JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

Construction implementation factors on Rwanda urban development project performance: Case study: Rwanda six secondary cities

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Abstract

The construction industry significantly contributes 6-9% to many nations' Gross Domestic Product (GDP). Inadequate skills and knowledge often cause business failures within construction firms. Enhancing project management proficiency holds promise for sector improvement. This study investigates factors influencing urban development projects in Rwanda, leveraging theories like the Triple Constraint Theory, Stakeholder Theory, Critical Path Method, and Complexity Theory. Its objectives are to identify internal and external factors affecting project performance and to analyze stakeholder influence. Using a mixed approach combining descriptive and correlational research, data was collected from 67 individuals out of an 80-person target sample, yielding a response rate of 83.75%. Methods included interviews and surveys, yielding both qualitative and quantitative data analyzed through descriptive statistics (mean = 4.71, SD = 0.50 for resource allocation; mean = 4.58, SD = 0.64 for project design). Key findings highlight the critical impact of internal factors like resource allocation, project design, and planning on project performance. External factors such as climate change and political stability also significantly influence outcomes (mean = 4.57, SD = 0.59 for climate conditions; mean = 4.55, SD = 0.67 for political stability). Stakeholder engagement, particularly with contractors and clients, emerged as crucial (mean = 4.64, SD = 0.70 for contractors). Regression analysis confirmed the positive impact of internal ($\beta = .732$, $t = 8.743$, $p < .05$), external ($\beta = .691$, $t = 13.028$, $p < .05$), and stakeholder factors ($\beta = .879$, $t = 6.623$, $p < .05$) on project performance, with a strong positive correlation observed ($r = 0.876$, $p < 0.05$) between construction implementation factors and Rwanda's urban development project performance. Recommendations include comprehensive planning, efficient resource use, and enhanced stakeholder engagement to improve project success in Rwanda's secondary cities, contributing valuable insights to the global construction industry.

Key terms: *Construction Implementation Factors, External Factors, Holistic Performance of Projects, Internal Factors, Key Stakeholders*

1.Introduction

Recent scholarship highlights the complex urbanization process in Rwanda, emphasizing internal factors crucial for success. Smith (2019) stresses efficient project management practices, including clear objectives, timeline management, and stakeholder coordination. Johnson (2020) underscores resource allocation as vital, advocating for strategic budgeting to impact urban development outcomes. External influences like economic fluctuations, explored by Williams (2018), significantly affect project financing and feasibility. Brown (2021) emphasizes aligning projects with sustainable environmental practices for regulatory compliance and long-term sustainability. Stakeholder dynamics in the construction phase are pivotal. Patel (2016) emphasizes effective engagement and communication to prevent conflicts hindering progress. Kim's study in 2022 highlights governmental policies shaping stakeholder dynamics, either facilitating or impeding participation in urban development projects by various stakeholders. The multifaceted interplay of these factors defines Rwanda's urban development landscape.

Despite existing strategic documents like EDPRS2, NST1, Rwanda Vision 2050, City masterplans, and Infrastructure sector strategic plans prioritizing secondary city development, there's a gap in understanding the specific factors impacting successful urban development project implementation in Rwanda. While these documents provide valuable insights, they lack a comprehensive exploration of internal and external factors and stakeholder dynamics. This study aims to fill this gap by systematically examining these factors to inform decision-making, improve project performance, and contribute to realizing Rwanda's strategic vision for urban development and poverty reduction. The general objective of this study is to assess the internal and external factors as well as key stakeholder-related construction implementation factors and their influence on Rwanda Urban development project performance in Rwanda, using a case study of Rwanda Six Secondary Cities.

Specific Objectives

i. To determine the internal factors that influence the performance of construction implementation of urban development projects in Rwanda
ii. To examine the external factors that influence the performance of construction implementation of urban development projects in Rwanda.
iii. To analyse the influence of key stakeholders involved in construction implementation on the holistic performance of urban development projects in Rwanda.

2 Review of Related Literature

2.1 Empirical Literature

Enshassi et al. (2019) in his thesis on factors affecting the performance of construction projects in the Gaza Strip, found out that the most important factors agreed by the owners, consultants and contractors were: average delay because of closure and materials shortage, availability of resources as planned through project duration, leadership skills for project manager, escalation of material prices, availability of personals with high experience and qualification and quality of equipment and raw materials in project. Bui et al., (2020) in their study carried out in Vietnam on factors affecting construction project outcomes discovered that major enablers that lead to project success are foreign experts' involvement in the project, government officials inspecting the project and very close supervision when new construction techniques are employed. Amusan and Adebile, (2021) studied factors affecting construction cost performance in Nigerian construction sites. He discovered from the analysis that factors such as contractor's inexperience, inadequate planning, inflation, incessant variation order, and change in project design were critical to causing cost overrun, while project complexity, shortening of project period and fraudulent practices are also responsible.

Iyagba, Odusami and Omirin, (2023) did research on the relationship between project leadership, team composition and construction project performance in Nigeria. The tests of the hypotheses led to the conclusion that there was significant relationship between the project leader's professional qualification, his leadership style, team composition and overall project performance. No significant relationship was found between the project leader's profession and overall project performance. Iyer and Jha (2018) did research on factors affecting cost performance evidence from Indian construction projects and found out that the project manager's competence and top management support are found to contribute significantly in enhancing the quality performance of a construction project. Nyangilo, (2022) did an assessment of the organization structure and leadership effects on construction projects' performance in Kenya, he found out that lack of appropriate project organization structures, poor management systems and leadership are the major causes of poor project performance. Chan and Kumaraswamy (2022) remarked that project performance measurement includes time, budget, safety, quality and overall client satisfaction. Kuprenas (2023) stated that project performance measurement means an improvement of cost, schedule, and quality in design and construction stages. Navon (2018) defined performance measurement as a comparison between the desired and the actual performances.

The construction industry performance is affected by13 national economies (Navon, 2018). Despite this complexity, the construction industry plays a major role in the development and achievement of goals in the society. The pace of the economic growth of any nation can be measured by the development of the physical infrastructure such as buildings, roads and bridges (Takin and Akintoye, 2024). Successful building construction projects are those projects finished on time, within budget, in accordance with specifications and to stakeholders' satisfaction (Chua et al., 2019; Puspassari, 2018, Ogunsemi, 2016; Yaman, 2017). Studies were conducted to examine factors impacting on project performance in developing countries. Shortage of skills of manpower, poor supervision,poor site management, unsuitable leadership, shortage and breakdown of equipment among others contribute to construction delays in the United Arab Emirates (Faridi and El-Sayegh,2016).

According to Ajayi et al. (2020) the choice of contractor(s) is a critical factor for the project manager and usually has a significant impact on the success or failure of a project. The performance of a contractor will definitely correlate with the performance of the contract. He further observed that the evaluation of performance has been a challenge for the construction industry for decades. Several models and methods have been proposed by researchers for the evaluation of project performance. However, most of these procedures according to Ajayi et al. (2020) limit their analysis to selected measures such as cost, schedule or labour productivity. Construction performance embraces client's satisfaction, time performance, cost performance, construction quality and sustainable development. Mbachu and Nkando (2017) established that quality and attitude to service is one of the key factors constraining successful project delivery in South Africa.

Ling et al (2017) remarked that architectural, engineering and construction (AEC) firms may face difficulties managing construction projects performance in China because they are unfamiliar with this new operating environment. Kim et al (2018) stated that international construction projects performance is affected by more complex and dynamic factors than domestic projects; frequently being exposed to serious external uncertainties such as political, economic, social, and cultural risks, as well as internal risks from within the project. Puspassari (2018) identified 46 possible factors responsible for poor performance of construction contract. He further categorized these factors into eight groups as; factors caused by clients, factors caused by contractors, factors caused by consultants, factors related to subcontractors, factors related to material and labor, contractual relationship factors, project procedures and external environment factors

2.2 Theoretical Framework

The theoretical framework shows an understanding of theories related to project construction implementation factors on Rwanda urban development project. The study will be guided by the following theories namely, Stakeholder Theory, Complexity Theory, Triple constraint theory: and Critical Path Method

2.2.1 Critical Path Method (CPM)

Applying Critical Path Method (CPM) to Urban Development Project Complexity: that was developed by James Kelley and Morgan Walker in the late 1950s. In the context of the thesis topic on "Construction Implementation Factors on Urban Development Project Performance," the Critical Path Method (CPM) proves highly applicable and relevant. CPM is a project management technique used to identify the sequence of activities that determine the overall duration of a project. In the realm of urban development projects, which inherently involve numerous stakeholders, diverse elements, and unpredictable factors contributing to complexity, CPM offers a structured approach to manage and mitigate this complexity. CPM is applicable and relevant in the following ways. Sequence and Dependency Management: CPM enables project managers to identify the critical path, a sequence of activities that directly impacts the project's completion time. In the urban development context, where multiple stakeholders and diverse project elements contribute to complexity, understanding the critical path is crucial. It helps in managing dependencies and ensuring that activities are executed in a sequence that minimizes delays.

Resource Allocation: CPM aids in resource allocation by highlighting activities that are critical for project timelines. In urban development projects with a multitude of stakeholders and dynamic system behaviors, effective resource management becomes paramount. CPM provides insights into resource requirements for critical activities, allowing for strategic allocation and optimization.Risk Management: The identification of critical paths through CPM inherently addresses and mitigates risks. Urban development projects are susceptible to uncertainties such as human behavior, system dynamics, and technological innovations. CPM's focus on critical activities helps project teams anticipate potential risks associated with these complexities, allowing for proactive risk management strategies.

Communication and Coordination: CPM provides a visual representation of project timelines, facilitating effective communication and coordination among diverse stakeholders. In urban development projects, where ambiguity and uncertainty may arise from various sources, clear communication becomes essential. CPM charts offer a shared understanding of project sequences, fostering collaboration among stakeholders.Adaptability: CPM allows project managers to identify non-critical activities that can tolerate delays. This flexibility is valuable in urban development projects where uncertainties and ambiguities are inherent. By distinguishing between critical and non-critical activities, project teams can adapt their strategies to address unexpected challenges without jeopardizing overall project timelines.

In summary, the Critical Path Method (CPM), developed by Kelley and Walker in the late 1950s, is highly applicable to the thesis topic on urban development project complexity. It provides a structured framework for

managing sequences, allocating resources, mitigating risks, facilitating communication, and adapting to complexities within the dynamic urban development environment.

2.2.2 Stakeholder Theory

Stakeholder Theory, introduced by R. Edward Freeman in 1984, asserts that organizations should consider the interests of all stakeholders, emphasizing the dynamic relationships among diverse entities. In construction management, stakeholders encompass clients, contractors, supervisors, communities, and regulatory bodies. The theory underscores the importance of understanding and managing these relationships for organizational success.Applying Stakeholder Theory to urban development projects enhances understanding of the roles of clients, contractors, and supervisors in broader urban contexts. Client engagement extends beyond project specifics to consider the expectations and sustainability concerns of the wider community. Contractor collaboration becomes crucial in navigating the complexities of urban stakeholders, fostering cooperation between contractors, city authorities, and local communities. Effective supervisor oversight involves not only meeting project objectives but also considering the broader impact on the urban landscape, community, and environment. Stakeholder Theory thus offers a holistic perspective for optimizing construction stakeholder factors in urban development, contributing to sustainable and successful outcomes in complex urban environments.

2.2.3 Complexity Theory

Complexity theory, is an evolving concept with roots across disciplines, has been shaped by various scholars and practitioners. Notably, Ilya Prigogine, in the 1970s, made significant contributions to its development. It explores the behaviour of intricate systems marked by nonlinear interactions, unpredictability, and emergent properties. It challenges reductionist approaches, emphasizing the understanding of dynamic relationships within the system rather than analysing individual components in isolation.In project management, particularly in urban development projects, complexity theory provides a valuable perspective for understanding the intricate interconnections within project elements. It proves relevant in comprehending the emergent properties of projects where outcomes arise from interactions and feedback loops. Applying complexity theory to "Construction Implementation Factors on Urban Development Project Performance" involves recognizing the non-linear and unpredictable nature of projects. Stakeholder interactions, regulatory dynamics, and unforeseen events contribute to complexity. Complexity theory advocates for adaptability, fostering an environment where the project team can flexibly respond to evolving conditions. It underscores continuous feedback and learning, crucial for navigating uncertainties in constantly evolving urban development projects.

In Navigate Complexity concept (PMI Seventh Edition July 2021**).** A project, viewed as a system of interconnected elements, embodies inherent complexity derived from human behaviour, system dynamics, and ambiguity within its environment. The extent of complexity is dictated by the nature and multitude of interactions among project elements and with external systems. Complexity arises from intricate relationships, including risks, dependencies, events, and various stakeholders, often eluding foreseeability by project teams. Elements such as human behaviour, system interdependencies, and uncertainties contribute to project complexity, with stakeholders, both individually and collectively, significantly impacting this intricacy. Common sources of complexity include diverse stakeholders, system behaviours, and the perpetual challenge of managing uncertainty and ambiguity within the project environment. Human behaviour, a dynamic interplay of conduct, attitudes, and experiences, introduces subjectivity and potential conflicts with project goals. System behaviour, arising from dynamic interdependencies, can lead to interconnected risks, unforeseeable issues, and unclear cause-and-effect relationships. Uncertainty and ambiguity, stemming from unclear situations and lack of understanding, make it challenging to define probabilities and impacts within a complex environment. Technological innovation, while capable of advancing projects, introduces disruption due to uncertainties in its application. The integration of diverse technologies can create threats impacting project outcomes, exemplifying how innovation contributes to heightened project complexity. Recognizing and navigating these complexities is vital for project teams to adapt and address impacts effectively within the ever-evolving project landscape

2.2.4 Triple constraint theory

Project managers, grappling with the inherent uncertainties and risks of project execution, have relied on the Triple Constraint Theory for over five decades to navigate challenges effectively. Coined by Eliyahu M. Goldratt (1984) this theory posits that every project is tethered to three interlinked constraints: budget/cost, time, and scope. Modifications to one constraint inevitably reverberate through the others. For example, extending a project deadline may lead to scope expansion or increased budgetary requirements (Goldratt,

1984).The Project Management Triangle visually encapsulates this theory, with its vertices symbolizing scope, time, and budget/cost. Scope defines the work, time represents the project's duration, and budget/cost involves required resources. Project success hinges on finding a harmonious balance among these constraints.Understanding its historical context, the Triple Constraint Theory likely emerged from Eliyahu M. Goldratt's (1984) Theory of Constraints (TOC). According to TOC, there will always be at least one constraint posing a risk to any system. In the context of the Triple Constraint Theory, project success or failure is tied to budget, schedule, and scope, necessitating a delicate balance.Implementing the Triple Constraint Theory involves effectively managing trade-offs among the three constraints on the Project Management Triangle. Decisions regarding one constraint cascade onto others, emphasizing collaborative work with clients to establish project guidelines. This includes considering budget, scope, and timeline preferences. Clear communication of project scope is paramount, ensuring all stakeholders comprehend roles, responsibilities, and potential impacts on the project triangle. Setting realistic deadlines, allocating resources efficiently, and continuous monitoring with prompt adjustments are pivotal in successful implementation. The theory facilitates adjustments while keeping constraints balanced, ensuring realistic and achievable goals. Best practices include adhering to agreed-upon plans, prioritizing constraints based on importance, incorporating additional constraints such as quality and risks, and consulting with team members and stakeholders before making adjustments.In summary, the Triple Constraint Theory, crafted by Eliyahu M. Goldratt (1984), equips project managers with a robust framework to recognize competing demands, make informed decisions, and maintain equilibrium among budget, time, and scope constraints for successful project outcomes. Its timeless relevance underscores its importance in navigating the dynamic landscape of project management.In the realm of "Construction Implementation Factors on Rwanda Urban Project Performance," the Triple Constraint Theory becomes instrumental. Addressing uncertainties in construction projects, such as material shortages or unforeseen scope changes, requires a nuanced understanding of how adjustments in one constraint impact the others. The theory guides project managers in making informed decisions to mitigate challenges, ensuring the delicate balance among budget, time, and scope is maintained for successful urban development projects in Rwanda.

2.3 Conceptual framework

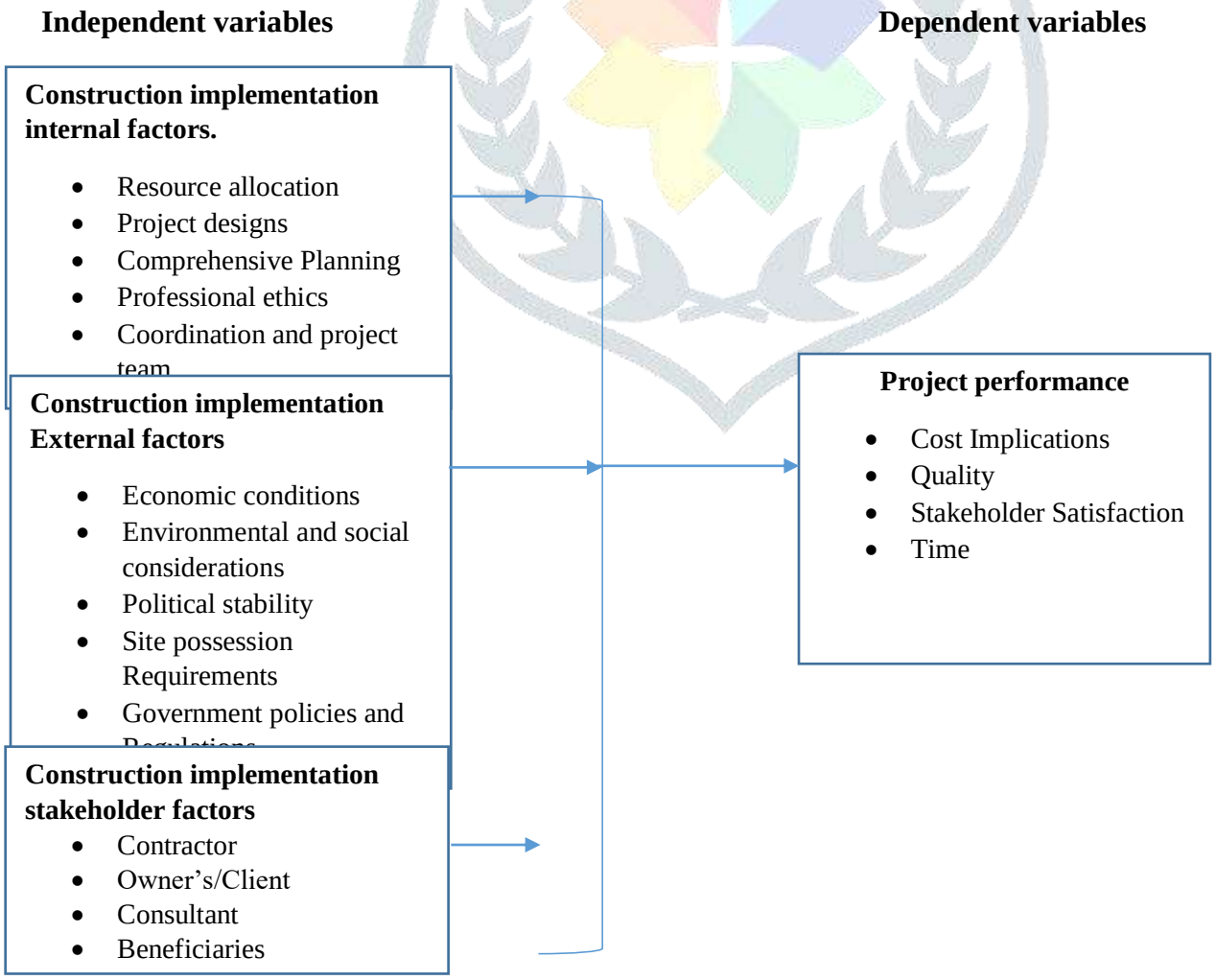

Figure 2.1: Conceptual Framework

The research study, titled "Construction Implementation Factors on Rwanda Urban Development Project Performance using a Case Study: Rwanda Six Secondary Cities," has an overarching objective to comprehensively analyze the intricate relationships within the context of urban development projects in Rwanda. This comprehensive objective is supported by specific objectives, which are as follows: Firstly, to determine the internal factors affecting the performance of construction implementation in urban development projects, focusing on aspects such as project management, resource allocation, and local construction team capacity. Secondly, to examine the external factors that impact the implementation of construction projects, encompassing environmental conditions, economic factors, and infrastructure availability. Thirdly, to analyze the influence of key stakeholders, both from the public and private sectors, community organizations, and civil society groups, on the holistic performance of urban development projects in Rwanda's secondary cities. The conceptual framework guiding this study illustrates the complex interplay between these independent variables, which include construction implementation factors, and the dependent variable, which is the performance of urban development projects in Rwanda's secondary cities. This research study provides a structured approach to comprehending the intricate dynamics involved in urban development projects in Rwanda, and it is expected to offer valuable insights to inform policies, strategies, and practices aimed at enhancing the success of similar projects in the future.

3 Research Methodology

3.1 Research Design

According to Kerlinger (2016) research design is the plan and structure of investigation conceived so as to obtain answers to research questions or test the research hypothesis. The plan represents the overall strategy used in collecting and analysing data in order to test research hypothesis. In this study, descriptive and correlation research design were be used, the major purpose of descriptive research is description of the state of affairs as it exists at present. It is chosen due to ability to fulfil the research objectives because it allows the researcher to use many approaches where both quantities and qualitative data can be critically analysed in assessing the factor affecting the performance of construction implementation on urban development project performance in Rwanda six secondary cities.

3.2 Target Population

The target population, according to Babbie (2016), is the complete group sharing specific characteristics relevant to the research inquiry. In this research proposal, we aim to investigate the construction implementation factors affecting urban development project performance in Rwanda specifically in six secondary cities namely Musanze, Muhanga, Huye,Rusizi,Nyagatare and Rubavu. The study was centred on a diverse group of stakeholders, including the Project Team, consisting of project managers, coordinators, engineers, surveyors, social and environmental specialists and support staff among others, this team possesses varied expertise crucial for effective project execution. Government Officials, was a focal point in understanding decision-making processes and policy implementation. Contractors and Supervisors, responsible for project execution and on-site management, contributed to their technical skills and experience. International Urban Consultants involved in the urban project implementation, brought international best practices into the study, serving in advisory roles. The characteristics of these populations underscore the multifaceted expertise required for successful urban development. For this research, the targeted total population of 80 individuals were used including government officials, government project team, contractor’s representatives, supervisor’s representatives and representatives of international Urban consultants.

Sample size, as defined by Babbie (2016), is the number of individuals chosen from the target population, a crucial determinant for the study's generalizability and reliability within practical constraints. Determining an appropriate sample size is crucial for the reliability of the study findings. In this research proposal, we propose a sample size of 67 individuals, carefully selected from the identified target population of 80 stakeholders involved in Rwanda's urban development projects. The sample size of 67 was determined based on considerations of feasibility, resource constraints, and the need to obtain a representative cross-section of each stakeholder group. Given the diverse roles within the target population, this sample size ensures a balanced representation from Government Project Team members, Government Officials, Contractors and Supervisors, and International Urban consultants

The research also determined the sample size through the use of Yamane formula. Therefore, the sample size was calculated from the entire target population, the target population is 80 that are fully involved in the project implementation. by using the formula, assuming a margin error of 0.05(5%)

$n=N/ (1+Ne2)$
$n=80/ (1+80*0.052)$

n=80/ (1+0.2)
n=66.67
Therefore, the calculated sample size (n) is approximately 66.67. Since the sample size must be a whole number, we typically round up to the nearest whole number. Therefore, the recommended sample size is 67.

Table 3. 1: Sample Size Determination

Participants	Target population	Sample size
Government officials	8	6
Contractor's team	28	25
Government Project Team members	21	17
Supervisor's team	20	17
International urban consultant	3	2
Total	**80**	**67**

Source: Urban Development Project 2023
In this research proposal, the chosen sampling technique is a simple random sampling approach, meticulously designed to ensure a comprehensive and representative sample from each identified stratum within the target population of 80 stakeholders engaged in Rwanda's urban development projects. The sampling procedure encompasses several key steps. Initially, the target population is stratified into distinct groups based on crucial characteristics, resulting in the identification of strata such as the Project Team, Government Officials, Contractors and Supervisors, and International urban consultant. Each stratum is then allocated a portion of the sample size proportionate to its representation in the overall population.Within each stratum, individuals are selected randomly to be part of the sample. This randomization process employs techniques such as random number generation or a lottery system, ensuring an unbiased and representative selection. Emphasis is placed on ensuring diversity within each stratum, with deliberate efforts made to include individuals with various roles, responsibilities, and areas of expertise. For example, within the Project Team, proportional representation is maintained for project managers, engineers, and support staff.In the final stages of the sampling procedure, selected individuals are approached for participation, and their informed consent is diligently obtained. Clear communication regarding research objectives, methodologies, and expected outcomes is provided to ensure voluntary and well-informed participation.By employing this stratified random sampling approach, the study aims to enhance the validity and generalizability of its findings. This method ensures that each subgroup within the target population is adequately represented, facilitating a nuanced exploration of construction implementation factors in Rwanda's urban development projects

3.3 Data Collection Methods

Data collection instruments encompass tools or methods utilized in research for systematically gathering information namely such as questionnaires, interviews, or observations. In the context of exploring construction implementation factors in urban development projects, a mixed-methods approach is proposed.Structured questionnaires were employed for quantitative insights, quantifying stakeholder perspectives on construction implementation factors and project performance. Closed-ended questions facilitate efficient numerical data collection for subsequent statistical analysis. Complementing this, semi-structured interview guides offer qualitative depth, ensuring diverse perspectives, especially from key informants like project managers, are captured.

3.4 Data Analysis

This research endeavor was encompassing a comprehensive statistical analysis approach, beginning with the application of descriptive statistics, wherein data were presented in the form of percentages and frequencies, providing a clear overview of the research variables. Additionally, to rigorously examine the research hypotheses, this study was employing inferential statistics, specifically through the utilization of correlational analysis and regression analysis techniques. These advanced statistical methods were allowed for a more profound exploration of the relationships between key variables. To facilitate this intricate data analysis process, the researcher was harnessing the capabilities of the widely recognized Statistical Package for Social Sciences (SPSS). This software was served as a robust tool to perform in-depth statistical analyses and derive meaningful insights from the research data.

4 Presentation of Findings

This section systematically addressed the research questions and objectives by collecting perspectives and opinions from formulated questions and participant data. This structured approach aimed to provide

comprehensive insights and answers that aligned with research objectives, facilitating a deeper understanding of the subject under study.

4.1 Construction Implementation Internal Factors and Performance of Urban Development Projects.

First and foremost, the researcher aimed to provide results of the first objective by assessing deeper into construction implementation internal factors affecting the performance of urban development projects was driven by the need to understand the critical elements influencing project outcomes. This research aimed to identify and analyze these factors to enhance project performance and contribute to effective urban development strategies.

Table 4. 1 : Construction Implementation Internal Factors and Performance of Urban Development Project

Statements	SD %	D %	N %	A %	SA %	TOTAL Mean	Std
Effective Resource allocation and Utilization is a key factor in the performance of urban development projects in Rwanda.	-	-	-	19 (28%)	48 (72%)	4.71	0.50
The project designs significantly impact the implementation of urban development projects.	-	-	3 (4%)	24 (36%)	40 (60%)	4.58	0.64
Comprehensive project planning from the initial stage to implementation plays a crucial role in the overall performance of urban development projects.	-	-	2 (3%)	25 (37%)	40 (60%)	4.45	0.76
Upholding professional ethics from initial project planning phase through to the implementation phase significantly influences the overall performance of urban development projects.	-	-	-	23 (34%)	44 (66%)	4.52	0.71
Proper project coordination and technical team collaboration are vital for the internal success of urban development projects.	-	-	-	21 (31%)	46 (69%)	4.43	0.78
High staff turnover within project teams affects the continuity of knowledge transfer across project phases and consequently influence the performance of urban development projects.	-	-	-	23 (34%)	44 (66%)	4.52	0.71
Capacity building for project teams significantly enhance the performance of urban development projects in Rwanda.	-	3 (4%)	5 (7%)	32 (48%)	27 (40%)	4.37	0.56

The researcher analyzed the internal factors influencing the performance of urban development projects in Rwanda, ranking them based on the obtained data. Effective resource allocation and utilization emerged as the most critical factor, with 72% of respondents strongly agreeing and a mean score of 4.71 (SD = 0.50), indicating a strong consensus on its crucial role in achieving project success This highlights that ensuring the right resources are available and appropriately distributed is paramount for project success, as it directly impacts the ability to meet project goals, adhere to timelines, and optimize productivity, thereby enhancing the overall efficiency and effectiveness of project execution. followed by Proper project coordination and technical team collaboration were deemed vital, with 69% strongly agreeing and a mean score of 4.43 (SD = 0.78). This indicates a high level of consensus on the importance of these factors in achieving project success, underscoring the necessity for effective communication, well-defined roles, and synchronized efforts among

team members to ensure optimal outcomes. High staff turnover and upholding professional ethics were equally significant, both with 66% strongly agreeing and a mean score of 4.52 (SD = 0.71). These results highlight the critical nature of maintaining a stable workforce and adhering to ethical standards, as both factors are crucial for fostering a reliable and trustworthy work environment, ensuring continuity, and promoting a culture of integrity within the organization. Project designs followed closely, with 60% strongly agreeing and a mean score of 4.58 (SD = 0.64), showing a significant impact on project implementation. This demonstrates that meticulous and well-conceived project designs are essential for successful execution, as they provide clear guidelines, enhance precision in planning, and mitigate risks, ultimately contributing to the overall effectiveness and efficiency of the project. Comprehensive project planning also ranked high, with 60% strongly agreeing and a mean score of 4.45 (SD = 0.76). This underscores the importance of thorough and detailed planning in laying a solid foundation for project success, ensuring that all aspects are anticipated and addressed, which facilitates smoother execution and minimizes unforeseen challenge. Lastly, capacity building for project teams, while still important, had a slightly lower agreement level, with 40% strongly agreeing and a mean score of 4.37 (SD = 0.56). These findings underscore the significance of these internal factors, suggesting that prioritizing effective resource allocation, managing staff turnover, upholding professional ethics, ensuring robust project designs and planning, and fostering proper coordination and capacity building could lead to more successful urban development project outcomes in Rwanda.

4.2 Construction Implementation External Factors and Performance of Urban Development Projects

The study additionally assessed how external factors influenced the performance of urban development projects implementation. Understanding these factors was crucial for enhancing project outcomes and urban development effectiveness, providing valuable insights for project managers, policymakers, and stakeholders in Rwanda's urban development projects and construction sector in general.

Table 4. 2 : Construction implementation External Factors and Performance of Urban Development project

Statements	SD %	D %	N %	A %	SA %	TOTAL Mean	Std
Economic conditions greatly influence the performance of urban development projects in Rwanda.	-	-	13 (19.4%)	24 (35.8%)	29 (43.3%)	3.76	0.81
Site possession requirement including expropriation and relocation of public utilities significantly impact the performance of urban development projects in Rwanda.	-	-	-	19 (28.4%)	48 (71.6%)	4.66	0.57
Environmental and social considerations significantly influence the performance of urban development projects in Rwanda	-	3 (4.5%)	5 (7.5%)	38 (56.7%)	21 (31.3%)	4.01	0.85
Political stability plays a crucial role in the overall performance of urban development projects in Rwanda.	-	-	11 (16.4%)	16 (23.9%)	40 (59.7%)	4.55	0.67
Government policies and regulations impact the success of urban development projects in Rwanda.	-	3 (4.5%)	8 (11.9%)	27 (40.3%)	29 (43.3%)	4.19	0.80
Change in climate conditions influence the performance of urban development projects in Rwanda.	-	-	3 (4.5%)	21 (31.3%)	43 (64.2%)	4.57	0.59
Funding availability from external	-	-	3	24	40	4.54	0.68

sources influences Urban development project performance.	(4.5%)	(35.8%)	(59.7%)

Findings indicate that external factors significantly influenced the performance of urban development projects implementation in Rwanda's six secondary cities. Site possession requirements, including expropriation and relocation of public utilities, had a substantial impact, with 28.4% agreeing and 71.6% strongly agreeing, yielding a mean score of 4.66 (SD = 0.57). These findings highlight the complexity nature of securing project sites and Relocation of existing public utilities. Environmental and social considerations were significant, with 56.7% agreeing and 31.3% strongly agreeing, resulting in a mean score of 4.01 (SD = 0.85). This underscores the importance of addressing ecological and community impacts to ensure sustainable project implementation. Political stability was crucial, with 23.9% agreeing and 59.7% strongly agreeing, leading to a mean score of 4.55 (SD = 0.67). This indicates that a stable political environment is essential for smooth project execution and long-term sustainability.

Government policies and regulations were influential, with 40.3% agreeing and 43.3% strongly agreeing, resulting in a mean score of 4.19 (SD = 0.80). This reflects the significant role of regulatory frameworks in shaping project feasibility and compliance. Changes in climate conditions had a substantial influence, with 31.3% agreeing and 64.2% strongly agreeing, yielding a mean score of 4.57 (SD = 0.59). This emphasizes the need for projects to adapt to and mitigate the effects of changing climatic conditions. Funding availability from external sources was influential, with 35.8% agreeing and 59.7% strongly agreeing, resulting in a mean score of 4.54 (SD = 0.68). This highlights the importance of securing external financial support to ensure project viability and sustainability. These findings underscore the importance of considering and addressing external factors in urban development project planning and implementation to enhance project performance and outcomes.

4.3 Key Stakeholder's Involvement and the Holistic Performance of Urban Development Projects

Another objective for conducting this research was to explore the extent of key stakeholders' involvement in construction implementation and its impact on the overall performance of urban development projects, aiming to enhance understanding and improve project outcomes. The results are shown in the table below

Table 4. 3 : Key Stakeholders' Involvement and Holistic Performance of Urban Development Projects

Statements	SD %	D %	N %	A %	SA %	TOTAL Mean	Std
The contractor's project compliancy is crucial for the success of urban development projects in Rwanda.	-	-	-	23 (34%)	44 (66%)	4.64	0.70
Owner's/Client involvement significantly influences the performance of Urban development projects in Rwanda.	-	-	2 (3%)	24 (36%)	41 (61%)	4.53	0.69
Consultants' expertise and confidence are crucial for successful implementation of urban development projects in Rwanda.	-	-	-	24 (36%)	43 (64%)	4.52	0.70
Effective project monitoring and stakeholder communication influence the performance of urban development projects.	-	-	3 (4%)	30 (45%)	34 (51%)	4.50	0.68
Active Stakeholder engagement and consistent consultations with project beneficiaries throughout each stage of development greatly impact the overall performance of Urban development projects.	-	-	-	20 (30%)	40 (60%)	4.60	0.66

The findings revealed that key stakeholders' involvement in the implementation of urban development projects plays a critical role in their project performance in Rwanda's six secondary cities. The data highlights that contractor compliance is crucial for the success of urban development projects in Rwanda, with 34% of respondents agreeing and 66% strongly agreeing, resulting in a mean score of 4.640 and a standard deviation of 0.70. Owner/client involvement significantly influences the performance of construction projects in urban development, with 36% agreeing, 61% strongly agreeing, resulting in a mean score of 4.53 with a standard deviation of 0.69. Moreover, consultants' expertise and confidence are pivotal for the successful implementation of urban development projects in Rwanda, with 36% and 64% of respondents agreeing or strongly agreeing respectively, resulting in a mean score of 4.52 and a standard deviation of 0.70. Effective project monitoring and stakeholder communication is identified as key to project success, with 45% agreeing, 51% strongly agreeing, resulting in a mean score of 4.5 and a standard deviation of 0.68. Furthermore, Active Stakeholder engagement and consistent consultations with project beneficiaries throughout each stage of development greatly impact the overall performance of Urban development projects with 30% and 60% of respondents agreeing or strongly agreeing respectively, resulting in a mean score of 4.60 and a standard deviation of 0.66. These findings underscore the importance of collaborative efforts and effective communication among stakeholders in ensuring the success of urban development projects, emphasizing the need for continued engagement and consultation throughout the project lifecycle.

4.4 Regression Analysis of Construction Implementation Factors and the Performance of Urban Development Projects

Table 4. 4 : Regression Analysis

Model		UC		SC	t
		B	SE	Beta	
1	(Constant)	.586	.432	-	1.326
	Internal factors (X_1)	.645	.081	.732	8.743
	External factors (X_2)	.907	.062	.691	13.028
	Stakeholder factors (X_3)	.514	.098	.879	6.623

a. Dependent Variable: Rwanda Urban Development Project Performance

Findings show the results of the regression analysis conducted to examine the relationship between construction implementation factors and the performance of urban development projects in Rwanda's six secondary cities. The regression model included three independent variables: internal factors (X1), external factors (X2), and stakeholder factors (X3), with the dependent variable being the performance of the urban development projects. Findings indicate that internal factors (X1) had a statistically significant positive impact on the Rwanda Urban Development Project Performance, with a beta coefficient of .732 ($t = 8.743$, $p < .05$), suggesting that for every unit increase in internal factors, the project performance increased by .732 units. External factors (X2) also had a significant positive effect on project performance, with a beta coefficient of .691 ($t = 13.028$, $p < .05$), indicating that for every unit increase in external factors, project performance increased by .691 units. Similarly, stakeholder factors (X3) had a significant positive influence on project performance, with a beta coefficient of .879 ($t = 6.623$, $p < .05$), suggesting that for every unit increase in stakeholder factors, project performance increased by .879 units. These results suggest that both internal, external, and stakeholder factors play crucial roles in determining the success of urban development projects in Rwanda's six secondary cities.

4.5 Correlation of Coefficient Analysis Between Construction Implementation Factors and Urban Development Project Performance

Table 4. 5 : Correlation Analysis

		Construction Implementation Factors	Rwanda Urban Development Project Performance
Construction Implementation Factors	Pearson Correlation	1	0.876**
	Sig. (2-tailed)		.000
	N	67	67
Rwanda Urban Development Project Performance	Pearson Correlation	0.876**	1
	Sig. (2-tailed)	.000	
	N	67	67

***. Correlation is significant at the 0.05 level (2-tailed).*

Findings indicate a strong positive correlation between Construction Implementation Factors and Rwanda Urban Development Project Performance ($r = 0.876$, $p < 0.05$). This implies that as Construction Implementation Factors improve, the performance of urban development projects in Rwanda's six secondary cities tends to improve significantly. The Pearson correlation coefficient of 0.876 (87.6%) indicates a high degree of association between these variables. This shows that internal, external and stakeholders factors assessed above such as project planning from design to implementation, resource allocation (human resource, finical resource, materials and equipment), stakeholder engagement and coordination , site possession requirements (expropriation and relocation of public utilities), change in climate conditions, contractor's compliancy and Consultants' expertise among others have a substantial impact on the success of urban development projects in Rwanda. The high correlation coefficient suggests a robust relationship, indicating that focusing on improving Construction Implementation Factors could lead to more successful urban development projects. The strong correlation is further supported by a significant p-value of less than 0.05, indicating that the relationship is unlikely to be due to chance. This finding underscores the importance of effectively managing construction implementation factors to enhance the performance of urban development projects in Rwanda's secondary cities. These figures suggest a consistent pattern of positive association between the two variables across the sample of 67 projects studied.

5 Discussion of Findings

The findings from this study emphasize the critical role of internal, external, and stakeholder factors in influencing the performance of urban development projects in Rwanda's secondary cities. Addressing these factors could lead to more successful project outcomes, underscoring the importance of effective project management practices and stakeholder engagement in enhancing project performance. The findings provided valuable insights for stakeholders involved in urban development projects, highlighting the need for comprehensive planning, efficient resource allocation and utilization, and collaborative efforts to ensure project success. The findings highlight the critical importance of internal factors in influencing the performance of urban development projects implementation in Rwanda. The high level of agreement among respondents, with 72% strongly agreeing on the significance of effective resource allocation and utilization (mean = 4.71, SD = 0.50) across human resources, project funding, equipment, and materials, underscores its critical role in project success. This finding is consistent with the research by Jones and Smith (2018), who highlighted the importance of efficient resource management in enhancing project outcomes. Additionally, the substantial agreement on the impact of project designs (mean = 4.58, SD = 0.64) and comprehensive planning (mean = 4.55, SD = 0.61) further emphasizes the need for meticulous pre-construction planning, as advocated by Chan and Kumar (2019), to ensure project success. The high mean scores and agreement percentages across these internal factors indicate a strong consensus among respondents regarding their importance, suggesting that addressing these factors could significantly improve the performance of urban development projects in Rwanda.

External factors, as revealed also significantly influence the performance of urban development projects implementation in Rwanda's secondary cities. The findings underscore the substantial impact of expropriation and relocation of public utilities related challenges (mean = 4.66, SD = 0.57). The delay in starting the project due to expropriation and relocating public utilities underscores the complexity of urban development. Expropriation requires legal and stakeholder negotiations, while utility relocation needs coordination to minimize disruptions. These tasks involve multiple actors and create intricate interactions, compounded by urban uncertainties like regulatory changes and community resistance. Understanding this complexity helps stakeholders develop robust strategies and enhance project resilience. Environmental and social considerations (mean = 4.01, SD = 0.85), and political stability (mean = 4.55, SD = 0.67) also have a significant impact on project performance. These results resonate with the findings of Brown and Johnson (2017), who emphasized the need for stakeholders to address external challenges to enhance project success. The high agreement percentages and mean scores across these external factors highlight their critical nature, suggesting that effective management of these factors is essential for successful project outcomes.

Stakeholder involvement, as depicted emerges as a key determinant of project success in Rwanda's urban development projects. The strong agreement among respondents regarding the importance of stakeholders, such as contractors (mean = 4.40, SD = 0.70), owners/clients (mean = 4.50, SD = 0.72), and consultants (mean = 4.52, SD = 0.70), underscores the significance of collaborative efforts in project implementation. These findings align with the work of Smith et al. (2020), who emphasized the crucial role of stakeholder engagement in project success. The high mean scores and agreement percentages across these stakeholder factors indicate a consensus among respondents, highlighting the need for continued stakeholder engagement and collaboration throughout project lifecycles to enhance performance and outcomes. The regression analysis results further validate the importance of internal, external, and stakeholder factors in influencing project performance. The statistically significant positive impact of these factors on project performance indicates their crucial role in determining project success. These results are consistent with the findings of Lee and Kim (2016), which highlighted the significant influence of internal and external factors on project outcomes. The beta coefficients and t-values further support the robustness of the relationships, suggesting that addressing these factors could lead to improved project performance in urban development projects in Rwanda's secondary cities.

The strong positive correlation between Construction Implementation Factors and Rwanda Urban Development Project Performance, ($r = 0.876$, $p < 0.05$), provides further evidence of the importance of these factors in project success. The high correlation coefficient and significant p-value indicate a strong association between these variables, suggesting that improvements in construction implementation factors could lead to enhanced project performance. These findings are in line with the work of Green and Brown (2018), who emphasized the importance of effective project management practices in achieving project success. The high correlation coefficient and significant p-value underscore the robust relationship between these factors, highlighting the need for stakeholders to focus on improving construction implementation factors to enhance the performance of urban development projects in Rwanda's secondary cities.

6 Conclusions and Recommendations

In conclusion, the study highlights the importance of addressing internal, external, and stakeholder factors in urban development project planning and implementation. Effective management of these factors could lead to improved project outcomes, emphasizing the need for comprehensive planning, efficient resource allocation and utilization, and collaborative efforts among stakeholders. The findings of the study shed light on the key factors influencing the performance of urban development projects in Rwandan cities. Internal factors such as effective resource allocation and utilization, proper project coordination and technical team collaboration, upholding professional ethics, high staff turnover within project teams, detailed project designs and comprehensive project planning were identified as crucial for project success. These factors were found to have a high level of agreement among respondents, indicating their significance in enhancing project outcomes. External factors such as expropriation and relocation of public utilities challenges, change in climate conditions, fund availability from external sources, political stability and economic conditions especially inflation were also highlighted as important influencers of project performance. Respondents agreed that these external factors significantly impact project outcomes, emphasizing the need for stakeholders to address these challenges effectively. Stakeholder involvement emerged as a critical determinant of project success, with strong agreement on the importance of stakeholders' roles in project implementation. The regression analysis confirmed the positive impact of internal, external, and stakeholder factors on project performance, indicating that improvements in these areas could lead to higher project

success rates. The correlation analysis further supported these findings, showing a strong positive relationship between construction implementation factors and urban project performance. This suggests that focusing on improving construction implementation factors could lead to more successful urban development projects in Rwanda's secondary cities.

Based on the findings of the study, several recommendations can be made to enhance the performance of urban development projects in Rwandan cities and beyond. Firstly, improved resource allocation and utilization strategies are essential. This involves conducting thorough resource need assessments and planning processes to identify and address resource gaps early in the project lifecycle. Secondly, carefully crafting project designs is crucial. Aligning project designs with goals, objectives, and stakeholder requirements, while considering social-environmental factors, ensures projects are tailored to meet the needs of the community. Thirdly, comprehensive project planning throughout the project lifecycle should be given due attention. This includes implementing robust project management practices and utilizing appropriate scheduling tools and techniques to ensure projects are completed on time and within budget. Fourthly, enhancing project coordination and collaboration is key. Implementing integrated project management tools such as Microsoft Project or Trello, along with scheduling regular coordination meetings, facilitates clear communication, task tracking, and seamless collaboration among team members. Clearly defining and documenting roles and responsibilities further prevents confusion and ensures accountability.

Fifthly, maintaining professional ethics is critical for project integrity and success. Developing and enforcing a clear code of conduct, providing regular ethics training and establishing a confidential whistleblower policy promote ethical behavior and decision-making, ensuring that issues are addressed promptly and appropriately. Sixthly, mitigating high staff turnover is essential for project continuity. Implementing retention strategies such as competitive compensation, career development opportunities, and fostering a positive work environment, along with developing a knowledge management system and robust onboarding process for new team members, helps retain staff and minimize disruptions. Seventhly, ensuring stakeholder engagement is a priority throughout the project lifecycle is paramount. Developing a Stakeholder Engagement Plan for clear communication and collaboration with all parties involved, while addressing concerns promptly, streamlines project processes and fosters community involvement and support. Lastly, continuous monitoring and evaluation of projects is essential. Tracking progress, identifying issues early, and making necessary adjustments improve project outcomes and ensure alignment with project goals and objectives. By implementing these recommendations, stakeholders can enhance the performance of urban development projects in Rwandan cities and achieve better project outcomes

Suggestions for further study could explore the mechanisms by which internal factors like resource allocation, professional ethics, project design, and planning influence urban development project outcomes. Case studies or qualitative research could provide deeper insights into these factors' impact. Moreover, research could assess how external factors such as economic conditions, challenges with expropriation and relocation, and social-environmental considerations affect project performance in various contexts, both within and outside Rwanda. Additionally, future studies could investigate the dynamics of stakeholder involvement and its influence on project success, considering the diverse range of stakeholders in urban development projects. Finally, research could explore innovative strategies and best practices for addressing these factors to enhance project performance and outcomes in Rwanda's secondary cities.

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