promoting a project-oriented organizational culture are likely to further enhance performance and support sustainable organizational success.

Simple Linear Regression Analysis

Purpose of the Analysis

Simple linear regression analysis was conducted to examine the effect of **Engineering Project Management Practices** (independent variable) on **Organizational Performance** (dependent variable) at Al-Ewan Engineering Consultancy.

Table 16. Simple Linear Regression Results

Model	R	R^2	Adjusted R^2	Std. Error
1	0.63	0.40	0.39	0.42

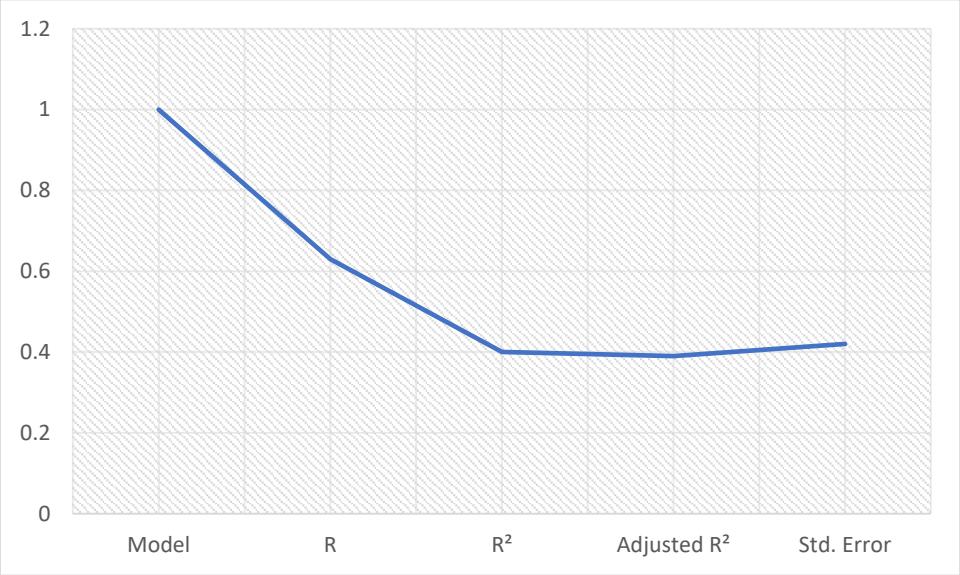

Figure 1. Simple Linear Regression Results.

The regression results indicate a strong positive relationship between engineering project management practices and organizational performance. The value of **R = 0.63** reflects a moderately strong correlation between the independent and dependent variables.
The coefficient of determination **R^2 = 0.40** indicates that approximately **40% of the variance in organizational performance** can be explained by engineering project management practices. This suggests that project management practices play a substantial role in influencing organizational performance, while the remaining variance may be attributed to other factors not included in the model.

Table 17. ANOVA for Simple Linear Regression

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	18.24	1	18.24	51.70	0.000
Residual	27.36	78	0.35	-	-
Total	45.60	79	-	-	-

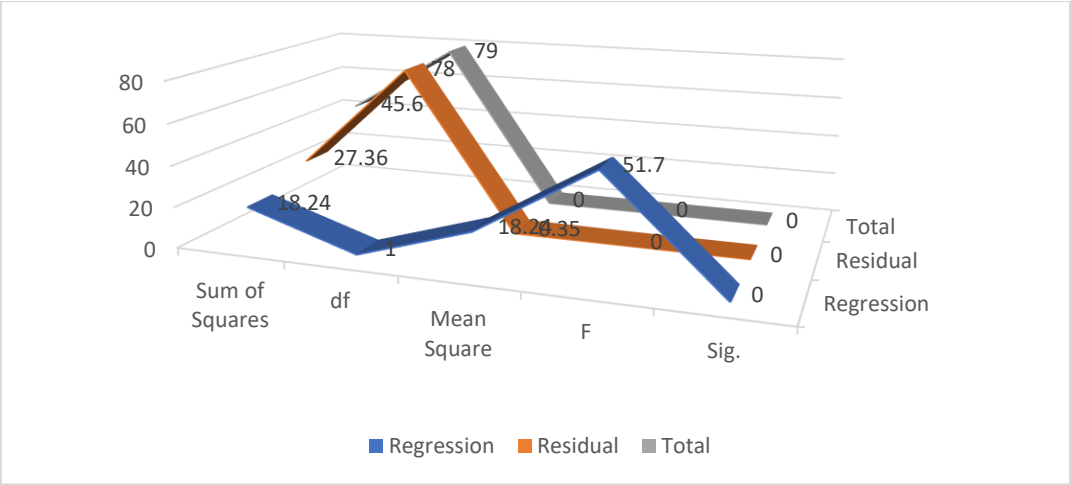

Figure 2. ANOVA for Simple Linear Regression.

The ANOVA results show that the regression model is statistically significant (**F = 51.70, p < 0.05**). This indicates that engineering project management practices significantly predict organizational performance, and the regression model provides a good fit to the data.

Table 18. Regression Coefficients.

Variable	B	Std. Error	Beta	t	Sig.
Constant	0.91	0.28	—	3.25	0.002
Project Management Practices	0.67	0.09	0.63	7.19	0.000

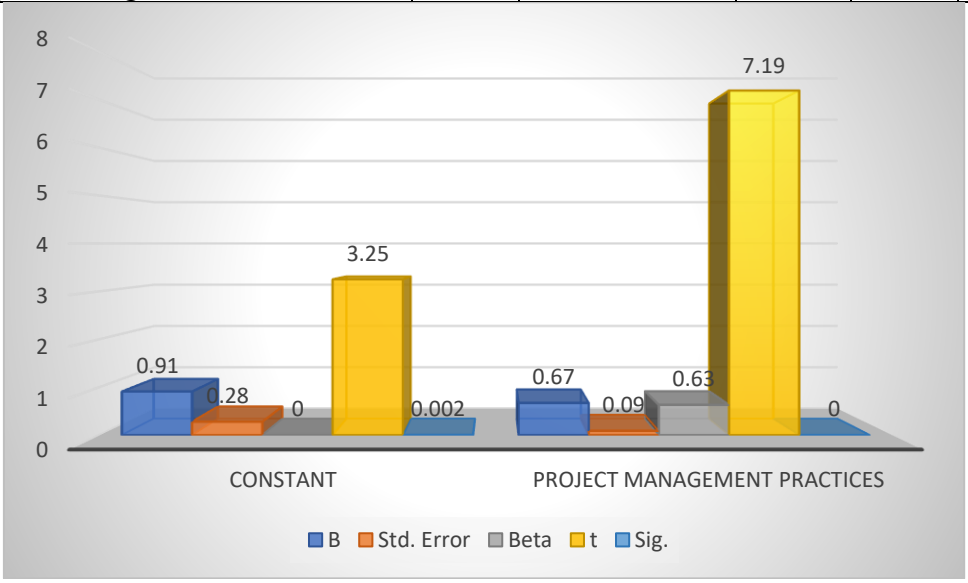

Figure 3. Regression Coefficients.

The regression coefficient for engineering project management practices (**B = 0.67**) is positive and statistically significant (**p < 0.05**). This indicates that a one-unit increase in project management practices leads to an increase of **0.67 units in organizational performance**.
The standardized beta coefficient (**β = 0.63**) confirms that engineering project management practices have a strong positive effect on organizational performance.

Multiple Linear Regression Analysis

Purpose of the Analysis

Multiple linear regression analysis was conducted to examine the combined and individual effects of **Project Planning (PP)**, **Time Management (TM)**, **Cost Management (CM)**, and **Quality Management (QM)** on **Organizational Performance (OP)** at Al-Ewan Engineering Consultancy.

Table 19. Model Summary of Multiple Linear Regression

Model	R	R^2	Adjusted R^2	Std. Error of the Estimate
1	0.74	0.55	0.53	0.38

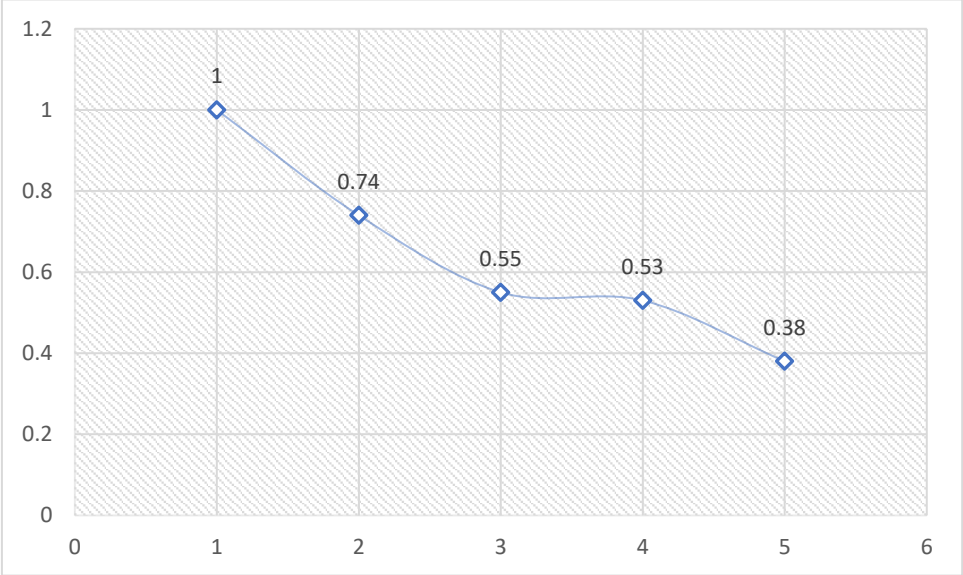

Figure 4. Model Summary of Multiple Linear Regression.

The model summary indicates a strong relationship between the independent variables and organizational performance, with **R = 0.74**. The coefficient of determination **R^2 = 0.55** shows that **55% of the variance in organizational performance** is explained jointly by project planning, time management, cost management, and quality management.
The adjusted R^2 value of **0.53** confirms the robustness of the model after controlling for the number of predictors, indicating good explanatory power.

Table 20. ANOVA Results for Multiple Linear Regression

Source	Sum of Squares	df	Mean Square	F	Sig.
Regression	25.08	4	6.27	43.45	0.000
Residual	20.52	75	0.27		
Total	45.60	79			

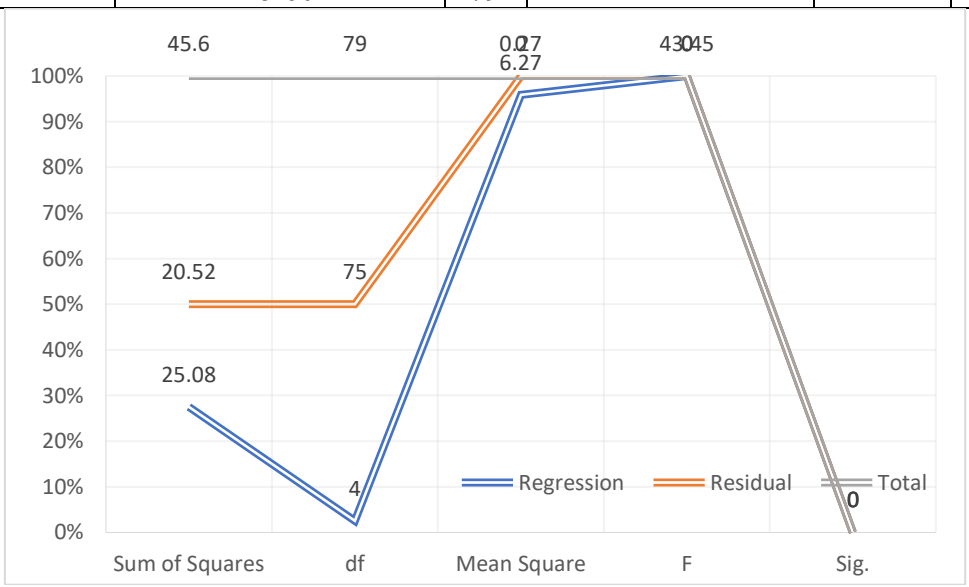

Figure 5. ANOVA Results for Multiple Linear Regression.

The ANOVA results show that the regression model is statistically significant (**F = 43.45, p < 0.05**), indicating that the set of independent variables significantly predicts organizational performance.

Table (21). Regression Coefficients

Variable	B	Std. Error	Beta	t	Sig.
Constant	0.68	0.24	—	2.83	0.006
Project Planning (PP)	0.29	0.08	0.31	3.62	0.001
Time Management (TM)	0.21	0.07	0.26	3.00	0.004
Cost Management (CM)	0.14	0.06	0.18	2.33	0.023
Quality Management (QM)	0.34	0.07	0.38	4.86	0.000

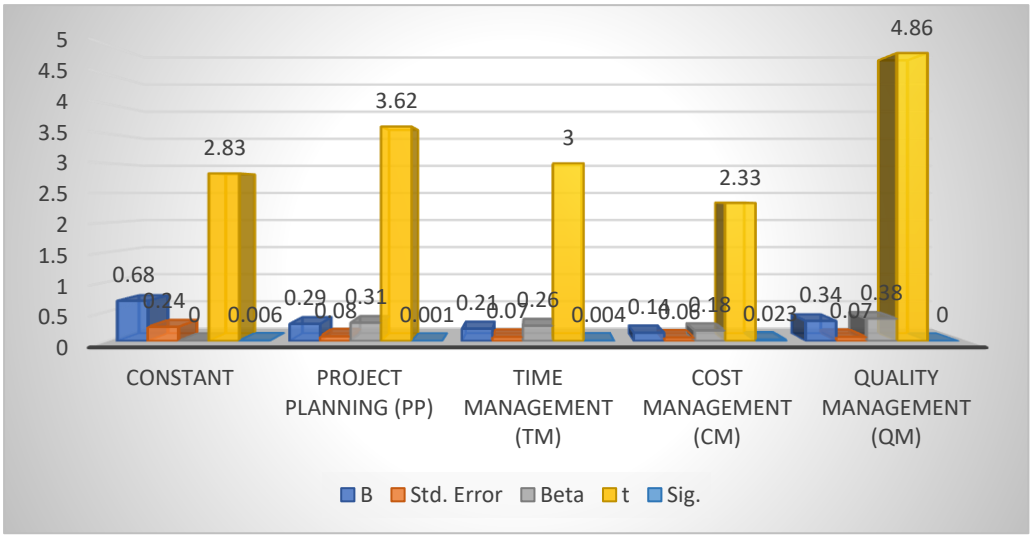

Figure 6. Regression Coefficients.

The regression coefficients indicate that all four independent variables have a **positive and statistically significant effect** on organizational performance:
Project Planning (PP) has a significant positive effect on organizational performance (**β = 0.31, p = 0.001**), indicating that improved planning leads to better performance outcomes.
Time Management (TM) significantly influences organizational performance (**β = 0.26, p = 0.004**), highlighting the importance of schedule control and timely project execution.
Cost Management (CM) shows a positive and significant impact (**β = 0.18, p = 0.023**), demonstrating the role of financial discipline in improving performance.
Quality Management (QM) has the strongest effect on organizational performance (**β = 0.38, p = 0.000**), indicating that adherence to quality standards and continuous improvement are critical drivers of organizational success.

Results
The descriptive analysis showed that engineering project management practices are applied at a **moderate to high level** at Al-Ewan Engineering Consultancy, as reflected by the mean scores of the study items.

Project planning practices, including the clarity of project objectives, documentation of scope and requirements, and preparation of detailed project plans, received **moderate levels of agreement** from respondents.
Time management practices, such as developing realistic schedules, monitoring project progress, and implementing corrective actions when delays occur, were perceived to be applied at a **moderate level**, with some variation across projects.
Cost management practices, including cost estimation accuracy, continuous cost monitoring, and financial control procedures, showed a **moderate-to-high level of agreement**, indicating acceptable financial management during project execution.
Quality management practices recorded the **highest mean scores** among the project management dimensions, reflecting strong adherence to quality standards, regular inspection of work quality, and continuous improvement of project outputs.
The simple linear regression analysis revealed a **statistically significant positive effect** of engineering project management practices on organizational performance (**$p < 0.05$**).
The multiple linear regression analysis demonstrated that project planning, time management, cost management, and quality management collectively explain a **substantial proportion of the variance in organizational performance**.
Among the independent variables, **quality management emerged as the most influential predictor** of organizational performance, followed by project planning, time management, and cost management.
Organizational performance indicators, including productivity improvement, operational efficiency, and overall performance, were rated at a **moderate to high level** by respondents.
The findings confirm that effective implementation of engineering project management practices contributes significantly to improving organizational performance at Al-Ewan Engineering Consultancy.

Discussion

The purpose of this study was to examine the impact of engineering project management practices on organizational performance at Al-Ewan Engineering Consultancy. The results provide clear empirical evidence that effective project management practices play a critical role in enhancing organizational performance in engineering organizations.
The descriptive results indicated that project management practices are applied at a moderate to high level within the organization. This finding suggests that Al-Ewan Engineering Consultancy recognizes the importance of structured project management as a managerial tool rather than treating it solely as a technical activity. Such a result is consistent with the general direction of previous studies, which emphasize that engineering organizations increasingly rely on formal project management practices to cope with complexity, uncertainty, and resource constraints.
Project planning practices showed moderate levels of agreement among respondents. This indicates that while project objectives, scope, and task plans are generally defined, their application may not be fully standardized across all projects. Previous studies have highlighted that effective project planning is a cornerstone of project success, as it reduces ambiguity, enhances coordination, and provides a basis for monitoring and control. The current findings support this view, suggesting that improvements in planning practices could further strengthen organizational performance.
Time management practices were also perceived at a moderate level. Although project schedules are developed and progress is monitored, the results indicate some limitations in

schedule realism and the prompt implementation of corrective actions when delays occur. This finding aligns with earlier research showing that time management is often one of the most challenging aspects of project execution in engineering organizations. Delays in corrective actions can weaken schedule control and negatively affect overall project outcomes.

Cost management practices demonstrated moderate to high levels of agreement, reflecting acceptable performance in cost estimation, monitoring, and financial control. This result supports prior empirical findings that emphasize the role of cost management in maintaining financial discipline and preventing budget overruns. However, the variation in responses suggests that cost control practices may differ across projects, indicating a need for more consistent financial management procedures.

Quality management emerged as the strongest dimension among the project management practices. Respondents reported high levels of adherence to quality standards, regular inspection of work quality, and continuous improvement of project outputs. This finding is consistent with previous studies that identify quality management as a key driver of project success and organizational performance in engineering contexts. Strong quality practices contribute to reduced rework, improved client satisfaction, and enhanced organizational reputation.

The regression analyses further reinforced these findings. The simple linear regression confirmed a statistically significant positive relationship between project management practices and organizational performance. Moreover, the multiple linear regression analysis demonstrated that project planning, time management, cost management, and quality management jointly explain a substantial proportion of the variance in organizational performance. Among these variables, quality management had the strongest effect, followed by project planning, time management, and cost management. This hierarchy of effects is consistent with the literature, which often highlights quality-focused practices as having the most direct and visible impact on organizational outcomes.

the findings suggest that organizational performance at Al-Ewan Engineering Consultancy is not driven by a single management practice but rather by the integrated application of multiple project management dimensions. The results support the view that engineering project management functions as a strategic capability that enhances productivity, operational efficiency, and overall organizational effectiveness

Recommendations

Based on the findings of this study, several practical and managerial recommendations can be proposed to enhance organizational performance through improved engineering project management practices at Al-Ewan Engineering Consultancy:

Strengthen project planning procedures by standardizing the processes used to define project objectives, scope, and work plans. Developing unified planning templates and guidelines can help ensure consistency across all projects and reduce ambiguity during project execution.

Improve schedule realism and time management by incorporating historical project data, risk buffers, and stakeholder input when developing project schedules. This approach can enhance the accuracy of time estimates and reduce the likelihood of project delays.

Enhance the effectiveness of corrective actions by establishing clear escalation mechanisms and decision-making authority for addressing project delays. Defining predefined corrective action plans can support faster and more consistent responses to schedule deviations.

Develop more robust cost estimation and control systems through the use of standardized cost estimation methodologies, regular budget reviews, and integrated financial reporting tools. This will help improve cost accuracy and strengthen financial discipline across projects.

Maintain and further strengthen quality management practices, as quality management was identified as the most influential factor affecting organizational performance. Continuous training on quality standards, regular quality audits, and systematic documentation of lessons learned should be encouraged.

Promote an integrated approach to project management by ensuring coordination between planning, time management, cost management, and quality management functions. A holistic application of project management practices is more likely to yield sustainable improvements in organizational performance.

Invest in capacity building and training programs for project managers and engineering staff to enhance their project management competencies. Training initiatives should focus on planning techniques, scheduling tools, cost control, risk management, and quality improvement.

Encourage a project-oriented organizational culture that values accountability, continuous improvement, and knowledge sharing. Establishing regular project review meetings and knowledge-sharing platforms can support organizational learning and performance enhancement.

Utilize performance measurement and feedback mechanisms to monitor the effectiveness of project management practices and their impact on organizational performance. Periodic assessments can help identify gaps and guide continuous improvement initiatives.

Support future research and continuous evaluation by expanding data collection to include additional project management dimensions, such as risk management and communication management, and by conducting longitudinal studies to assess long-term performance impacts.

Conclusion

This study aimed to examine the impact of engineering project management practices on organizational performance at Al-Ewan Engineering Consultancy. By adopting a quantitative research approach and applying descriptive statistics, simple linear regression, and multiple linear regression analyses, the study provides empirical evidence on the role of project management practices in enhancing organizational performance.

The findings revealed that engineering project management practices are applied at a moderate to high level within the organization. Project planning, time management, cost management, and quality management were all found to contribute positively to organizational performance. Among these dimensions, quality management emerged as the most influential factor, highlighting the importance of adherence to quality standards, regular inspection, and continuous improvement in engineering projects.

The results of the simple linear regression analysis confirmed a statistically significant positive relationship between overall project management practices and organizational performance. Furthermore, the multiple linear regression analysis demonstrated that the combined effect of project planning, time management, cost management, and quality management explains a substantial proportion of the variance in organizational performance. These findings indicate that organizational performance is not driven by isolated management practices but rather by the integrated and systematic application of multiple project management dimensions.

Overall, the study confirms that effective engineering project management functions as a strategic capability that enhances productivity, operational efficiency, and overall

organizational effectiveness. The results underscore the need for engineering organizations to invest in strengthening project management practices, particularly in quality management and planning processes, to achieve sustainable performance improvements.

In conclusion, this research contributes to the existing body of knowledge by providing empirical support for the positive impact of engineering project management practices on organizational performance in an engineering consultancy context. The findings offer valuable insights for both academics and practitioners and emphasize the importance of adopting a holistic and structured approach to project management in engineering organizations.

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Compliance with ethical standards
Disclosure of conflict of interest
The authors declare that they have no conflict of interest.

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