Project Life Cycle Handling and Performance of Energy Projects: A Case of Schneider Electric Kenya Limited

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Abstract: ***The Success and performance of energy projects highly depend on effective project life cycle management, which is essential and cannot be overlooked, particularly as the global energy sector shifts toward sustainable solutions. In Kenya, the energy sector faces unique obstacles, such as infrastructure limitations, regulatory complexities, and stakeholder engagement hurdles, which complicate project execution. Despite these challenges, the industry plays a crucial role in enhancing energy efficiency and sustainability through innovative solutions like smart grids and automation technologies, which are essential for successful project delivery. The study aimed to examine the Project Life Cycle Handling and performance of energy projects. The study adopted a descriptive and explanatory research design, employing an ex-post facto survey design. The target population involved employees working in Schneider Electric's energy and infrastructure projects. The employees involved in these projects included 69 individuals from Schneider Electric, consisting of 7 Managers, 15 Technical Auditors, 30 Field Service Representatives, and 17 Sales Engineers. The main research instrument used to gather data from respondents was semi-structured questionnaires. After being checked for completeness, the completed surveys were coded and imported into SPSS version 23 for analysis and cleaning. The coefficient of variation, mean, and standard deviation were among the descriptive statistics that were employed. On the other hand, multivariate Ordinary Least Squares regression and Pearson correlation were used to evaluate the intensity and direction of the causal association between process handling and energy project performance. Tables and charts were used where appropriate to present the results. The analysis results revealed that the assessment and documentation of potential risks during the project initiation phase at Schneider Electric Kenya Limited were good. The study found that the project objectives were clearly and effectively defined during the planning stage at Schneider Electric Kenya Limited. The study concluded that project execution significantly affects performance by ensuring timely delivery, cost control, and customer satisfaction. Proper execution boosts client trust and preserves profitability. The study recommended that project managers should establish formal frameworks or guidelines to ensure consistent and inclusive stakeholder engagement at the initial stages. These frameworks should define who is to be involved, when, and how, to avoid tokenism and ensure substantive input from diverse stakeholders, including community members, technical experts, local leaders, and policy actors.***

Keywords: Project Life Cycle Handling, Project performance

1.Introduction

Project life cycle handling looks into the stages that a project goes through and how each stage is handled. The aforementioned phases include planning, execution, monitoring, control, and closure. In energy projects, it's imperative to follow through these stages carefully because of the high levels of complexity of the projects, their lengthy timelines, substantial investments, and the regulatory framework that governs the energy sector [2]. The success of these projects largely depends on the effective handling of the project life cycle.

In energy projects - such as renewable energy installations or energy-efficient technologies - efficient handling of the project life cycle can lead to improved outcomes in terms of performance, cost management, and adherence to deadlines [1]. Specifically, managing the life cycle stages effectively ensures that energy projects meet their operational and strategic objectives, which include reducing energy costs, improving sustainability, and enhancing the reliability of the energy supply.

To determine the performance of the project, it's important to look at whether the project has met its technical, financial, and environmental objectives that were initially set during the initial stage of the project life. These objectives that are approved during the initial stage include timely completion, staying on budget, observing environmental standards, and achieving desired energy efficiency or output [6].

1.1 Statement of the problem

Any country's economic growth and sustainable development depend on the efficient administration and execution of energy projects. For Kenya to achieve the objectives of Vision 2030, which aims to make the nation a middle-income, industrialized nation, these projects must be carried out successfully [14]. Despite considerable investment in energy infrastructure, many projects experience delays, budget overruns, and underperformance, which diminish their intended impact. Schneider Electric Kenya Limited, a key energy sector player, is a pertinent case study to explore the complexities of project management in energy initiatives.

Schneider Electric's role in high-profile projects like the Safaricom Phase 1 data center upgrade and the Kenya Ports Authority (KPA) power plant project underscores its contribution to strengthening Kenya's energy infrastructure. According to [11], the Safaricom Phase 1 project was instrumental in enhancing the reliability and efficiency of the company's data center, which, in turn, improved service delivery to its extensive customer base and boosted operational efficiency. As Kenya's leading telecommunications provider, Safaricom's enhanced capabilities had a ripple effect on the broader digital economy.

Similarly, the KPA power plant project is crucial due to the port of Mombasa's strategic role as a key gateway for international trade in the region [8]. By enhancing energy supply and reliability at the port, Schneider Electric played a significant role in improving the operational efficiency and competitiveness of one of East Africa's most vital economic hubs. These projects highlight the importance of strong project management practices in the successful delivery of energy infrastructure.

Despite these achievements, there remains a need for a systematic analysis of Schneider Electric's Project Life Cycle processes to identify the key factors that contribute to the successful completion of energy projects. This analysis is crucial for pinpointing best practices and areas for improvement, offering valuable insights to stakeholders across the energy sector, including investors, regulators, and policymakers. This study seeks to fill this knowledge gap by examining Schneider Electric Kenya Limited's Project Life Cycle approaches, with a particular focus on understanding how the company manages the challenges of budget overruns and project delays. The findings will contribute to the broader understanding of Project Life Cycle in the energy sector and provide practical recommendations for optimizing the execution of future projects in Kenya and beyond. This study aims to examine how effective project life cycle management influences the performance of energy projects managed by Schneider Electric Kenya Limited.

1.2 Specific Objectives of the Study

i. Explore the Initiation phase as a key factor in the Project Life Cycle Handling and performance of energy projects, at Schneider Electric Kenya Limited.
ii. Evaluate planning as a key factor in the project life cycle handling and performance of energy projects at Schneider Electric Kenya Limited.
iii. Evaluate the effectiveness of the project execution phase in the Project life cycle handling on the performance of energy projects at Schneider Electric Kenya Limited.
iv. Evaluate the effectiveness of Project Life Cycle Handling in the project monitoring and control of energy projects at Schneider Electric Kenya Limited.
v. Evaluate the effectiveness and efficiency of the project closure process in energy projects managed by Schneider Electric Kenya Limited.

1.3 Significance of the Study

The study is highly significant for multiple reasons. Schneider Electric's role in advancing energy projects in Kenya showcases the profound impact of effective project management in the energy sector. One notable project is the Safaricom Phase 1, aimed at enhancing the data center infrastructure. Given Safaricom's vast customer base and critical role in Kenya's telecommunications, this project underscores Schneider Electric's ability to handle large-scale, high-stakes projects that ensure reliability and efficiency in data management, thereby supporting the country's digital economy.

Additionally, the Kenya Ports Authority (KPA) power plant project illustrates the strategic importance of Schneider Electric's interventions in critical infrastructure. The port of Mombasa, being a vital gateway for international trade, relies heavily on a stable and efficient power supply to maintain operations. By upgrading the power plant, Schneider Electric has directly contributed to the operational efficiency and economic significance of the port, which is essential for Kenya's trade and economic activities.

Furthermore, Schneider Electric's additional projects, including those in renewable energy and smart grid solutions, reflect a sustained commitment to sustainable energy practices.

These projects not only support Kenya's Vision 2030, aiming for a greener and more energy-efficient future, but also position Schneider Electric as a leader in providing innovative energy solutions that can be replicated across the East African region.

By focusing on Schneider Electric Kenya Limited, this study provides invaluable insights into how proficient project management can enhance the performance and sustainability of energy projects. This research is pivotal for stakeholders, including public authorities, industries, shareholders, and private investors, by offering best practices and frameworks that can optimize the execution and impact of energy projects in Kenya and beyond.

2.Theoretical Review

The study was anchored on three theories, which include the Theory of Constraints, System Theory, and Competence Theory.

Theory of Constraints

The Theory of Constraints (TOC) is a management paradigm that posits that any complex system, including project management processes, is governed by a small number of constraints that limit its performance. This theory was introduced in the book "The Goal" by Eliyahu M. Goldratt in 1984. Over the years, a lot of advancement has taken place on this theory [17], and this theory is applied in an agile environment today. In the context of energy projects, such as those managed by Schneider Electric Kenya Limited, the application of TOC can be pivotal in improving project outcomes. Energy projects often involve intricate networks of interdependent activities, where delays or inefficiencies in one area can cascade throughout the entire project. TOC emphasizes the identification and management of these bottlenecks to enhance overall project performance [12].

Schneider Electric's energy projects, which are typically large-scale and involve multiple stakeholders, are prone to issues such as going over budget and not closing on time, problems that TOC can address. By focusing on the critical path, the sequence of tasks that directly impacts the project completion time, TOC helps in streamlining operations and ensuring that resources are optimally allocated to areas that will yield the most significant [16]. Furthermore, TOC's continuous improvement philosophy aligns with the goal of enhancing operational efficiency and achieving sustainable project outcomes in the energy sector, making it a valuable approach for Schneider Electric in Kenya's dynamic energy landscape.

System Theory

Systems Theory, a holistic framework for understanding complex interrelationships, is highly relevant to the management of large-scale energy projects. Systems theory was introduced by Ludwig Von Bertalanffy (1940s to 1960s). The theory helps analyze and understand how different components are interrelated in a project. In the context of Schneider Electric Kenya Limited, Systems Theory provides a structured approach to managing the intricate processes involved in energy projects. This theory posits that all components within a project are interdependent, and any change in one element can significantly impact the entire system [9]. By applying Systems Theory, project managers can identify and analyze the interactions between various project elements such as time, cost, resources, and scope, ensuring that these components work synergistically towards achieving the project's objectives.

In managing energy projects, where issues like budget overruns and project delays are prevalent, Systems Theory enables a comprehensive analysis of the factors contributing to these challenges. For instance, the theory aids in understanding how delays in procurement can cascade into subsequent project phases, affecting timelines and increasing costs [15]. By considering the project as a system of interrelated parts, project managers at Schneider Electric can implement more effective monitoring and control mechanisms, ensuring that deviations from the plan are detected early and corrective actions are taken promptly.
Moreover, Systems Theory emphasizes feedback loops, which are critical for continuous improvement in project management. In energy projects, feedback mechanisms allow for real-time adjustments based on project performance data, thus enhancing decision-making and improving project outcomes [21]. For Schneider Electric, employing Systems Theory in project management not only helps in optimizing resource allocation and scheduling but also contributes to achieving sustainable energy solutions that align with Kenya's Vision 2030.

By integrating Systems Theory into the project management processes at Schneider Electric Kenya Limited, the organization can enhance its capability to manage complex energy projects more effectively, leading to improved project performance and better alignment with strategic goals (Morris & Pinto, 2010). This approach is particularly vital in the energy sector, where the success of projects depends on the seamless coordination of multiple stakeholders, technologies, and regulatory requirements.

Competence Theory of Project Management

In project management, competence theory highlights how crucial a team's or an individual's competencies are to a project's success. [19] introduced this hypothesis. According to this notion, project managers' and their teams' competencies are essential to handling and executing projects, especially in complex and resource-intensive fields like energy projects. In the context of Schneider Electric Kenya Limited, the application of Competence Theory can be seen in how the company's project management teams handle large-scale energy projects, ensuring that they are completed on time, within budget, and to the required quality standards.

The successful management of energy projects requires a deep understanding of both technical aspects and the broader project management process. Competence in this area includes not only the technical knowledge related to energy systems but also skills in risk management, communication, leadership, and decision-making. As noted by [18], competence in project management is a strong predictor of project success, particularly in industries where the margin for error is minimal, such as the energy sector. Schneider Electric's focus on building a competent workforce aligns with this theory, as the company invests heavily in training and development programs to enhance the skills of its project managers and engineers.

Furthermore, the complexity of energy projects demands a high level of competence in coordinating various stakeholders, including clients, contractors, and regulatory bodies. According to [10], competence in stakeholder management is crucial for maintaining project alignment with stakeholder expectations, which is often a challenging task in energy projects due to their scale and impact. Schneider Electric Kenya Limited's approach to managing these complex interactions reflects the principles of Competence Theory, as the company emphasizes the continuous development of interpersonal and managerial skills among its project management teams. In summary, the application of Competence Theory in the project management process, specifically in the handling and performance of energy projects at Schneider Electric Kenya Limited, highlights the critical role of skills and knowledge in achieving project success. By fostering a competent workforce, the company ensures that its energy projects are managed efficiently, mitigating risks associated with delays and cost overruns, which are common challenges in the energy sector.

2.1 Conceptual Framework

The dependent variable is project performance, whose outcome is affected by various independent variables: project Conceptualization, project Design, Project Implementation, and project Closure during the project period, as illustrated in the figure below.

Independent Variables Dependent Variable

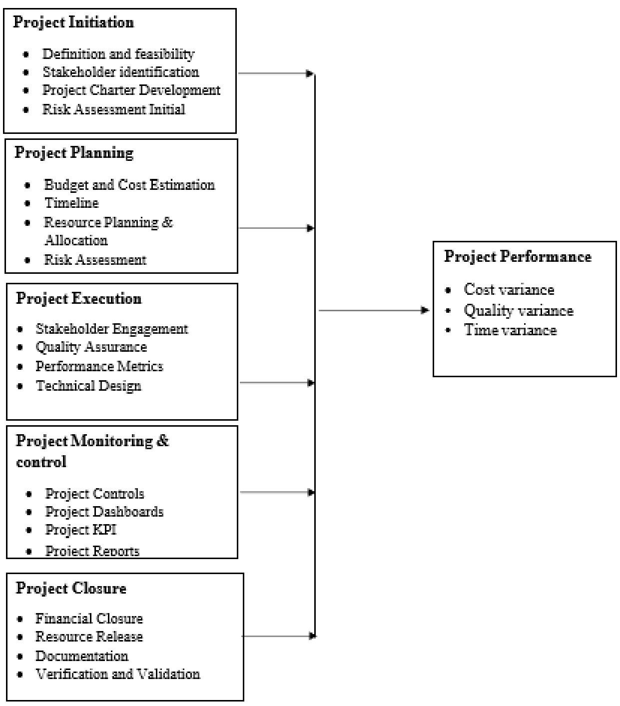

Figure 1: Conceptual Framework Source: Researcher (2024)

3.Research Methodology

The study adopted a descriptive and explanatory research design, utilizing a survey method in the form of ex-post facto research. This approach was used as no manipulation of the independent or dependent variables will occur. Ex-post facto research concentrated on phenomena that have already occurred, and during the research, the researcher assessed the population of interest. Schneider Electric Kenya Limited staff were involved in project implementation and gathered data from them based on their regular work related to Project Life Cycle Handling and performance of energy projects in Kenya. Additionally, explanatory research facilitated the identification of linkages between the process handling and behavior of energy generation ventures.

On the other hand, the study target population consisted of employees who had been actively involved in Schneider Electric's energy and infrastructure projects. While Schneider Electric has completed approximately 60 projects globally, this study focused specifically on those undertaken in Kenya. From the 60 projects, the sample included 8 projects (Appendix V) based in Kenya. The employees involved in these projects will include 69 individuals from Schneider Electric, consisting of 7 Managers, 15 Technical Auditors, 30 Field Service Representatives, and 17 Sales Engineers. Schneider Electric Kenya Limited plays a pivotal role in Kenya's energy infrastructure, dealing with complex project management processes.

3.1 Data Collection Instrument

To collect information from respondents, semi-structured questionnaires were employed as the primary research tool. These questionnaires featured both structured and unstructured response options, guided by the research questions. They included a section for demographic information and five main sections, each corresponding to one of the study's key objectives. Additionally, the questionnaires were created using Google Forms to facilitate convenient and timely distribution across various counties nationwide and to streamline consolidation by minimizing delays associated with postal submissions.

3.2 Data Analysis and Presentation

After being checked for completeness and coded, the completed surveys were loaded into SPSS version 23 for cleaning and analysis. The mean, standard deviation, and coefficient of variation were among the descriptive statistics that were employed. Additionally, Pearson correlation and multivariate Ordinary Least Squares regression were applied to assess the strength and direction of the causal relationship between process handling and performance of energy projects. Tables and charts were used where deemed necessary to present the results. Both descriptive and inferential analyses were used as part of the quantitative methodologies. Statistics, including the mean, standard deviation, and percentages, all essential for data summarization, were obtained by descriptive analysis. Inferential analysis encompassed correlation and multiple regression analyses to facilitate a more in-depth and concise research of the relationships between the variables in the study. Pearson correlation coefficient (abbreviated 'r') was used in correlation analysis. A statistically significant link is shown by a p-value of less than 0.05. The analysis used the following multiple linear regression model;

$$\mathbf{Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \varepsilon}$$

Where;
Y = Performance of Energy Projects
X_1 = Project Initiation
X_2 = Project Planning
X_3 = Project Execution
X_4 = Project monitoring and Control
X_5 = Project Closure
β_0 = Intercept
$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ = Coefficients
ε = Error Variable

The error term represented other elements that might affect the dependent variable, which do not form part of the study.

3.3 Ethical Consideration

Before initiating data collection, ethical considerations were reviewed. Approvals from relevant authorities, including the university's research authorization, the research licensing body (NACOSTI), and the Schneider Electric Kenya Limited Human Resource Department, were secured. Respondents were informed that their participation in the study was completely voluntary.

4.Research Findings

4.1 Response Rate

A total of 69 individuals were issued with questionnaires for the study through Google form, out of which 61 successfully completed and returned them. This resulted in an overall response rate of 88.4%. As noted by Jack Fincham, such a response rate is considered satisfactory.

4.2 Demographic Data Analysis

Table 1: Level of Education

Level of Education	Percentage
Masters	13.1
Degree	54.1
Diploma	32.8
Total	**100**

Source: Field Data (2025)

The findings indicate that most participants held a bachelor's degree (54.1%), followed by diploma holders (32.8%) and those with a master's degree (13.1%). This suggests that the majority of respondents possessed the necessary education and competence to comprehend project life cycle management and the performance of energy projects.

Table 2: Duration of Working

Duration of Working	Percentage
1-6 years	47.5
7-11 years	34.5
12-16 years	4.9
17-21 years	13.1
Total	**100**

Source: Field Data (2025)

As shown in Table 2, the majority of respondents (47.5%) had worked at Schneider Electric Kenya Limited for a period of 1–6 years, while only 4.9% had been with the company for 12–16 years. These findings indicate that most participants had substantial work experience at the organization, which is beneficial to the study, as it ensures that the responses related to the research objectives are informed by individuals with relevant experience.

4.3 Descriptive Analysis

4.3.1 Rating on Project Initiation

The respondents were requested to evaluate the company's performance and representation of specific activities and elements. The results are presented in Table 3.

Table 3: Rating on Project Initiation

Activity	Mean	Std Dev
The objectives of energy projects at Schneider Electric Kenya Limited are well-articulated and easily understood during the initiation phase.	4.116	0.517
How would you rate the level of involvement of relevant stakeholders during the project initiation stage at Schneider Electric Kenya Limited	4.291	0.538
How effective is the assessment and documentation of potential risks during the project initiation phase at Schneider Electric Kenya Limited	4.343	0.652
There is sufficient allocation of resources during the project initiation stage at Schneider Electric Kenya Limited.	4.209	0.727
The project timelines established during the initiation phase are practical and achievable at Schneider Electric Kenya Limited.	4.326	0.611

Source: Field Data (2025)

According to the results, it was found that the assessment and documentation of potential risks during the project initiation phase at Schneider Electric Kenya Limited was good (mean=4.343), followed by the project timelines established during the initiation phase are practical and achievable at Schneider Electric Kenya Limited (mean=4.326), the level of involvement of relevant stakeholders during the project initiation stage at Schneider Electric Kenya Limited was good (mean=4.291), there is sufficient allocation of resources during the project initiation stage at Schneider Electric Kenya Limited (mean=4.209), and that the objectives of energy projects at Schneider Electric Kenya Limited are well-articulated and easily understood during the initiation phase (mean=4.116). This depicts that the assessment and documentation of potential risks during the project initiation phase at Schneider Electric Kenya Limited were good.

The finding is supported by [4], who emphasized that the conceptualization process is vital for aligning project objectives with stakeholder expectations, ensuring that projects are completed on time and within budget. [4] Further notes that failure to clearly define project goals or involve key stakeholders at this early stage can lead to common project pitfalls such as scope creep, budget overruns, and delays. This resonates with Schneider Electric's approach to clearly identifying and mitigating risks during initiation, ensuring a more controlled and predictable execution phase. [22] underscore that the complexity of technologies, regulatory frameworks, and environmental concerns requires meticulous planning at the initiation stage. Their study on renewable energy projects in Kenya demonstrated that inadequate initial planning often led to cost overruns and time delays. They stressed the need for detailed feasibility studies, thorough risk assessments, and robust stakeholder engagement, all practices evident in Schneider Electric Kenya's project initiation protocols.

Table 4: Rating on Project Planning

Activity	Mean	Std Dev
The project objectives are clearly and effectively defined during the planning stage at Schneider Electric Kenya Limited	4.285	0.722
Stakeholders are sufficiently involved during the project planning phase at Schneider Electric Kenya Limited	3.948	0.449
The project planning phase ensures that the project objectives are feasible within the allocated resources at Schneider Electric Kenya Limited	3.965	0.540
Potential risks are thoroughly evaluated and incorporated into the project planning process at Schneider Electric Kenya Limited	4.012	0.286
Technology tools and methodologies are effectively utilized during the project planning phase to enhance overall performance at Schneider Electric Kenya Limited	4.017	0.597

Source: Field Data (2025)

According to the findings, it was found that the project objectives are clearly and effectively defined during the planning stage at Schneider Electric Kenya Limited (mean=4.285), followed technology tools and methodologies are effectively utilized during the project planning phase to enhance overall performance at Schneider Electric Kenya Limited (mean=4.017), potential risks are thoroughly evaluated and incorporated into the project planning process at Schneider Electric Kenya Limited (mean=4.012), the project planning phase ensures that the project objectives are feasible within the allocated resources at Schneider Electric Kenya Limited (mean=3.96), and that stakeholders are sufficiently involved during the project planning phase at Schneider Electric Kenya Limited (mean=3.948).

The findings depict that the project objectives are clearly and effectively defined during the planning stage at Schneider Electric Kenya Limited. This aligns with the research by [13], who emphasize that effective project planning involves the use of comprehensive planning tools such as Work Breakdown Structures (WBS) and Gantt charts. These tools streamline task sequencing, enhance visibility across project components, and facilitate coordination among internal teams and external stakeholders. At Schneider Electric Kenya, such methodologies are critical in organizing energy project activities and improving delivery timelines, consistent with the findings of [13], which found that many energy projects in Kenya are hindered by rushed design phases prompted by urgent energy demands. This often results in inadequate planning and implementation, which leads to inefficiencies and increased costs. Their study concludes that rigorous project planning, including early stakeholder involvement, enhances outcomes by enabling realistic timelines and improved resource use, findings that validate Schneider Electric's focus on careful upfront planning.

Table 5: Rating on Project Execution

Activity	Mean	Std Dev
Key stakeholders are sufficiently engaged throughout the project Execution process at Schneider Electric Kenya Limited	4.151	0.780
The adoption of advanced technology enhances the execution and overall performance of energy projects at Schneider Electric Kenya Limited	4.058	0.698
There are effective mechanisms in place for evaluating the performance of energy projects following execution at Schneider Electric Kenya Limited	4.116	0.683
The execution process for energy projects at Schneider Electric Kenya Limited is thorough and well-organized	3.924	0.472
The budgeting processes are effectively managed, ensuring that energy projects remain within the allocated budget at Schneider Electric Kenya Limited	4.058	0.504

Source: Field Data (2025)

As per the analysis results, it was found that key stakeholders are sufficiently engaged throughout the project Execution process at Schneider Electric Kenya Limited (mean=4.151), followed by there are effective mechanisms in place for evaluating the performance of energy projects following execution at Schneider Electric Kenya Limited (mean=4.116), the adoption of advanced technology enhances the execution and overall performance of energy projects at Schneider Electric Kenya Limited (mean=4.058), the budgeting processes are effectively managed, ensuring that energy projects remain within the allocated budget at Schneider Electric Kenya Limited (mean=4.058), and that the execution process for energy projects at Schneider Electric Kenya Limited is thorough band well-organized (mean=3.924).

The findings depict that key stakeholders are sufficiently engaged throughout the project Execution process at Schneider Electric Kenya Limited. These findings are strongly supported by [20], who observed that project performance is significantly influenced by the effectiveness of project management processes, particularly planning, monitoring, and control. Their study emphasized that delays, cost overruns, and compromised quality are common challenges arising from inadequate execution, particularly in energy projects where scale and strategic importance heighten the impact of such failures. [5] Highlight the

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importance of aligning project execution processes with organizational goals and stakeholder expectations. Their study found that energy projects employing systematic and structured methodologies tend to achieve higher performance outcomes in terms of efficiency, effectiveness, and sustainability. This aligns with Schneider Electric's strategy of integrating innovative solutions and risk mitigation approaches in managing resources throughout the project lifecycle.

Table 6: Rating on Project Monitoring and Control

Activity	Mean	Std Dev
Projects at Schneider Electric Kenya Limited are taken through quality monitoring tools	4.250	0.718
There is effective tracking of the projects in Schneider Electric Kenya Limited	4.430	0.676
There are effective follow-ups on correction actions when there is a variance during the project life	4.180	0.637
What is the overall rating of Schneider Electric Kenya Limited on decision-making based on project monitoring reports	4.273	0.641
How would you rate the use of performance indicators in project monitoring	4.128	0.706

Source: Field Data (2025)

From the results, the study found that there is effective tracking of the projects in Schneider Electric Kenya Limited (mean=4.43), followed by overall rating of Schneider Electric Kenya Limited on decision-making based on project monitoring reports was good (mean=4.273), projects at Schneider Electric Kenya Limited are taken through quality monitoring tools (mean=4.25), there is effective follow-ups on correction actions when there is a variance during the project life (mean=4.18), and that the use of performance indicators in project monitoring was good (mean=4.128). This depicts that there is effective tracking of the projects in Schneider Electric Kenya Limited. The findings are in tandem with [7], who documents regular maintenance inspections, documented quality management systems (TQM), total productive maintenance (TPM), lean practices, Six Sigma, and continuous improvement, each enabling consistent monitoring, performance tracking, and responsiveness.

Table 7: Rating on Project Closure

Activity	Mean	Std Dev
Projects at Schneider Electric Kenya Limited are typically completed within the scheduled time frame	3.942	0.480
All necessary documentation is effectively completed and reviewed before project closure	3.994	0.439
Stakeholders are consistently satisfied with the final outcomes of projects upon closure	4.006	0.333
The handover process to the client or end-user is seamless and well-coordinated upon project closure	3.890	0.587
Resources (financial, human, and technical) are efficiently reallocated at the time of project closure	4.093	0.804

Source: Field Data (2025)

From the results, it was rated that resources (financial, human, and technical) are efficiently reallocated at the time of project closure (mean=4.093), followed by stakeholders are consistently satisfied with the final outcomes of projects upon closure (mean=4.006), all necessary documentation is effectively completed and reviewed before project closure (mean=3.994), projects at Schneider Electric Kenya Limited are typically completed within the scheduled time frame (mean=3.942), and that the handover process to the client or end-user is seamless and well-coordinated upon project closure (mean=3.89). This depicts that resources (financial, human, and technical) are efficiently reallocated at the time of project closure. [3] Efficient resource reallocation at project closure minimizes costs and maximizes operational efficiency. They argue that human and technical resources should be reassigned promptly to maintain momentum in the project portfolio pipeline.

4.4 Correlation Analysis

Table 8: Correlation Analysis

		PI	PP	PE	PMC	PC	PP2
PI	Pearson Correlation	1	.607**	.354**	.202**	.411**	0.661
	Sig. (2-tailed)		0	0	0.008	0.003	0.005
	N		61	61	61	61	61
PP	Pearson Correlation		1	.331**	0.117	0.215	0.531
	Sig. (2-tailed)			0	0.126	0.256	0.003
	N			61	61	61	61
PE	Pearson Correlation			1	-0.048	.435	.506**
	Sig. (2-tailed)				0.528	0.614	0.000
	N				61	61	61
PMC	Pearson Correlation				1	.398	.543**
	Sig. (2-tailed)					.591	0.000
	N					61	61
PC	Pearson Correlation					1	.670
	Sig. (2-tailed)						0.002
	N						61
PP2	Pearson Correlation						1
	Sig. (2-tailed)						
	N						

** Correlation is significant at the 0.01 level (2-tailed). Project Initiation (PI), Project Planning (PP), Project Execution (PE), Project Monitoring and Control (PMC), Project Closure (PC), Project Performance (PP2)

Source: Field Data (2025)

Strong execution directly boosts performance, though its weak links to monitoring may suggest execution is not tightly overseen or adjusted. The study found that project monitoring and control have a moderate positive correlation with performance ($r = 0.543$, $p = 0.000$). Monitoring helps performance independently, but may not be well integrated with planning or execution in this context. Finally, project closure has the strongest correlation with performance ($r = 0.670$, $p = 0.002$). Effective closure (documentation, lessons learned, handover) has the most substantial impact on overall project success. All five phases positively influence performance. Project Closure ($r = 0.670$) and Project Initiation ($r = 0.661$) show the strongest relationships with performance. Project Execution, Planning, and Monitoring also significantly contribute, though to a slightly lesser extent. This indicates that a holistic and integrated project management approach is vital, with special attention needed at the beginning (initiation) and end (closure) stages for optimal outcomes. The findings agree with a study by [13], which emphasizes the importance of project lifecycle stages in delivering successful projects. It notes that integration and consistency across all phases are crucial for maximizing performance. It specifically highlights that Initiation ensures strategic alignment and stakeholder engagement, while Closure consolidates learning, ensures deliverables are accepted, and prepares for organizational improvement, both of which are critical for long-term performance.

4.5 Diagnostic Tests

Table 9: Test for Normality

Variables	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	Df	Sig.
PI	.364	61	.352	.656	61	.472
PP	.309	61	. 352	.742	61	. 472
PE	.329	61	. 352	.703	61	. 472
PMC	.289	61	. 352	.730	61	. 472
PC	.285	61	. 352	.678	61	. 472

a. Lilliefors Significance Correction
Project Initiation (PI), Project Planning (PP), Project Execution (PE), Project Monitoring and Control (PMC), Project Closure (PC)

Source: Field Data (2025)

It can be concluded that the data for all five project variables, initiation, planning, execution, monitoring and control, and closure, are approximately normally distributed, as all Shapiro-Wilk test p-values exceed 0.05. This satisfies the normality assumption required for conducting various parametric statistical tests, such as Pearson correlation, regression analysis, and t-tests.

Table 10: Test for Multicollinearity

Model	Standardized Coefficients	t	Sig.	Collinearity Statistics	
	Beta			Tolerance	VIF
(Constant)		3.636	.000		
Project Initiation	.188	3.126	.002	.780	1.281
Project Planning	.107	1.451	.004	.512	1.954
Project Execution	.349	4.481	.000	.463	2.162
Project Monitoring and Control	.145	2.463	.003	.815	1.228
Project Closure	.215	3.158	.005	.672	1.347
a. Dependent Variable: Performance of Energy Projects					

Source: Field Data (2025)

From the findings, all VIF values are well below the threshold of 5, with the highest being 2.162 for Project Execution. This means none of the independent variables suffer from problematic multicollinearity. Similarly, Tolerance values are all above 0.1, indicating that each variable contributes uniquely and is not a linear combination of the others. Therefore, multicollinearity is not a concern in this model, indicating that the independent variables can be reliably included in the regression analysis to predict project performance.

Table 11: Test for Heteroscedasticity

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.125	.012		3.856	.000
Project Initiation	.198	.045	.186	0.156	.269
Project Planning	.096	.056	.112	0.258	.128
Project Execution	.256	.089	.349	0.481	.213
Project Monitoring and Control	.174	.070	.145	0.463	.089
Project Closure	.224	.064	.215	0.056	.066
a. Dependent Variable: Performance of Energy Projects					

Source: Field Data (2025)

Based on the output coefficients, all five independent variables have p-values greater than 0.05, with Project Closure (0.066) and Project Monitoring & Control (0.089) being close to the threshold but still above it. According to the Glejser Test, this indicates that none of the variables exhibit significant heteroscedasticity. The assumption of homoscedasticity is satisfied in this model, as the residuals' variance appears to be constant across all predictor variables. Therefore, the regression estimates can be considered reliable and efficient, and standard OLS inference remains valid.

4.6 Regression Analysis

The performance of energy projects at Schneider Electric Kenya Limited was analyzed through regression analysis to assess how the management of the project life cycle, comprising initiation, planning, execution, monitoring and control, and closure affects project outcomes.

Table 12: Model Summary

Model	R	R Square	Adjusted Square	RStd. Error of the Estimate	F	P-value
1	0.89	.792	.742	.312	31.341	.001

a. Predictors: (Constant), project initiation, project planning, project execution, project monitoring and control, and project closure.
b. Dependent Variable: Performance of Energy Projects

Source: Field Data (2025)

The regression model demonstrates a strong and statistically significant relationship between project life cycle handling and the performance of energy projects at Schneider Electric Kenya Limited. With 79.2% of the variation in project performance explained by the model, the findings suggest that effectively managing the different stages of the project life cycle is critical to ensuring successful energy project outcomes.

Table 13: ANOVA Results

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.615	5	3.123	25.185	.002[a]
	Residual	6.944	56	.124		
	Total	**22.559**	**60**			

a. Predictors: (Constant), project initiation, project planning, project execution, project monitoring and control, and project closure.
b. Dependent Variable: Performance of Energy Projects
Source: Field Data (2025)

The analysis reveals that the regression model is statistically significant, as indicated by the F-value of 25.185 and a p-value of 0.002. Since the p-value is less than the conventional threshold of 0.05, this suggests that the model provides a good fit for the data and that the combined effect of the five project life cycle stages significantly influences the performance of energy projects.

Table 14: Regression Coefficients of Determination

	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	T	Sig.
Model 1(Constant)	0.289	0.116		2.491	0.005
Project Initiation	0.619	0.122	0.514	2.61	0.000
Project Planning	0.487	0.117	0.452	2.45	0.003
Project Execution	0.345	0.106	0.413	2.31	0.001
Project Monitoring and Control	0.429	0.098	0.398	2.34	0.001
Project Closure	0.567	0.054	0.388	2.55	0.002

a. **Dependent Variable:** Performance of Energy Projects

Source: Field Data (2025)

From the findings, when all project variables are held constant (0), the baseline performance is 0.289 (significant). All variables are statistically significant (p-values < 0.05), indicating that each project phase meaningfully contributes to project performance. Project Initiation (Beta = 0.514) has the strongest standardized effect, followed by Project Planning (Beta = 0.452). The unstandardized coefficients (B values) show how much project performance changes with a one-unit increase in each factor, while the standardized coefficients (Beta) allow comparison of their relative importance. Emphasizing early phases like initiation and planning could yield the highest impact on performance. This reinforces the importance of a well-structured, holistic approach to project management. [20] supports a structured project management approach, noting that the performance of infrastructure and energy projects is significantly enhanced when all phases are comprehensively implemented. It also identifies governance frameworks that prioritize early-phase activities as crucial to overall outcomes. [5] provides empirical evidence that systematic application of project management practices across all five phases leads to improved project outcomes, particularly in complex and technical sectors like energy.

5.Conclusion

The study concluded that project initiation plays a critical role in influencing the performance of Schneider Electric Kenya Limited by laying a strong foundation for execution, alignment, and outcomes. By ensuring that goals, stakeholders, and resources are strategically aligned at the outset, the company creates a clear roadmap that supports long-term project success. Effective initiation helps anticipate risks, streamline decision-making, and foster collaboration, making it a vital determinant of overall performance.

The study also established that effective project planning allows the organization to allocate manpower, time, equipment, and finances optimally. Structured planning not only improves operational efficiency but also minimizes wastage of resources, prevents duplication of efforts, and ensures that project teams remain focused on deliverables. Whether supported by digital tools or traditional methods, proper planning provides the discipline and clarity necessary to achieve consistency, reduce delays, and improve overall productivity.

In addition, the study concluded that project execution significantly affects performance by ensuring timely delivery, cost control, and customer satisfaction. Strong execution strategies help the company build trust with clients, safeguard profitability, and maintain competitiveness in the market. Clear roles, effective communication, and adherence to established standards during execution reduce the risk of cost overruns, delays, and quality lapses, thereby translating strategic intent into tangible outcomes.

The study further revealed that project monitoring and control have a significant impact on performance. By regularly tracking progress and measuring results against set targets, the organization can quickly identify deviations and take corrective action. This ensures adherence to timelines, budgets, and quality requirements while also enhancing transparency and accountability. Effective monitoring—whether manual or digital—creates a culture of responsiveness and adaptability that strengthens project outcomes and long-term performance.

Finally, the study concluded that project closure enhances organizational learning, resource reallocation, and accountability. A well-structured closure process provides opportunities for reflection, documentation of lessons learned, and recognition of achievements. This not only reinforces customer satisfaction but also ensures that insights gained are embedded into future projects, supporting continuous improvement. Closure, therefore, is not merely a procedural step but a strategic tool for institutionalizing best practices and sustaining long-term success.

5.1 Recommendations

Project managers should establish formal frameworks or guidelines to ensure consistent and inclusive stakeholder engagement at the initial stages. These frameworks should define who is to be involved, when, and how, to avoid tokenism and ensure substantive input from diverse stakeholders, including community members, technical experts, local leaders, and policy actors.

Policy planners should systematically integrate political economy assessments into the design phase. These assessments would help identify potential enablers and blockers within the political, social, and economic environment, thereby ensuring more realistic, context-sensitive planning and resource mobilization strategies.
Project teams develop detailed stakeholder role matrices that define the specific roles, responsibilities, and decision-making authority of each participant. Such matrices can be used to manage expectations, promote accountability, and improve coordination by ensuring that all stakeholders understand their contributions and the scope of their involvement.

Government agencies and development partners invest in capacity-building programs that promote the adoption of globally recognized project management standards (such as PMBOK, PRINCE2, or Logical Framework Approach). Standardization will enhance the quality, comparability, and transparency of project planning processes across sectors and regions.

Digital tools will be introduced in phases, accompanied by hands-on training, technical support, and policy guidance. This will help build institutional capacity, reduce resistance to change, and ensure that technological adoption is aligned with user needs and organizational goals.

5.2 Suggestions for Further Studies

Further studies should be done on the project life cycle handling and performance of projects in other sectors to make a comparison for any consistency.

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