Economic Impacts of Construction Project Overruns and Strategic Mitigation Framework for Akwa Ibom, Bayelsa, and Rivers States

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***Abstract*: The consequences of project overruns are complex and affect various stakeholders including clients, contractors, consultants, and end users, with implications extending beyond the construction sector to the broader economic landscape of a nation. Both cost and time overruns in construction projects hinder anticipated growth in property and service production, which subsequently adversely impacts the rate of national economic growth. This article examines the economic impacts of cost and time overruns in building construction projects in Akwa Ibom, Bayelsa, and Rivers States, and proposes a strategic mitigation exploratory framework grounded in empirical field data.**

A descriptive survey design was employed, and a five-point Likert scale questionnaire was administered to 317 construction stakeholders across the three states, with 242 usable responses representing a 76.34% response rate. Respondents comprised consultants (71%), clients (16%), and contractors (13%), covering residential (56%) and commercial (44%) construction projects. Data on the economic impacts and mitigation strategies were analyzed using mean score and standard deviation, while One-Way ANOVA was used to test the hypotheses at the 0.05 level of significance.

The findings confirm that cost and time overruns increase overall public expenditure (aggregate mean = 3.18), delay expected economic benefits from infrastructure projects, contribute to sectoral inflation, reduce funds available for other developmental projects, and discourage private investment in infrastructure. The overall aggregate mean for economic impacts was 3.02 (SD = 0.52). The One-Way ANOVA result yielded F = 0.353 and p-value = 0.703, confirming no statistically significant difference in respondents' perceptions of these economic impacts across the three states.

Eleven mitigation strategies were identified and strongly agreed upon by respondents, with an aggregate mean of 3.90 (SD = 0.31). Fixed-price contracts (mean = 3.96), use of modern construction technologies such as BIM and project management software (mean = 3.95), and improved communication among stakeholders (mean = 3.93) emerged as the most strongly endorsed strategies. The ANOVA result for mitigation strategies yielded F = 0.006 and p-value = 0.994, confirming that the identified strategies are broadly and consistently accepted as effective across all three states.

A strategic mitigation framework was developed, organized around two pillars — Technology and Process, and Economic and Procurement — and moderated by four contextual mechanisms: institutional capacity, stakeholder commitment, resource availability, and the socio-political environment. The framework follows an input–process–output logic, progressing from root causes categorized under human/political, economic, market, and technology factors, through identified consequences, to the outcome of on-time and on-budget project delivery. It is concluded that a combination of proper contract methods, effective use of technology, good communication, and strong management practices can help reduce cost and time overruns in construction projects in the Niger Delta region of Nigeria.

***Keywords*: Cost Overruns, Time Overruns, Project Management, Construction Projects, Economic Impacts, Mitigation Strategies, Building Information Modelling (BIM)**

1. Introduction

The consequences of project overruns are complex and can be perceived from various perspectives, depending on who is most affected. However, the effects ripple down to various project-related stakeholders: the client, contractor, consultants, and end users. Researchers, clients, contractors, and professionals are increasingly worried about the challenges posed by these cost and time overruns, which include heightened financial expenditures, inefficient use of human resources and materials, conflicts among contracting parties, potential project abandonment, and a decline in the quality of completed work. As noted by Bentil, Nana-Addy, Asare and Fokuo-Kusi (2017), the implications of cost overruns extend beyond the construction sector and have repercussions on the broader economic landscape of a nation. They indicated that both cost and time overruns in construction projects hinder the anticipated growth in property and service production, which subsequently adversely impacts the rate of national economic growth. The findings of Chinemerem & Onyinyechi, (2026) indicate that delays remain a consistent problem within the

construction industry, with cost overruns occurring more often in large-scale projects, while time overruns consistently impact both public and private sector construction.

The study of cost and time overruns on the economy is particularly important in the context of Akwa Ibom, Bayelsa, and Rivers States, which are among Nigeria's most economically active states due to the presence of oil and gas resources and considerable construction activity. Numerous significant research studies have been undertaken over the years regarding project overruns, and despite a range of mitigation strategies, overruns persist. Experts assert that the effective application of suitable project management tools and techniques can significantly mitigate the risk of project overruns (Ikechukwu et al., 2017). This article examines the economic impacts of cost and time overruns in these states and proposes a strategic mitigation exploratory framework grounded in empirical field data.

2. Literature Review

A. Cost Management

The influence of cost management on the delivery of construction projects has emerged as a crucial area of study within the contemporary industrial sector (Cooray & Dissanayke, 2018). To address this issue, project management employs a range of tools and techniques aimed at mitigating excessive costs.

Cost control according to Bichang'a and Kimutai (2023) is defined as the practice of identification and reduction of expenses in an effort to increase returns and profit margins. The practice equally considers comparison of the actual costs versus the estimates and the budgeted costs and installation of measures to reduce costs at every phase of the project implementation. Wardhan (2021) maintains that Project control is essential for ensuring alignment between planning and execution. Managing costs is considered a fundamental and continuous process in project management (Elserougy, Khodeir & Fathy, 2024). During each phase, the cost performance is assessed against the established baseline to detect any discrepancies, allowing for prompt corrective measures to be implemented. The issue of cost overruns is influenced by numerous factors, including psychological biases in cost estimation and monitoring, political interference in decision-making processes, geological and weather conditions, reduced profit margins for contractors, environmental considerations such as waste reduction and sustainability, economic downturns resulting in limited funding, and the impact of high inflation and rising interest rates on construction costs. These elements, along with an increasing emphasis on cost efficiency and the utilization of advanced tools and techniques, have heightened the focus on cost control and the expectation for more precise outcomes. Effective cost control should ensure that available funds are allocated efficiently across various components, maintain the tender amount as close as possible to the initial estimate, and deliver optimal value within the specified expenditure limits (Oyegoke et al., 2021; Chikwarti & Chan, 2023).

Rashid, Al-juboori and Mahjoob (2021) research sought to identify contemporary and effective techniques for managing costs in large-scale construction projects. The study concluded that the five most effective cost control techniques for mega construction projects are as follows: Activity-Based Costing Method, Contract Variance – Unit Costing, To-Complete Performance Index (TCPI), Cost-Value Reconciliation, and Building Information Modelling (BIM). These techniques are essential for adhering to the approved project budget, ensuring an equitable allocation of project funds, utilizing project management software, tracking project progress, and preserving the contractor's profit margin.

The studies reviewed by Elserougy, Khodeir and Fathy (2024) indicated that various techniques are presently employed in the construction industry, such as budget monitoring, resource monitoring, interim valuation, unit costing, and cost variance analysis. The conclusion drawn from the examined research suggests that the implementation of suitable cost control methods significantly improves the efficiency of project cost management. Furthermore, the successful application of these control techniques relies on a thorough comprehension of the objectives and characteristics of the appropriate control strategies utilized within the project processes.

B. Time Management

According to Ismail, Rahman, Memon and Karim (2013) effective time management is a crucial factor in achieving successful project completion. Regrettably, the construction sector is currently facing inadequate time management practices, leading to considerable time overruns. Time management involves the use of diverse methods and techniques to guarantee that projects are finished within the designated timeframe. In the absence of effective time management, various issues may arise, including time extensions or overruns, which are prevalent challenges in the global construction industry today.

According to Oburu (2020) time is a crucial element in project management, encompassing skills such as planning, goal setting, and prioritization to enhance project performance. The Project Management Institute (PMI) has made significant strides in elucidating the essential processes involved in project time management (Mohammed, 2023). These processes encompass all requisite inputs, tools and techniques, outputs, and activities necessary for effective time management.

The processes involved in project time management commence with the identification of specific tasks that project team members and stakeholders must undertake to generate the project deliverables. Once this identification is complete, the relationships among these project activities will be recognized and documented, establishing the dependencies necessary for conducting critical path analysis.

This can be effectively illustrated through project network diagrams, which depict the precedence relationships among activities and clarify the workflow within the project. The subsequent step focuses on estimating the resources required by the project team to execute the activities, followed by determining the duration needed to complete each individual task. However, prior to estimating the duration of activities, it is essential to have a clear understanding of the quantity and type of resources allocated to each task; this information can be derived from a well-defined bill of quantities. The final process involves analyzing the sequences of activities, resource estimates, and duration estimates to formulate the project schedule. In most instances, the outcomes of the preceding time management processes of a similar project can be utilized to establish the start and end dates for the project and its associated activities. Formulating a project schedule is insufficient; it is also essential to monitor that schedule. According to Solís-Carcaño, Corona-Suárez and García-Ibarra (2015), this monitoring process assesses the progress of scheduled activities to gather the necessary data for evaluating the project's schedule performance.

C. Effects of Project Overruns on Stakeholders

The initial party affected by project overruns is the project owner, who has planned for the construction project to be completed within a specified budget (Olupitan, Ajator & Nzeneri, 2021). Any expenses that exceed this predetermined budget are considered cost overruns from the client's perspective. Morena and Amoah (2021) and Negesa (2022) opine that project delay often leads to heightened financial expenditures, inefficient use of human resources and materials, conflicts among contracting parties, potential project abandonment, and a decline in the quality of completed work. Mangvwat et al. (2019) highlights that the most significant consequence of time overruns for the client is the increased financial burden incurred to finalize the project, and that such delays result in a postponed handover of the project, which subsequently defers any revenue the client would otherwise receive. Anosike M.N and Fatayo O.E, (2018) emphasized emphasized that cost overruns, regardless of their causes, present numerous drawbacks. For instance, they can result in increased financial strain on clients, postponed payments, and challenges in cash flow, among other issues.

For professionals, cost overruns signify a failure to provide value for money, potentially damaging their reputations and eroding client trust. For contractors, such overruns represent a loss of profit due to incomplete work and can lead to reputational harm that may hinder their prospects for future contracts (Ikechukwu et al., 2017). Mangvwat et al. (2019) identified several perceived impacts on consultants, which encompass diminished reputation, the necessity to work additional hours, inadequate compensation for services provided, and the potential for sanctions from regulatory authorities. For end users, the repercussions manifest in higher rental or lease prices, as they ultimately bear the burden of these additional expenses.

D. Macroeconomic Effects

Berihu, Grum and Abebe (2023) assert that the most significant consequence of time overruns is the resulting cost overruns, which lead to increased budgets, and that the most prevalent effect of cost overruns is delays, which subsequently impact key stakeholders and the community. The delays and budget excesses associated with construction projects adversely influence the government's infrastructure development efforts and can also diminish the benefits experienced by communities. According to Cantarelli et al. (2008), a comprehensive examination of the various reasons for cost overruns and their effects on broader macroeconomic wellbeing has yet to be fully undertaken. Both cost and time overruns can lead to project cancellations, a decline in construction activities, a tarnished reputation, and difficulties in obtaining project financing, often at increased costs due to perceived risks.

E. Mitigation Strategies

Researchers Olupitan, Ajator and Nzeneri (2021), Morena and Amoah (2021), and Berihu et al. (2023) proposed several strategies to mitigate project overruns, which include ensuring that designs are finalized prior to tendering, reducing the frequency of variation orders, employing suitable construction techniques, placing significant importance on prior experience, engaging experienced contractors, providing accurate pre-contract estimates, implementing effective site supervision, ensuring high-quality workmanship, enhancing contract award processes by prioritizing contractor capabilities, and ensuring thorough project planning. Additionally, Álvarez-Pozo et al. (2024) identified measures that encompass a clearly defined scope of work and contract, guaranteed project financing, the implementation of value engineering, early integration of lessons learned from analogous projects, ongoing monitoring of manufacturing and delivery timelines for critical materials, continuous observation of market trends, and an expedited approval process.

The impact of Building Information Modelling (BIM) on cost overrun risk factors is significant; BIM implementation can lead to quicker completion of construction projects while ensuring superior quality, reduced costs, fewer mistakes, and minimized time delays compared to traditional construction methods (Alnaser, Al-Gahtani & Alsanabani, 2024). Artificial Intelligence (AI) is becoming a revolutionary technology in the construction industry, with predictive analytics utilizing historical project data to enhance the precision of the cost estimation process and reduce the likelihood of budget overruns (Manu, 2024). AI implementation in infrastructure projects in the UK, US, and Singapore led to reductions in cost overruns of 15%, 20%, and 20% respectively (Seecharan & Chadee, 2024).

3. Methodology

The same descriptive survey design was employed. A five-point Likert scale questionnaire was administered to 317

construction stakeholders across Akwa Ibom, Bayelsa, and Rivers States, with 242 usable responses (76.34% response rate). The impacts of cost and time overruns on the economy (Section C) and the strategic mitigation measures (Section D) were analyzed using mean score and standard deviation. One-Way ANOVA was used to test the hypotheses. A criterion mean of 3.00 was adopted (mean ≥ 3.00 = Agreed; mean < 3.00 = Disagreed). Data analysis was carried out using IBM SPSS version 26.

The table 1 is an indication of the questionnaire distributed and retrieved from the respondents.

A total of 317 copies of questionnaire were sent out to various project stakeholders which include: Consultants (Quantity Survyors, Engineers, Architects and Builders), Clients and Contractors. Out of the number of questionnaire distributed, 242 copies constituting 76.34% were retrieved from the respondents which is satisfactory.

Table 1
Questionnaire responses

S/N	Stakeholders	Distributed	Returned	% Returned
1	Clients	54	38	11.99%
2	Consultants	214	172	54.26%
3	Contractors	49	32	10.09%
	Total	317	242	76.34%

Table 2
State of practice of respondents

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Akwa Ibom	77	32	32	32
	Bayelsa	92	38	38	70
	Rivers State	73	30	30	100.0
	Total	242	100.0	100.0	

Table 3
Stakeholder's role in the construction industry

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Client	39	16	16	16
	Consultant	171	71	71	87
	Contractor	32	13	13	100.0
	Total	242	100.0	100.0	

Table 4
Nature of construction project handled

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Residential	136	56	56	56
	commercial	106	44	44	100
	Total	242	100.0	100.0	

Table 5
Summary of mean and standard deviation of the economic impacts of cost and time overruns

S/N	Items	Akwa Ibom (N=78)			Bayelsa (N=93)			Rivers (N=71)			Aggregate (N=242)		
		Mean	SD	RMK	Mean	SD	RMK	Mean	SD	RMK	Mean	SD	RMK
1	Cost overruns in construction projects increase overall public expenditure.	3.35	1.33	A	3.06	1.53	A	3.14	1.31	A	3.18	1.40	A
2	Time overruns delay the economic benefits expected from completed projects.	3.22	1.39	A	3.12	1.42	A	2.73	1.30	N	3.04	1.39	A
3	Cost and time overruns reduce the value for money in public infrastructure.	2.86	1.31	N	2.84	1.47	N	2.96	1.45	N	2.88	1.41	N
4	Prolonged construction projects negatively affect national economic growth.	2.76	1.33	N	3.01	1.31	A	3.23	1.48	A	2.99	1.38	N
5	Cost overruns contribute to inflation in the construction sector.	3.14	1.35	A	2.96	1.31	N	3.06	1.44	A	3.05	1.36	A
6	Cost and time overruns reduce funds available for other developmental projects.	3.00	1.33	A	2.96	1.39	N	3.10	1.49	A	3.01	1.40	A
7	Persistent project overruns discourage private investment in infrastructure.	2.83	1.45	N	3.15	1.42	A	3.14	1.45	A	3.05	1.44	A
8	Cost and time overruns weaken public confidence in infrastructure projects.	3.23	1.42	A	2.76	1.39	N	2.85	1.38	N	2.94	1.41	N
	Grand Mean	3.05	0.48	A	2.98	0.54	N	3.02	0.53	A	3.02	0.52	A

Table 2 shows the distribution across states which indicates that Bayelsa state accounts for 38% of the participants,

followed closely by Akwa Ibom state with 32%, and Rivers state with 30%. This suggests a relatively even spread of participants across these three states, with Akwa Ibom having a slight majority.

Table 6
Summary of mean and standard deviation of mitigation strategies

S/N	Items	Akwa Ibom (N=78)			Bayelsa (N=93)			Rivers (N=71)			Aggregate (N=242)		
		Mean	SD	RMK	Mean	SD	RMK	Mean	SD	RMK	Mean	SD	RMK
1	Proper project planning.	3.79	1.00	A	3.73	0.93	A	3.97	0.91	A	3.82	0.95	A
2	Accurate cost estimation helps to prevent budget escalation.	3.92	0.95	A	3.95	0.94	A	3.92	0.95	A	3.93	0.94	A
3	Effective project scheduling improves timely project delivery.	3.99	0.96	A	3.84	0.98	A	3.94	0.94	A	3.92	0.96	A
4	Timely payment to contractors reduces delays in construction projects.	3.94	0.96	A	3.89	0.90	A	3.82	1.02	A	3.88	0.95	A
5	Improved communication among stakeholders helps minimizes project overruns.	3.87	0.99	A	3.86	1.02	A	4.07	0.88	SA	3.93	0.97	A
6	Strict contract management reduces disputes during project execution.	3.96	0.97	A	3.91	0.89	A	3.83	0.94	A	3.90	0.93	A
7	Regular project monitoring helps control cost overruns.	3.82	0.92	A	3.98	0.94	A	3.93	0.96	A	3.91	0.94	A
8	Adequate risk management strategies reduce unexpected project delays.	3.85	1.05	A	3.72	1.11	A	3.92	1.04	A	3.82	1.07	A
9	Use of modern construction technologies (e.g., BIM, project management software).	3.96	0.90	A	4.13	0.88	SA	3.69	1.06	A	3.95	0.96	A
10	Ensure availability of necessary resources (materials, labor) on-site.	3.82	0.98	A	3.77	0.93	A	4.01	0.92	SA	3.86	0.95	A
11	Fixed-price contracts approach in managing project costs.	3.91	0.96	A	4.06	0.88	SA	3.89	0.99	A	3.96	0.94	A
	Grand Mean	3.89	0.33	A	3.90	0.28	A	3.91	0.34	A	3.90	0.31	A

Table 3 showcases stakeholders in the construction industry and are distributed such that Consultants (Quantity Surveyors, Engineers, Architects and Builders) represent the largest group at 71%, followed by Client at 16%, and Contractor at 13%. Clients and contractors constitute the smallest proportion at 16% and 13% respectively. This indicates a strong representation of consultants within the sample.

Table 4 shows the nature of construction projects handled by the respondents which indicates that residential buildings are the most common, accounting for 56% of projects. Commercial buildings follow at 44%. This suggests a slight emphasis on residential construction among the participants.

From table 5, the grand mean on the impacts of cost and time overruns on the economy was 3.05 (SD = 0.48) for Akwa Ibom, 2.98 (SD = 0.54) for Bayelsa, and 3.02 (SD = 0.53) for Rivers State, with an aggregate mean of 3.02 (SD = 0.52). The relatively low standard deviation suggests a moderate level of consistency in respondents' views. The item with the highest aggregate mean was Item 1 (Mean = 3.18, SD = 1.40), which states that cost overruns in construction projects increase overall public expenditure, with respondents in all three states agreeing. Items 2 (Mean = 3.04) and 5 (Mean = 3.05) showed agreement that time overruns delay the economic benefits expected from completed projects and that cost overruns contribute to inflation in the construction sector, respectively, though Rivers State (Mean = 2.73 for Item 2) and Bayelsa (Mean = 2.96 for Item 5) were neutral.

Item 7 (Mean = 3.05, SD = 1.44) showed agreement that persistent project overruns discourage private investment in infrastructure development. Items 8 (Mean = 2.94), 4 (Mean = 2.99), and 3 (Mean = 2.88) indicated neutral positions overall, suggesting mixed perceptions about whether overruns weaken public confidence, negatively affect national economic growth, and reduce value for money in public infrastructure. The most significant impact identified is the increase in overall public expenditure, while the least emphasized is the reduction in value for money in public infrastructure projects.

Table 6 presents the mean and standard deviation of the strategies that can be implemented to mitigate cost and time overruns in Akwa Ibom, Bayelsa, and Rivers States.

The grand mean on the strategies was 3.89 (SD = 0.33) for Akwa Ibom, 3.90 (SD = 0.28) for Bayelsa, and 3.91 (SD = 0.34)

Table 7
One-Way ANOVA — Effects of cost and time overruns on economic development

Sources	Sum of Squares	df	Mean Square	F	p-value
Between Groups	0.190	2	0.095	0.353	0.703
Within Groups	64.295	239	0.269		
Total	64.485	241			

Table 8
One-Way ANOVA — Effectiveness of strategies to reduce cost and time overruns

Sources	Sum of Squares	Df	Mean Square	F	p-value
Between Groups	0.002	2	0.001	0.006	0.994
Within Groups	45.169	239	0.189		
Total	45.171	241			

for Rivers State, with an aggregate mean of 3.90 (SD = 0.31). This high aggregate mean indicates that respondents across the three states strongly agreed that the identified strategies are effective in mitigating cost and time overruns in construction projects. The low standard deviation implies considerable consistency in respondents' views. The item with the highest aggregate mean was Item 11 — fixed-price contracts approach in managing project costs (Mean = 3.96, SD = 0.94) — with Bayelsa strongly agreeing (Mean = 4.06, SA). Items 9 (Mean = 3.95) and 5 (Mean = 3.93) also ranked high, indicating that the use of modern construction technologies and improved communication among stakeholders are seen as effective strategies, with Rivers State strongly agreeing on communication (Mean = 4.07, SA) and Bayelsa strongly agreeing on technology (Mean = 4.13, SA). Item 2 (Mean = 3.93) shows agreement that accurate cost estimation helps prevent budget escalation, while Item 3 (Mean = 3.92) reflects agreement that effective project scheduling improves timely delivery. Items 6 and 7 (Means = 3.90 and 3.91) indicate agreement on strict contract management and regular project monitoring. Items 10 (Mean = 3.86), 4 (Mean = 3.88), 1 (Mean = 3.82), and 8 (Mean = 3.82) reflect agreement on resource availability, timely payment to contractors, proper project planning, and risk management strategies respectively.

A. Hypothesis Testing: Economic Impacts

The result from table 7 shows the summary of one-way ANOVA on the difference in mean responses regarding the effects of cost and time overruns on economic development in Akwa Ibom, Bayelsa, and Rivers States. The result further shows that there is no significant difference in mean responses on the effects of cost and time overruns on economic development (F=0.353, p-value=0.703). The null hypothesis was retained at the 0.05 level of significance.

The result from table 8 shows the summary of one-way ANOVA on the difference in mean responses regarding the effectiveness of strategies used to reduce cost and time overruns in building construction projects in Akwa Ibom, Bayelsa, and Rivers States.

H01: There is no significant difference in the mean responses of respondents on the effectiveness of strategies used to reduce cost and time overruns in building construction projects in Akwa Ibom, Bayelsa, and Rivers States. The result shows F = 0.006 and p-value = 0.994. The null hypothesis was retained at the 0.05 level of significance. This confirms that the identified strategies are broadly and consistently accepted as effective across all three states.

Based on the identified causes and strategic measures, a framework to reduce cost and time overruns in building construction projects in Akwa Ibom, Bayelsa, and Rivers States was developed (Fig. 4.24). The framework adheres to a robust input → process → output logic widely acknowledged in construction management research. It progresses from root causes to consequences, implements mitigation strategies influenced by contextual mechanisms, and culminates in a favorable project outcome — on-time, on-budget delivery.

B. The Proposed Strategic Mitigation Framework

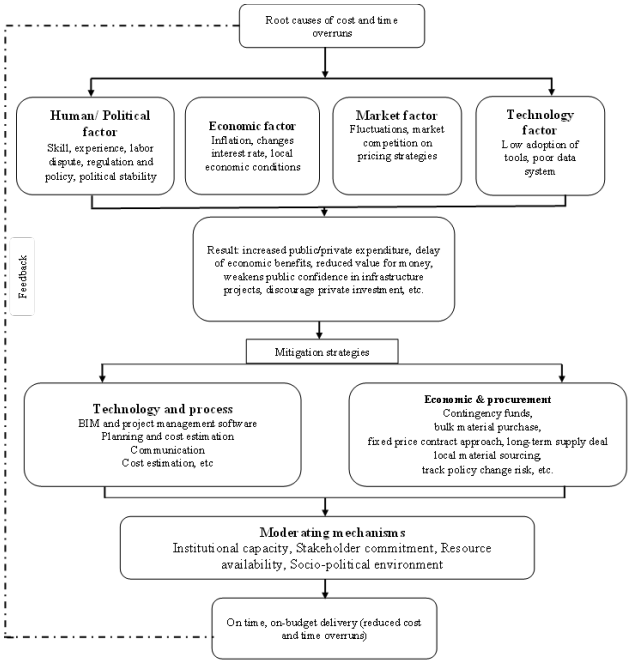

Fig. 1. Exploratory framework to reduce cost and time overruns in building construction projects in akwa ibom, bayelsa and rivers states

The four root-cause categories of the framework are: Human/Political factors (skills, experience, labour disputes, regulation and policy, political stability); Economic factors (inflation, changes in interest rates, local economic conditions); Market factors (fluctuations in material costs and market competition on pricing strategies); and Technology factors (low adoption of tools and poor data systems). These root causes produce consequences such as increased public and private expenditure, delay of economic benefits, reduced value for money, weakening of public confidence in infrastructure projects, and discouragement of private investment.

The mitigation strategies are organized into two pillars. The Technology and Process pillar encompasses BIM and project management software adoption, improvements in planning and cost estimation, and enhanced communication across project stakeholders. The Economic and Procurement pillar encompasses contingency funds, bulk material purchase, fixed-price contract approaches, long-term supply deals, local material sourcing, and tracking of policy change risks. These strategies are moderated by four contextual mechanisms: institutional capacity, stakeholder commitment, resource availability, and the socio-political environment.

The framework's four-tier causal structure is both structurally valid and theoretically grounded. Human/Political factors are well substantiated by Oladipo (2023), Wilson (2015), Akomah and Jackson (2016), and Haruna, Muhammad, Usman and Mohammed (2016), who consistently highlight skills shortages and political interference as key contributors to delays in public

infrastructure projects. Economic factors (Mac Barango and Nwogu, 2022) — particularly inflation, fluctuations in interest rates, and local economic conditions — are well-established contributors, with the construction industry in Nigeria especially susceptible to the depreciation of the naira and the removal of fuel subsidies (Oyegoke, Powell, Ajayi, Godawatte & Akenroye, 2021). Market factors are supported by Ullah Abdullah, Nagapan, Suhoo and Khan (2017) and Hessami (2017). Technology factors are particularly relevant in the Niger Delta context, where the construction sector is largely comprised of small- to medium-sized contractors with restricted access to BIM or project management software.

The identified consequences — increased costs, delayed economic benefits, diminished value for money, eroded public trust, and discouraged private investment — are all empirically substantiated results of construction overruns confirmed by Nnamseh & Akpan (2021), Olusegun, Sakue, Ubodiom & Harold (2023), and Jaja & Nnadi (2024). The Technology and Process mitigation strategies are validated by Matejević-Nikolić and Živković (2021), Alnaser, Al-Gahtani and Alsanabani (2024), and Korke, Gobinath, Shewale and Khartode (2023). The Economic and Procurement strategies — particularly fixed-price contracts and contingency planning — are affirmed by Ajayi and Oyedele (2020) as among the most effective instruments for ensuring cost certainty in unpredictable environments. The outcome variable, on-time and on-budget delivery, aligns with Atkinson's (1999) iron triangle of cost, time, and quality.

C. Discussion

The findings indicate that respondents agreed on the impacts of cost and time overruns on the economy, with an overall mean of 3.02 (SD = 0.52). One clear support from the results is that cost overruns increase overall public expenditure (highest aggregate mean = 3.18). Similar observations appear in other studies where cost overruns in public sector construction projects lead to higher public spending and related economic pressures (Babalola et al., 2022; Morena and Amoah, 2021; Negesa, 2022). The one-way ANOVA test gave F = 0.353 and p-value = 0.703, confirming no significant difference in the views at the 0.05 level across the three states.

The findings on mitigation strategies show a high level of agreement, with an aggregate mean of 3.90 (SD = 0.31). The strong agreement on fixed-price contracts as an effective strategy resonates with the study of Ajayi and Oyedele (2020), who found that fixed-price contracts help control unexpected cost increases and improve financial planning in construction projects. The near-unanimous agreement that modern construction technologies improve project cost and time performance is consistent with the work of Afolabi (2021), Alnaser et al. (2024), and Gobinath (2023), who reported that digital tools and modern methods enhance efficiency, improve coordination, and reduce delays. The result of the hypothesis test confirms that there is no significant difference in the views of respondents on the effectiveness of these strategies, meaning that the identified mitigation measures are generally accepted across all professional groups and across all three states. Overall, the findings show that a combination of proper contract methods, effective use of technology, good communication, and strong management practices can help reduce cost and time overruns in construction projects.

4. Conclusion

This article examined the economic impacts of cost and time overruns in building construction projects in Akwa Ibom, Bayelsa, and Rivers States, and proposed a strategic mitigation framework grounded in empirical field data. The findings confirm that cost overruns increase overall public expenditure, delay expected economic benefits from infrastructure projects, contribute to sectoral inflation, reduce funds available for other developmental projects, and discourage private investment. The one-way ANOVA confirmed no statistically significant difference in respondents' perceptions of these economic impacts across the three states. Eleven mitigation strategies were identified, with fixed-price contracts, modern construction technologies, and improved stakeholder communication emerging as the most strongly endorsed. The proposed mitigation framework — organized around Technology and Process as well as Economic and Procurement pillars, and moderated by institutional capacity, stakeholder commitment, resource availability, and the socio-political environment — provides a contextually valid and empirically grounded pathway to achieving on-time, on-budget project delivery in the Niger Delta construction landscape. Policymakers, developers, and construction professionals must embrace this multi-dimensional approach to break the cycle of project overruns and foster sustainable infrastructure development in the South-South geopolitical zone of Nigeria.

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