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Project Design Considerations and Successful Implementation of the Health Sector Projects in the County Governments of Kenya

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Abstract

The successful implementation of health sector projects requires adopting effective project design considerations. This can enable the project implementers to overcome the constraints associated with the socioeconomic changes during project implementation. In Kenya, county governments have embraced diverse project design considerations to enhance the implementation of health-sector projects. Hence, the paper examined the relationship between project design considerations and the successful implementation of health-sector projects, moderated by project complexity, within county governments in Kenya. The study adopted a correlational research design and targeted 4,490 health-sector projects across the 47 county governments in Kenya. Stratified and simple random sampling techniques were used to select a sample of 354 health sector projects. Quantitative data were collected using the structured questionnaires and analysed using means, standard deviations, regression, and correlation analysis. The results indicated that project design considerations were related to the successful implementation of health sector projects within county governments in Kenya. It is evident that 25.6% of the variance in the successful implementation of health sector projects was explained by project design considerations. Moreover, project complexity significantly moderated the relationship between project design considerations and the successful implementation of health-sector projects in county governments in Kenya.

Keywords: *Project complexity, Project, Successful project implementation, Project design considerations, county governments*

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1. Introduction

In the health sector, the successful project implementation is vital to achieving the best possible health care outcomes. It is also essential for advancing the well-being and quality of life. This is particularly critical for the county governments, which have been established to bring governance and public services closer to the people (Barkan, 2020). County governments in Kenya consist of a county assembly and a county executive (Kanyinga & Svoronos, 2021). To execute their development agenda, the county governments generate revenue through intergovernmental transfers and own-source revenues (Ngigi & Busolo, 2019). In Kenya, there are 47 county governments established by the 2010 Constitution to decentralize power and promote accountability. Their primary objective is to ensure equitable distribution

of national and local resources. County governments are also tasked with initiating and implementing development projects, particularly in the health sector.

Health sector projects are designed to achieve specific health-related goals, including strengthening health care infrastructure and access (Abdulrahman, 2019). These include projects focused on health promotion and disease prevention. Kioko and Mose (2024) contended that the county governments in Kenya have successfully executed health-related projects. This is because the successful execution of these projects is a crucial phase in achieving specific healthcare goals (Bredillet & Dwivedula, 2019). According to Chandes and Pache (2020), the successful execution of the health sector projects is evident in timeliness, budget adherence, deliverable quality, and achievement of strategic objectives.

Globally, attention has turned to the execution of health-sector projects (Ameer, 2021) amid rapid sectoral development (Bower, 2015). However, in some countries, such as Australia, the implementation of Medicare projects has been questioned due to the high expenditure requirements (Angeles & Hensher, 2023). In New Zealand, Ameer (2021) reported that the involvement of diverse stakeholders through collaborative governance and integrated community participation has positively influenced the successful implementation of health care projects in the regional governments.

Regionally, many African governments remain committed to taking all necessary measures to ensure resources are available to support the execution of healthcare sector projects. This is evident in most countries, where up to 15% of the national annual budget is allocated to improving healthcare at the county level (Kwadwo, 2024). However, the execution of health-related projects by many devolved governments has fallen short of the desired success criteria.

In Kenya, the execution of health sector projects is generally the preserve of county governments (Karanja, 2021), but a conglomeration of other interested parties often works in synergy to support the health care system (Ajwang, 2024). Consequently, the successful execution of the health sector projects has not been achieved. However, notable success stories include the Beyond Zero Campaign, the Output Approach Based Aid (OBA), the Linda Mama Initiative, adolescent and child health programmes, and several projects targeting non-communicable diseases (Durlak, 2025; Kilonzo & Magak, 2017). Kemboi (2021) noted that the adoption of county-specific project design considerations enables county governments to successfully execute health-related projects.

Project design considerations are the processes carried out to enhance project execution (Martinsuo & Hoverfält, 2021). Badewi (2025) observes that effective project designs are expected to produce successful outputs by connecting the most appropriate services to the clients based on their unique requirements and attributes. A good design should incorporate sound research and best practices to determine the best fit among the elements needed to execute a project. McGuire (2025) suggested five key considerations for project design. However, the study evaluated project design considerations based on four indicators, namely sustainability considerations, needs analysis, applicability, and risk evaluation, as moderated by project complexity.

Project complexity refers to the degree of interrelatedness among a project's diverse, evolving, and often unpredictable parts, which makes it difficult to plan, predict, and manage successfully. It arises from multiple interacting factors, including numerous stakeholders, ambiguity, dynamic environments, and intricate systems, rather than just project size (Yakhchali & Farsani, 2013). In this regard, project complexity may act as a moderator, strengthening, weakening, or even reversing the relationship between the predictor and

outcome variables. In this study, project complexity was conceptualized as a function of project size, interdependencies, organizational structures, and technological requirements.

1.1 Problem Statement

Health sector projects play a critical role in addressing the healthcare delivery challenges. Therefore, the successful implementation of these projects is likely to enhance the provision of quality healthcare by promoting social equity and enhancing community resilience. However, significant gaps persist in the successful implementation of health sector projects, particularly in low- and middle-income countries (LMICs) such as Kenya.

Despite increased funding, many health-sector projects in county governments have not met the required implementation milestones, with several delayed by varying percentages. These delays highlight systemic challenges in project design practices and execution. Given the limited research, the role of project design considerations in the execution of health-sector projects has not been adequately addressed. Hence, the study examined the influence of project design considerations on the successful implementation of the health sector projects in the county governments in Kenya.

1.2 Objectives of the Study

1. To ascertain the influence of project design considerations on the successful implementation of the health sector projects in the county governments in Kenya.
2. To determine the moderating effect of project complexity on the relationship between project design considerations and the successful implementation of the health sector projects in the county governments in Kenya.

1.3 Research Hypotheses

This study was guided by the following hypotheses;

1. **H_0:** Project design considerations do not significantly influence the successful implementation of the health sector projects in the county governments in Kenya
2. **H_0:** Project complexity does not significantly moderate the relationship between project design considerations and the successful implementation of the health sector projects in the county governments in Kenya.

2. Literature Review

2.1 Theoretical Review

The study was anchored in theories of systems and project implementation. Formulated by Bertalanffy in 1969, the theory emphasizes the interdependence between systems or sub-systems and maintains that systems rarely exist in isolation but are related to either the external non-social environment or the internal environment of other social systems. The systems also differ in their orientation to time: either they are oriented towards future realisations or towards present satisfactions.

Although the theory is frequently applied in the context of groups, families, or welfare service units or organisations, Friedman and Allen (2022) and Struthers and Strachan (2023) have recognised its relevance to understanding the perceived link between project design considerations and successful project implementation. This is because the theory emphasizes that the proper design of a system's elements can influence its outcome. Hence, the successful implementation of health sector projects is premised on the systems that control the associated subsystems.

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2.2 Conceptual Framework

Figure 1 shows the interactions of the variables with their respective indicators.

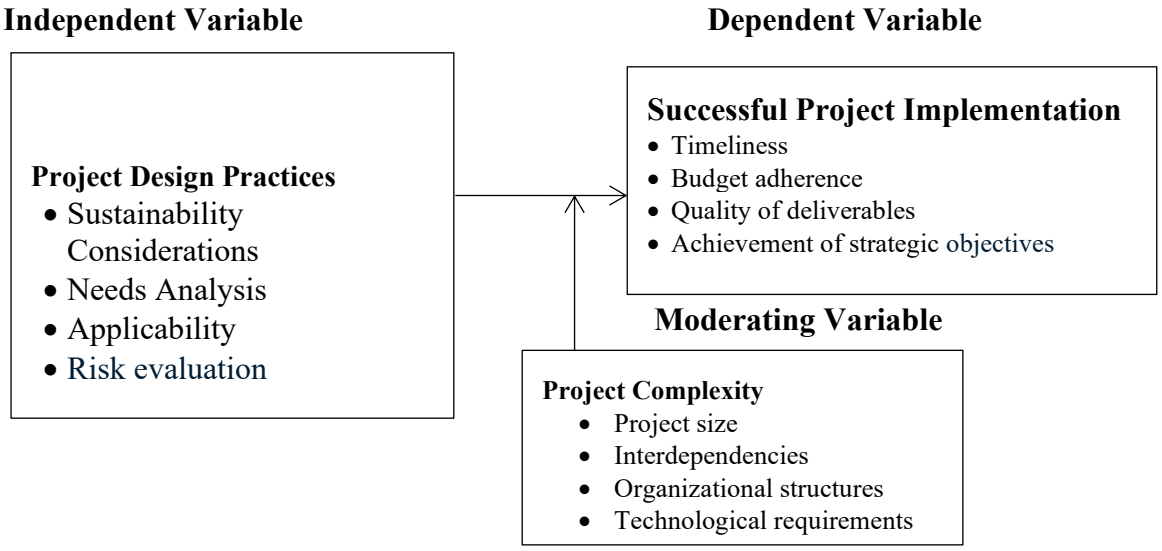

Figure 1: Conceptual Framework

2.2.1 Project Design Considerations

Project design considerations involve defining a project's scope and objectives. According to Badewi (2025), effective project design considerations often incorporate sound research and best practices to determine the best fit among the elements needed for a project to succeed. This study considered four project design considerations: sustainability, needs analysis, applicability, and risk evaluation. Project sustainability considerations include integrating environmental, social, and economic principles across all project phases (Morrison & Kalman, 2023), while the project needs analysis focuses on identifying gaps between current and desired outcomes to ensure the project remains relevant. Analysing project applicability, on the other hand, helps determine if a project meets all the necessary requirements and is eligible for approval or support. According to Lgremazy (2023), project risk evaluation is the process of identifying, analysing, and prioritizing potential risks that could impact a project's success.

2.2.2 Project Complexity

A project's complexity is the degree to which its numerous, interdependent elements make its overall behavior difficult to understand, foresee, and control. It arises from the intricate interplay of factors, including large scope, technical challenges, dynamic market conditions, evolving client needs, stakeholder interests, and human dynamics. Managing complexity requires careful planning, adaptable strategies, and vigilant teams to navigate the inherent uncertainties, ambiguities, and unexpected changes that influence project outcomes. According to Yang (2022), all projects are fundamentally similar and should possess the same characteristics. However, project size, interdependencies, organizational structures, and technological requirements were perceived to moderate the relationship between project planning considerations and the successful implementation of the health sector projects in the county governments in Kenya.

2.2.3 Successful Project Implementation

Project implementation involves a comprehensive approach to address the complex challenges and the requirements of healthcare systems (Sligo & Villa, 2017). Therefore, successful project

implementation relies on planning considerations encompassing clear objectives and scope, effective resource and risk management, strong communication and stakeholder engagement, and continuous monitoring to adapt to changes. With regard to health sector projects, the initial phases of implementation typically include thorough needs assessments and stakeholder consultations to identify key health priorities and allocate resources effectively. In addition, robust project management methodologies, such as using information systems for data management, are essential for tracking progress and ensuring accountability (Michelo & Mulla, 2017). Therefore, ensuring successful project implementation involves considering timeliness, budget adherence, quality of deliverables, and achievement of the strategic objectives, as well as the strategic goals, commonly categorized into time, cost, quality, and scope. Hence, the study focused on timeliness, budget adherence, deliverable quality, and the achievement of strategic objectives as parameters for the successful implementation of health-related projects.

2.3 Empirical Review

Scholastic effort has been directed towards conceptualizing the link between project design considerations and successful project implementation. In Canada, Simmavong and Petrella (2023) evaluated the feasibility of implementing Health-Steps in community-based and primary care settings nationwide. The results of this analysis provided insights into project design and project delivery. Musau and Kirui (2021) investigated the influence of project management practices on the successful implementation of government projects in Machakos County. Preliminary findings suggested that project managers provided feedback to beneficiaries through evidence-based written planning, which promoted project ownership and sustainability.

Similarly, the moderating effect of project complexity on the relationship between project design considerations and successful project implementation has evidently featured in past studies. For instance, Yakhchali and Farsani (2013) apparently examined the different project categories that required strategic planning practices in Iran and averred that successful project implementation differed across projects. However, Crawford (2025) averred that successful project implementation was moderated by project complexity, with a focus on project size. This was contrasted with Muller and Turner (2020), who found no significant difference in successful project implementation across project types. Nevertheless, the study found significant differences in successful project implementation across project sizes; hence, the relationship between planning practices and successful project implementation was ascertained to be moderated by project complexity.

It can be construed from the reviewed studies that project design considerations have been examined. However, the studies were inclined towards the general implementation of projects without focusing on their level of success. The inadequacies in the reviewed investigations remained evident, as most studies ignored project complexity as a moderating variable. Therefore, the outcome of the study apparently filled the unprecedented contextual, conceptual, and thematic gaps by showing the link between project design considerations and the successful implementation of health-sector projects, as moderated by project complexity, within county governments in Kenya.

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3. Methodology

3.1 Study Design

The study employed a correlational research design to examine the relationships among the study variables. The correlation design enabled the researcher to ascertain the strength and direction of the relationship existing between the two variables (Creswell, 2014). From this schematization, the direction of the correlation can either be positive or negative. In this study, quantitative data were gathered using the questionnaire and analyzed using correlation and regression analysis. In consideration of the strengths of this design, it was necessary to adopt the correlation design to aid in examining the plausible link between project design considerations and the successful implementation of the health sector projects in the county governments of Kenya, as moderated by the project complexity.

3.2 Target Population

The target population was the active health-sector projects implemented for at least 5 years across the 47 county governments in Kenya. Therefore, the health sector projects formed the unit of analysis. From the available statistics, there were 3,752 health sector projects under implementation or successfully implemented. Hence, the unit observation was the respective managers of the 3,752 projects in the departments of health in the county governments in Kenya.

3.3 Sampling Technique and Sample Size Determination

The stratified sampling technique was utilised to categorise the health projects by county. This approach was preferred because it eliminated any location-related bias. Further, simple random sampling was used to specifically select the projects to be studied. The study used the Krejcie and Morgan (1970) sampling method to select a sample of 354 health-sector projects.

3.4 Study Instruments

Primary data was collected using the semi-structured questionnaires. The questionnaire was divided into 8 sections, which contained closed-ended questions (Mugenda & Mugenda, 2003). Further, the content of the questionnaires actively reflected the itemized parameters of the study variables. To address the research concerns, the questionnaire solicited data on key aspects of project design and successful project implementation. The use of closed-ended items made it easy for the researcher to obtain uniform responses, which were easy to analyze.

3.5 Data Processing and Analysis

Descriptive and inferential statistics were computed to explore the responses to the study variables. For inferential analysis, the study employed Pearson Correlation and regression analysis. Pearson correlation analysis was used to assess the strength of association among the study variables. Thereafter, regression analysis was used to assess the independent variable's ability to predict the outcome variable. The coefficient of determination was computed to ascertain the change in the outcome variable. Analysis of Variance was used to determine the significance of the model. The simple regression model was applied to establish the effect of project design considerations in the hypothesised relationships. The model was tested: $Y = \beta_0 + \beta_i X_i +_{(i=1)}$

Where, Y = Implementation of Health Sector Projects

X_1= Project design considerations

The model for the multiple regression analysis was as follows:

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$$Y= \beta_0+\beta_1 x_1+ +\varepsilon$$

Where:

Y = Implementation of Health Sector Projects

β_0= Constant Term

β_1 **to** β_1 = Regression Coefficients

X_1= Project design considerations

3.6 Moderation Effect of Project Complexity

Simple regression analysis was used to test the moderating effect of project complexity on the relationship between project design considerations and successful implementation. The regression model was: $Y=\alpha+(\beta_1 X)* X_2 M+\varepsilon$

Where, Y = Successful Project Implementation

α = Constant

X = Project Design Considerations

X2M = Project Complexity

ε= margin of error

4. Findings

4.1 Project Design Considerations

As presented in Table 1, project design considerations included sustainability, needs analysis, applicability, and risk evaluation. Regarding sustainability considerations, it is apparent that project design prioritised long-term sustainability over short-term gains (Mean=3.95, SD=.98). However, respondents were noncommittal about whether social and community impacts were considered when implementing the projects (Mean=3.11, SD=.933). This is consistent with Simmavong, Hillier, and Petrella (2023), who averred that for the projects to be successfully implemented, management needs to evaluate the social and community impacts associated with health-related projects. However, the project designs incorporated economic viability and financial sustainability into the decision-making processes (M=3.72; SD=.76).

Regarding applicability, the project objectives and goals established during project planning were aligned with the overall project priorities (M=4.552; SD=.78). This is supported by Telsang (2023), who contended that project prioritization played a significant role in enhancing the project execution. Further, the project plans adhered to relevant standards to ensure quality (Mean=4.254; SD=.82). Moreover, the communication of the project plan was clear and easily understandable, facilitating successful collaboration among teams and stakeholders (Mean=4.80, SD=.79).

Regarding needs analysis, the project objectives and goals established during project planning aligned well with the county government's overall priorities (Mean=3.421; SD=1.27). Zhang and Fearman (2023) support these results, ascertaining that many projects fail because implementers are often subservient to project objectives and goals established during project initiation. However, the project managers seemed to either agree (42.4%) or noncommittal (32.8%) as to whether the project plan incorporated best considerations and adherence to relevant standards to ensure quality and successfulness (Mean=2.857; SD=.94) and whether communication of the project plans was clear and easily understandable, facilitating successful

collaboration among team members and stakeholders, 40.3% were neutral while 38.5% were dissenting (Mean=2.803; SD=.88).

Concerning risk evaluation, the lessons learned from previous projects were systematically documented and integrated into the project planning process (Mean=3.343; SD=1.08) and that research and industry benchmarks were considered when developing project designs (Mean=3.63; SD=.92). In addition, quantitative data relating to successful project implementation metrics were actively used to make informed decisions during project design (Mean=3.55; SD=.92). This is congruent with Figueiredo and Kitson (2023) who averred that the health-related projects are executed based on informed decision guided by quantitative and qualitative data from past experiences. In general, there was a concurrence with the parameters of project design considerations (Mean=3.665; SD=.33). This implied that sustainability considerations, needs analysis, applicability, and risk evaluation adequately captured project design considerations.

Table 1: Project Design Considerations

Statements	SD	D	N	A	SA	Mean	STD
The project design prioritises long-term sustainability over short-term gains	10.1	17.3	26.9	43.0	2.7	3.95	.977
Project design considerations consider social and community impacts during implementation	10.1	8.7	55.2	22.1	3.9	3.11	.933
Project designs incorporate economic and financial sustainability into its decision-making processes	3.6	4.5	56.7	31.6	3.6	3.72	.759
Sustainability Considerations						**3.59**	**.838**
The project manager successfully gathered and analysed the requirements and needs of the project stakeholders	3.0	5.1	42.7	45.4	3.9	3.421	.777
Stakeholder needs are translated into clear project objectives and deliverables	1.2	35.5	42.4	18.2	2.7	2.857	.821
Regular communication channels are established to reassess and validate stakeholder needs throughout the project planning phase	0.6	39.1	42.4	15.2	2.7	2.803	.799
Needs Analysis						**3.027**	**.488**
Project objectives and goals established during project planning align well with the overall priorities of the county government	10.1	14.6	7.8	22.7	44.8	4.552	1.268
The project plan incorporated best considerations and adherence to relevant standards to ensure its quality and successfulness	5.1	12.2	7.5	32.8	42.4	4.254	.944

Communication of the project plan was clear and easily understandable, facilitating successful collaboration among team members and stakeholders	2.4	9.3	9.6	38.5	40.3	4.80	.877
Applicability						**4.535**	**.688**
Lessons learned from previous projects are documented and integrated into the project planning process	8.4	14.9	17.6	52.2	6.9	3.343	1.08
Quantitative data is used to make informed decisions during project design	3.9	9.0	25.1	52.5	9.6	3.549	.924
Research and industry benchmarks were considered when developing project designs	3.0	7.5	25.1	52.5	11.9	3.63	.896
Aggregate Score for risk evaluation						**3.507**	**.825**
Composite index for project design considerations						**3.665**	**.325**

4.2 Project Complexity

Project complexity was examined in terms of project size, interdependencies, organizational structures, and technological requirements, as captured in Table 2. It is evident that project size determined the monitoring techniques applied (Mean=3.609; SD=.94). There were a variety of tools applied to address different aspects of the project (Mean=4.09; SD=.47), and project management sought feedback on how to implement the projects from different quarters (Mean=3.851; SD=.88). With respect to interdependencies, the intricacies and complexities associated with the projects were considered when implementing the projects (Mean=3.77; SD=.82), and the projects successfully highlighted the key performance indicators and milestones (Mean=4.054; SD=.83). However, the respondents were non-committal about whether diverse stakeholder views were sought (Mean=3.313; SD=1.00).

On organizational structures, there was noncommittal response that rapid assessments were conducted as dictated by the structures of the projects (Mean=3.46; SD=.87) and that some projects were executed in different phases (Mean=2.904; SD=.76). However, the structural risks were clearly identified to enhance seamless execution of the projects (Mean=3.752; SD=.48). Shamsudeen, et al (2025) concurred that projects' structural risks moderated the relationship between project planning considerations and successful project implementation.

Regarding technological requirements, the corrective tools were promptly applied to execute project activities (Mean=3.96; SD=1.01), and modern project execution technologies were adopted (Mean=3.63; SD=.98). The respondents were also noncommittal about whether the project implementers placed immense value on advanced technology (Mean=3.73; SD=.98).

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Table 2: Project Complexity

Statements	SD	D	N	A	SA	Mean	STD
The project size determines the monitoring techniques applied	0	18.2	16.1	52.2	13.4	3.609	.935
There are a variety of tools applied to implement different project sizes	4.2	11.8	35.2	16.1	39.0	4.09	.88
The project manager actively seeks feedback on how to implement the projects from different quarters	0	7.5	20.0	52.5	20.0	3.851	.824
Aggregate Score for project size						**3.891**	**.599**
Intricacies associated with the projects are considered when implementing the projects	1.8	13.4	23.0	59.7	2.1	3.77	.818
Projects consider key performance indicators based on their complexity	0	5.1	16.4	46.6	31.9	4.054	.828
The project implementers consider diverse views from difficult project stakeholders	3.3	26.0	10.4	56.7	3.6	3.313	1.003
Aggregate Score for interdependencies						**3.612**	**.485**
Rapid assessments are conducted as dictated by the structure of the project	0.9	14.9	23.3	59.1	1.8	3.46	.799
Some projects are executed in different phases	10.0	16.6	20.4	50.2	2.8	2.904	1.171
The potential risks are clearly identified to enhance seamless execution of the projects	0	11.3	20.6	49.6	18.5	3.752	.886
Aggregate Score for organizational structures						**3.372**	**.339**
Corrective tools are promptly applied to execute project activities	7.5	15.8	19.1	54.9	2.7	3.96	1.014
Modern project execution technology are adopted	4.8	16.1	42.4	27.5	9.3	3.63	.979
Project implementers attach immense value to advance technology	1.2	26.0	13.7	52.5	6.6	3.73	.979
Aggregate Score for technological requirements						**3.791**	**.668**
Composite index for the project complexity						**3.52**	**.305**

4.3 Successful Project Implementation

Project implementation was assessed based on timeliness, budget adherence, deliverable quality, and the achievement of strategic objectives. Regarding timeliness, the project management adhered to scheduled timelines, minimizing time wastage (Mean=3.663; SD=1.04). This is congruent with Ling (2023), who asserted that project execution ought to relate seamlessly to the stipulated execution timelines. It is evident that time planning was used to enhance timely project completion (Mean=3.97; SD=.88). However, project execution did not follow the stipulated timelines (Mean=2.113; SD=.67).

Regarding budget adherence, the respondents were noncommittal that the project outcomes were aligned with the expected budget estimates (Mean=2.722; SD=.96). Similarly, the execution of the projects did not demonstrate a commitment to delivering the project within budget (Mean=2.678; SD=.97). In addition, the respondents disagreed that a multi-sectorial approach was used when formulating the budget (Mean=2.319; SD=.79). As for quality of deliverables, the procurement and supply chain management processes ensured quality health project are executed (Mean=3.66; SD=.92) and that innovative considerations were embraced in ensuring that there was enhanced cost-effective during project execution (Mean=3.97; SD=.81). Nonetheless, the respondents were noncommittal that the execution of the projects demonstrated efficiency in resource utilisation (Mean=2.427; SD=.93). This is supported by et al (2017) who averred that optimal resource utilization helped to meet the clients' satisfaction.

On achievement of strategic objectives, the mechanisms for strategic review of project execution decisions were not reviewed to incorporate stakeholders' feedback (Mean=2.355; SD=.65), and the decisions about project execution were made in a consultative way (Mean=3.119; SD=.62). In addition, there was no commitment to soliciting public opinion regarding project execution (Mean=2.352; SD=.84).

Table 3: Successful Project Implementation

Statements	SD	D	N	A	SA	Mean	STD
Procurement and supply chain processes ensure that quality health projects are executed	4.2	21.8	26.6	20.6	26.9	3.66	.931
Innovative considerations are embraced in ensuring that there is enhanced cost-effectiveness during project execution	3.9	22.5	22.7	18.2	32.7	3.97	.915
The execution of the projects demonstrates efficiency in resource utilisation	6.6	56.7	25.7	9.6	1.5	2.427	.812
Aggregate Score for quality deliverables						**3.35**	**.694**
The project outcomes are aligned with the expected budget estimates	6.9	39.1	32.5	17.9	3.6	2.722	.956
The execution of the projects demonstrates a commitment to delivering within budget	6.3	44.8	28.1	16.7	4.2	2.678	.965
A multi-sectoral approach is used when formulating budget	8.1	63.0	19.7	7.5	1.8	2.319	.798
Aggregate Score for budget adherence						**2.573**	**.822**
Adherence to scheduled timelines minimizes time wastage	2.4	14.9	17.3	44.8	20.6	3.663	1.039
Time planning has been used to enhance timely completion of the project	4.2	9.0	27.5	54.9	4.5	3.97	.878
Following the stipulated timelines ensures the projects activities are completed on time	14.3	63.0	19.7	3.0	0	2.113	.669
Aggregate Score for timeliness						**3.25**	**.596**

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There are mechanisms for strategic review and incorporating stakeholders' feedback	2.7	65.4	26.6	4.5	0.9	2.355	.654
Decisions about project execution are made in a consultative way	0.9	9.6	68.1	19.7	1.8	3.119	.622
There is a commitment to soliciting public opinion regarding project implementation	4.5	72.5	9.0	11.3	2.7	4.352	.841
Aggregate Score for achievement of strategic objectives						**3.26**	**.492**
Composite index for successful project implementation						**3.11**	**.396**

4.4 Correlation Analysis

As shown in Table 4, the results indicated a moderate positive relationship between project design considerations and project implementation (r=0.629, p=0.000). This is congruent with Belout and Gauvreau (2025), whose study presented a strong positive link between project design considerations and successful project implementation.

Table 4: Correlation Coefficients Matrix

		PI	PDC	PC
SPI	Correlation	1	.629**	.383**
	Sig. (2-tailed)		.000	.000
	N	**334**	**334**	**334**
PDC	Correlation	.629**	1	.335*
	Sig. (2-tailed)	.000		.011
	N	**334**	**334**	**334**

**. Correlation is significant at the 0.01 level (1-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
SPI=Successful Project implementation; PDC=Project Design Considerations; PC=Project Complexity

4.5 Regression Analysis for the Study Variables

The regression analysis results presented in Table 5 show the association between project design considerations and the successful implementation of health-sector projects. The null hypothesis (H_0) posited that the project design considerations were not significantly associated with the successful implementation of the health sector projects. The results indicated an R-value of 0.578, suggesting a moderate correlation between project design considerations and successful project implementation. Moreover, the R-squared value of 0.334 indicated that project design considerations explained 33.4% of the variance in successful project implementation. The ANOVA results show an F-statistic of 0.223 with a p-value of 0.002, indicating a good model fit. The unstandardized coefficient for project design considerations was 0.291, with a t-value of 1.152 and a p-value of 0.002. This showed that for every unit increase in project design considerations, the successful implementation score increased by 0.291 units. The regression model fitted to test the relationship was: $Y=\beta_0+\beta_1X_1+\varepsilon$, where

Y = Successful project implementation,

β_0 = Constant,

X_1 = Project design considerations

ε = Error term

The resulting regression model was;

$$Y=2.774+0.291X_1$$

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Table 5: Project Design Considerations

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.578[a]	.334	.319	.11609

a. Predictors: (Constant), Project Design Considerations

ANOVA[a]						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	42.350	1	1.904	12.127	.002[b]
	Residual	10.004	333	.157		
	Total	**52.354**	**334**			

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	*Beta*		
1	(Constant)	2.774	.218		1.152	.000
	Design considerations	.291	.067	.294	3.197	.002

a. Dependent Variable: Successful Project Implementation
b. Predictors: (Constant), Project Design Considerations

4.6 Moderating Effect of Project Complexity

The study employed the simple regression analysis to test the moderating effect of project complexity on the relationship between project design considerations and successful project implementation. It was hypothesized that project complexity did not significantly moderate the relationship between project design considerations and successful project implementation. However, the regression coefficient results after moderation, presented in Table 6, indicated that the relationship between project design considerations and successful project implementation decreased slightly but significantly with the introduction of project complexity (p=0.000).

Table 6: Regression Model after Moderation

Analysis of Variance (ANOVA)					
Model	**Sum of Squares**	**Df**	**Mean Square**	**F**	**Sig.**
Regression	21.715	5	4.947	36.3546	.000[b]
Residual	6.209	329	.108		
Total	**27.924**	**334**			

a. Dependent Variable: Successful Project Implementation
b. Predictors: (Constant), Design Considerations, Project Complexity

Beta Coefficients					
Model	**Unstandardized Coefficients**		**Standardized Coefficients**		
	B	**Std. Error**	***Beta***	**t**	**Sig.**
(Constant)	1.778	.212		6.791	.000
Design considerations	.239	.052	.201	2.824	.000

Dependent Variable: Successful Project Implementation

5. Conclusion

The study examined the relationship between project design considerations and implementation of the health sector projects in the county governments in Kenya. After carefully analyzing the findings, it is evident that project design considerations were significantly related to the successful implementation of health-sector projects. It is deducible that there was a positive relationship between project design considerations and the successful implementation of health-sector projects in the county governments of Kenya. It is concluded that sustainability considerations, needs analysis, applicability, and risk evaluation collectively contributed to the significant change observed in the implementation of health sector projects across county governments in Kenya. Based on these results, 33.4% of the observed change in the successful implementation of health sector projects was attributable to project design considerations. The study also concludes that the project complexity positively and significantly moderated the relationship between project design considerations and the successful implementation of health sector projects.

6. Recommendations

Given that project design considerations are antecedents of the successful implementation of health sector projects, the study recommends that needs analysis, project applicability, sustainability, and risk evaluation be considered during project planning. It is also recommended that project managers prioritize design considerations likely to promote successful project implementation.

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