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Cost Control and Performance of Network Expansion Projects: Evidence from Amtel Ltd., Mogadishu, Somalia

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Abstract: *This study examined the effects of cost control on the performance of network expansion projects at Amtel Ltd. in Mogadishu, Somalia. Anchored in the Iron Triangle Theory and Agency Theory, the study adopted a descriptive-correlational design within a mixed-methods approach, drawing a Slovin-determined sample of 138 respondents (126 quantitative staff across four functional strata, plus 12 purposively selected key informants) from a target population of 210 project-related staff. A structured questionnaire and a semi-structured interview guide were administered; 120 questionnaires and all 12 interviews were completed, a 95.6% response rate. Content validity (CVI = 1.00) and reliability (Cronbach's α = .873 for the cost-control scale) were both satisfactory. Descriptive results showed that respondents generally agreed that Amtel Ltd. practises effective cost control (mean = 3.81, SD = 0.97), rating its direct positive effect on project performance highest (mean = 4.04) and its contribution to timely project completion lowest (mean = 3.33, the only item rated Moderate), while overall project performance was itself rated High (mean = 3.70, SD = 1.03). Pearson correlation revealed a strong, statistically significant positive relationship between cost control and project performance (r = .741, n = 120, p < .001), the strongest bivariate relationship among the three cost-management dimensions examined in the parent study, and simple linear regression confirmed cost control as a significant predictor, explaining 54.9% of the variance in project performance (R^2 = .549, β = .741, F(1, 118) = 143.992, p < .001); the null hypothesis was rejected. Interview accounts corroborated these results, crediting expenditure approval procedures, computerised financial monitoring, and periodic variance analysis for strengthened financial accountability, while identifying procurement delays and emergent technical requirements, rather than weak financial discipline, as the main residual constraint on timely completion. The study concludes that cost control is the strongest single determinant of network expansion project performance among Amtel Ltd.'s cost-management practices, and recommends that Amtel Ltd. and comparable operators invest in integrated, real-time financial monitoring systems and couple cost-control mechanisms with stronger schedule and procurement management to convert financial discipline more fully into timely project delivery.*

Keywords: Cost Control; Project Performance; Network Expansion; Iron Triangle Theory; Agency Theory; Telecommunications.

1. INTRODUCTION

Cost control, the ongoing monitoring of project expenditure against the approved budget, detection of variances, and application of corrective action during implementation, is the mechanism through which organisations convert an approved financial plan into actual spending discipline once a project is underway (PMI, 2021; Kerzner, 2022). Project performance, correspondingly, is understood as the extent to which a project meets its cost, schedule, quality, and scope objectives (Atkinson, 1999; Serrador & Turner, 2022). Where cost planning sets the financial baseline and budgeting formalises it into an approved instrument, cost control is the dimension of cost management most directly exercised throughout implementation, and its rigour, timeliness, and corrective capacity are widely treated in the literature as the strongest determinants of whether approved financial plans survive contact with the pressures of actual project execution (Fleming & Koppelman, 2016). Evidence across contexts consistently finds cost control to be a powerful performance driver: continuous monitoring, risk management, and accurate cost estimation have been shown to significantly reduce cost overruns (Ahmed, 2024), and structured variance analysis and periodic financial review have been linked to improved construction-project performance in East Africa in ways directly relevant to infrastructure delivery more broadly (Baributsa & Gitahi, 2023).

In Somalia, by contrast, three decades of institutional fragility since the 1991 collapse of the central government pushed telecommunications development almost entirely into private hands, leaving operators to exercise cost control over network expansion with limited recourse to public financing or regulatory buffers (Farah, 2021). Mobile penetration reached roughly 50% nationally by 2022 and over 65% in Mogadishu specifically (World Bank, 2022, 2023), but this growth has unfolded alongside cost overruns estimated at 20-45% on infrastructure projects in comparably fragile contexts, driven by currency volatility, import-dependent equipment procurement, and security-related logistical costs that test the limits of conventional cost-control mechanisms (Abdullahi & Noor, 2021; African Development Bank, 2023).

Amtel Ltd., a telecommunications operator headquartered in Mogadishu, has expanded its network infrastructure substantially across the Banadir region since 2020, and like its peers must monitor and correct project expenditure under conditions of considerable price and exchange-rate uncertainty (Mohamed & Abdirahman, 2023). Ideally, such projects should be subject to cost-control mechanisms rigorous enough to detect and correct financial deviations before they compromise budget, schedule, or quality (Hassan & Ali, 2024; ITU, 2023). Although Somalia's telecommunications sector has attracted growing research attention, most existing studies address infrastructure development, market competition, or technology adoption broadly, rather than the specific question of how rigorously operators monitor and correct project expenditure during implementation, and what difference this makes to eventual project performance (Hassan & Ali, 2024; Ali & Mohamed, 2021). It is against this backdrop that the present study set out to examine the effects of cost control on the performance of Amtel Ltd.'s network expansion project in Mogadishu, Somalia.

2. RESEARCH OBJECTIVE AND HYPOTHESIS

Research Objective: To examine the effects of cost control on the performance of Amtel Ltd.'s network expansion project in Mogadishu, Somalia.

Hypothesis (H_0): Cost control has no significant effect on the performance of Amtel Ltd.'s network expansion project in Mogadishu, Somalia.

3. THEORETICAL REVIEW

Two theories informed this study's examination of the relationship between cost control and network expansion project performance, each offering a distinct perspective on how ongoing expenditure monitoring and correction are expected to shape project outcomes in practice.

The Iron Triangle Theory, propounded by Atkinson (1999), provided the study's core analytical lens. It holds that project success rests on balancing three interdependent constraints, cost, time, and quality, such that overemphasis on any one dimension tends to compromise the others (Atkinson, 1999; Mir & Pinnington, 2019). Cost control is the mechanism through which this balance is actively defended during implementation: by detecting expenditure deviations early and triggering corrective action, cost control prevents the cost leg of the triangle from drifting in ways that would otherwise force compensating, and often damaging, adjustments to schedule or quality (Serrador & Turner, 2020). Critics note that the framework understates stakeholder satisfaction and long-term sustainability (Joslin & Müller, 2022); the theory was nonetheless adopted as the primary lens here because project performance, cost, schedule, and quality, was the central focus of the dependent variable, and cost control is the mechanism through which the cost leg of the triangle is actively defended once implementation begins.

Agency Theory, developed by Jensen and Meckling (1976), offered a complementary lens. It explains how the separation of ownership and management creates the potential for agents (project managers) to pursue interests that diverge from those of principals (owners or financiers), producing inefficiencies and cost escalation unless countered by monitoring and control mechanisms (Jensen & Meckling, 1976; Eisenhardt, 2020). Cost control functions as the most continuous and corrective of these mechanisms: expenditure approval procedures, variance analysis, and financial reporting allow principals to detect deviation from agreed spending in close to real time and to compel corrective action before inefficiency or misreporting compounds, in a way that planning and budgeting, being front-loaded, cannot by themselves achieve (Sari & Othman, 2021). Its principal limitation, a near-exclusive focus on financial accountability with limited attention to non-financial performance dimensions such as service quality (Nguyen & Dang, 2023), is addressed here by pairing it with the Iron Triangle Theory's broader performance criteria.

Taken together, these theories suggest that rigorous, continuous cost control should strengthen project performance both by actively defending the cost-time-quality balance against expenditure drift throughout implementation (Iron Triangle Theory) and by giving principals the most immediate and corrective of the three cost-management mechanisms for constraining managerial discretion over project resources (Agency Theory), a joint proposition that this study's quantitative and qualitative findings speak to directly.

4. RESEARCH METHODOLOGY

4.1 Research Design

The study adopted a descriptive-correlational research design within a mixed-methods approach, combining a quantitative survey with qualitative key informant interviews, incorporating both strands concurrently but separately in order to achieve a more complete understanding of the relationship between cost control and project performance (Creswell & Creswell, 2023; Bryman,

2021). The descriptive component characterised current cost-control practices at Amtel Ltd., while the correlational component examined the strength and direction of the relationship between cost control and project performance (Kothari & Garg, 2021); qualitative data from semi-structured interviews were used to triangulate and contextualise the quantitative findings (Saunders, Lewis, & Thornhill, 2022).

4.2 Population and Sampling

The study population comprised approximately 300 employees engaged in network-expansion-related activities at Amtel Ltd., of whom a target population of 210 (70% of the total), spanning project managers, finance and accounting staff, engineers and technical staff, procurement and logistics staff, and field technicians, was identified as directly involved in cost planning, budgeting, and cost control decisions. Project managers were reserved for the qualitative strand as key informants, leaving the remaining four strata as the sampling frame for the quantitative survey. The distribution of the target population, together with the proportionate sample allocated to each stratum, is presented in Table 1.

Table 1: Quantitative Sample Size Distribution

Category	Target Population	Sample Size	Sampling Technique
Finance and Accounting Staff	35	21	Simple random sampling
Engineers and Technical Staff	88	53	Simple random sampling
Procurement and Logistics Staff	40	24	Simple random sampling
Field Technicians and Support Staff	47	28	Simple random sampling
Total	210	126	—

Source: Field survey (2026).

4.3 Sample Size Determination

The sample size for the quantitative component was determined using Slovin's formula, $n = N / (1 + Ne^2)$, where N is the target population (210) and e is the margin of error (0.05). This yielded a minimum sample size of 126 respondents, allocated proportionately across the four strata in line with each stratum's share of the target population, as shown in Table 1 above. In addition to the 126 quantitative respondents, 12 key informants, 2 project managers, 3 senior finance managers, 3 senior engineers, and 4 technical leaders, were selected for the qualitative strand, bringing the overall target sample to 138.

4.4 Sampling Technique

For the quantitative strand, a simple random sampling technique was used to select respondents from each stratum's staff roll, giving every finance, engineering, procurement, and field-technician employee an equal chance of selection and thereby minimising selection bias. For the qualitative strand, a purposive sampling technique was applied to select the 12 key informants, comprising project managers, senior finance managers, senior engineers, and technical leaders, who were deliberately chosen on account of their direct involvement in expenditure monitoring and corrective financial action and were therefore well placed to provide in-depth insight into how cost control is applied in practice (Creswell & Creswell, 2018).

4.5 Data Collection

Quantitative data were collected using a structured questionnaire composed of closed-ended, five-point Likert-scale items measuring cost control (the independent variable) and project performance (the dependent variable), among other cost-management constructs; this paper reports the cost-control and project-performance findings specifically. Qualitative data were collected using a semi-structured interview guide administered to the 12 purposively selected key informants, covering themes such as expenditure monitoring, financial accountability, variance analysis, and the relationship between cost control and schedule adherence.

4.6 Validity and Reliability

Content validity was established through expert review by three project-management and finance specialists; the Content Validity Index (CVI) for the cost-control construct was 1.00, well above the 0.70 acceptability threshold. Reliability was assessed through a pilot test with 15 respondents from a comparable telecommunications organisation, using Cronbach's alpha; the cost-control scale achieved $\alpha = .873$, the highest of the three cost-management constructs examined in the parent study, exceeding the 0.70 threshold for acceptable internal consistency. For the qualitative data, credibility was supported through triangulation of informants across functional roles and careful verbatim transcription of interview recordings.

4.7 Data Analysis

Quantitative data were analysed in SPSS version 28 using descriptive statistics (frequencies, percentages, means, and standard deviations), Pearson product-moment correlation, and simple linear regression to test the null hypothesis (Creswell & Creswell, 2023). Qualitative data from the interviews were transcribed verbatim and analysed thematically following Braun and Clarke's (2021) six-phase framework, familiarisation, initial coding, theme searching, theme review, theme definition, and reporting, with the resulting themes used to triangulate and explain the quantitative results (Guest, Namey, & Mitchell, 2020).

4.8 Ethical Consideration

The study adhered to established ethical protocols to protect respondents and key informants while maintaining the credibility of the research process. All participants, including questionnaire respondents and key informants, were provided with written consent forms explaining the study's objectives, the voluntary nature of participation, and the right to withdraw at any stage without penalty. Respondents' names and other identifying information were replaced with codes in both the questionnaires and interview transcripts, and all data were stored securely and made accessible only to the researcher, so that participants could provide honest responses without fear of being personally identified. Participation was strictly voluntary throughout, and all findings were reported honestly and objectively to preserve the integrity of the research (Saunders et al., 2022).

5. RESULTS

5.1 Response Rate

Of the 126 questionnaires distributed to the sampled finance, engineering, procurement, and field-technician staff, 120 were fully completed and returned, yielding a response rate of 95.2%, while 6 questionnaires (4.8%) were either not returned or were excluded during data cleaning. On the qualitative strand, all 12 planned key informant interviews were successfully conducted, representing a 100% completion rate. Overall, 132 of the 138 targeted respondents participated, an overall response rate of 95.6%, comfortably above the 70% threshold conventionally regarded as adequate for survey-based research (Saunders et al., 2022). The details are presented in Table 2.

Table 2: Response Rate

Category	Frequency	Percentage (%)
Questionnaires Distributed	126	100.0
Questionnaires Returned and Usable	120	95.2
Questionnaires Not Returned / Incomplete	6	4.8
Key Informant Interviews Planned	12	100.0
Key Informant Interviews Conducted	12	100.0

Source: Field survey (2026).

5.2 Demographic Characteristics of Respondents

Table 3: Demographic Characteristics of Quantitative Respondents (N = 120)

Demographic Variable	Category	Frequency	Percentage (%)
Sex	Male	84	70.0
	Female	36	30.0
Age	18-25 years	18	15.0
	26-35 years	42	35.0
	36-45 years	35	29.2
	46-55 years	18	15.0
	56 years and above	7	5.8
Highest Level of Education	Diploma	20	16.7

Demographic Variable	Category	Frequency	Percentage (%)
	Bachelor's Degree	62	51.7
	Master's Degree	30	25.0
	PhD	3	2.5
	Other (Professional Certification/HND)	5	4.1
Years of Work Experience	Less than 1 year	8	6.7
	1-3 years	28	23.3
	4-6 years	37	30.8
	7-10 years	29	24.2
	More than 10 years	18	15.0
Department/Unit	Finance and Accounting	20	16.7
	Engineering and Technical	50	41.7
	Procurement and Logistics	23	19.2
	Field Technicians	27	22.5

Source: Field survey (2026).

The demographic profile of the 120 survey respondents showed a workforce concentrated in technical and engineering roles. Male respondents formed the majority at 70.0% (n = 84), against 30.0% (n = 36) female respondents, reflecting the technical nature of telecommunications infrastructure work where engineering and field operations are traditionally male dominated. The age distribution was concentrated in the 26-35 years bracket (35.0%, n = 42), followed by 36-45 years (29.2%, n = 35), indicating a workforce within the active, productive working-age group. Educational attainment was high, with 51.7% (n = 62) holding a bachelor's degree and a further 25.0% (n = 30) holding a master's degree. On work experience, 30.8% (n = 37) had 4-6 years with Amtel Ltd., and a cumulative 70.0% had four years or more, indicating a reasonably experienced workforce. Respondents were drawn predominantly from the Engineering and Technical department (41.7%, n = 50), followed by Field Technicians (22.5%), Procurement and Logistics (19.2%), and Finance and Accounting (16.7%), meaning the views obtained reflect all departments directly involved in monitoring and controlling project expenditure.

5.3 Descriptive Statistics of Cost Control

Respondents were asked to rate five statements on cost-control practice at Amtel Ltd. on a five-point Likert scale. The results, summarised in Table 4, show an overall mean of 3.81 (SD = 0.97), the highest overall mean among the three cost-management dimensions examined in the parent study, with timely project completion standing out as a comparative weakness.

Table 4: Descriptive Statistics of Cost Control (n = 120)

Statement	Mean	SD	Interpretation
The organization has effective cost control measures for network expansion projects.	3.81	0.98	High
Monitoring project costs regularly helps in detecting deviations early.	3.99	0.86	High
Cost control mechanisms improve financial accountability among project staff.	3.86	0.96	High
Cost control enhances timely project completion.	3.33	1.23	Moderate
The use of cost control practices has a direct positive effect on project performance.	4.04	0.82	High
Average Mean (n = 120)	3.81	0.97	High

Source: Field survey (2026).

Agreement was strongest for the statement that the use of cost control practices has a direct positive effect on project performance (mean = 4.04) and for its role in enabling early detection of expenditure deviations (mean = 3.99), and weakest for cost control's contribution to timely project completion (mean = 3.33, the only item rated Moderate rather than High). One informant described the control procedures in practice: "every project operates under approved expenditure limits, and all major purchases require authorisation from both project management and the finance department before funds are released" (KII 11), a process another informant described more fully: "cost control is maintained through expenditure approvals, budget tracking reports, procurement verification procedures, and periodic financial audits to ensure compliance with approved budgets" (KII 12).

Early detection of financial deviations through monitoring was similarly well supported in the qualitative data. One informant explained that "project expenditures are monitored through monthly financial reports, computerised accounting systems, and periodic budget variance analyses that compare planned and actual spending" (KII 3), while another noted that "engineering supervisors submit regular progress reports which are matched with financial expenditure reports to identify any inconsistencies at an early stage" (KII 4). The comparatively lower rating for timely completion was explained by two further informants: "strong cost control reduces unnecessary spending, but project completion can still be delayed by equipment delivery problems or technical changes that occur during implementation" (KII 7), and "maintaining financial discipline improves implementation efficiency, although unexpected operational challenges occasionally require additional time before project activities can be completed" (KII 8).

5.4 Descriptive Statistics of Project Performance

Project performance was assessed using five items covering timely completion, cost efficiency, technical quality, network coverage, and the overall contribution of cost management to performance. The results, summarised in Table 5, produced an overall mean of 3.70 (SD = 1.03), interpreted as High.

Table 5: Descriptive Statistics of Project Performance (n = 120)

Statement	Mean	SD	Interpretation
Network expansion projects are completed within the planned schedule.	3.43	1.19	High
Network expansion projects are implemented within the approved project budget.	3.58	1.12	High
The completed network infrastructure meets the required technical quality standards.	3.97	0.88	High
The planned network coverage is fully achieved upon project completion.	3.47	1.17	High
Effective cost management contributes to improved overall project performance.	4.06	0.80	High
Average Mean (n = 120)	3.70	1.03	High

Source: Field survey (2026).

Respondents most strongly agreed that effective cost management contributes to improved overall project performance (mean = 4.06) and that completed infrastructure meets required technical quality standards (mean = 3.97), while timely completion against planned schedules recorded the lowest, though still High, rating (mean = 3.43), a pattern consistent with the cost-control construct's own weakest item. Qualitative accounts reinforced this reading: one informant noted that "although unexpected price fluctuations occasionally affect implementation costs, continuous expenditure monitoring and timely budget adjustments have enabled most projects to remain financially successful" (KII 9), while another observed that "projects that consistently apply expenditure controls, financial reviews, and corrective actions usually remain within budget and achieve better implementation outcomes than projects with weak financial oversight" (KII 10). Overall, both strands of evidence indicate that Amtel Ltd.'s network expansion projects perform well on cost and quality dimensions, with schedule adherence the comparatively weaker, though still favourable, performance dimension.

5.5 The Relationship between Cost Control and Project Performance

Table 6: Correlation between Cost Control and Project Performance

		Cost Control	Project Performance
Cost Control	Pearson Correlation	1	.741**
	Sig. (2-tailed)	—	.000
	N	120	120
Project Performance	Pearson Correlation	.741**	1
	Sig. (2-tailed)	.000	—
	N	120	120

***Correlation significant at the 0.01 level (2-tailed). Source: Field survey (2026).*

Pearson product-moment correlation revealed a strong, positive, and statistically significant relationship between cost control and project performance ($r = .741$, $n = 120$, $p < .001$), the strongest bivariate relationship among the three cost-management dimensions examined in the parent study, and the null hypothesis was consequently rejected. The positive coefficient indicates that improvements in cost-control practice are associated with corresponding improvements in project performance, consistent with the Iron Triangle Theory's premise that actively defending the cost leg of the triangle during implementation supports the subsequent balancing of cost, schedule, and quality.

5.6 Simple Regression of Cost Control on Project Performance

Table 7: Simple Regression of Cost Control on Project Performance

Variable	Unstd. B	Std. β	t	Adj. R^2	F	Sig.
Constant	.986	—	3.976	—	—	.000
Cost Control	.742	.741	11.999	.545	143.992	.000

Dependent variable: Project performance. Source: Field survey (2026).

The results of the simple linear regression analysis provided further support for the rejection of the null hypothesis (H_0), which stated that cost control has no significant effect on the performance of Amtel Ltd.'s network expansion project. The regression model was statistically significant ($F(1, 118) = 143.992$, $p < .001$) and demonstrated the strongest explanatory power of the three cost-management dimensions examined in the parent study, with cost control accounting for approximately 54.9% of the variance in project performance ($R^2 = .549$, Adjusted $R^2 = .545$). The unstandardised coefficient ($B = .742$) indicates that a one-unit improvement in cost control is associated with a .742-unit improvement in project performance, holding other factors constant, while the standardised coefficient ($\beta = .741$, $t = 11.999$, $p < .001$) confirms cost control as the strongest individual predictor examined in this line of research. This finding is well explained by the Iron Triangle Theory, which anticipates that actively defending project expenditure against deviation supports the balancing of schedule and quality outcomes, and by Agency Theory, which frames continuous cost control as the most immediate and corrective of the accountability mechanisms available to principals during implementation.

6. DISCUSSION

These findings corroborate Ahmed (2024) and Baributsa and Gitahi (2023), both of whom linked continuous cost monitoring, risk management, and variance analysis to significant reductions in cost overruns and improved project performance, and Abani and Ogedengbe (2023), who found cost-variance and earned-value analysis to significantly improve the financial performance of Nigerian construction firms, a pattern directly mirrored in the present R^2 of .549, the strongest of the three cost-management dimensions examined in the parent study. The qualitative evidence of continuous, procedure-based monitoring, expenditure approvals, computerised accounting systems, and periodic variance analysis, closely matches the predictive-monitoring literature's expectation that systematic financial oversight meaningfully contains cost escalation (Acebes, Pereda, Poza, Pajares, & Galán, 2024), even though Amtel Ltd.'s own practices remain largely reactive, responding to deviations once detected, rather than predictive in anticipating them before they occur (Ibrahim, 2023).

The comparatively lower rating for cost control's contribution to timely completion, and the qualitative accounts attributing residual delay to equipment delivery and technical change rather than financial indiscipline, mirror Flyvbjerg, Budzier, Lee, Lunn, and Bester (2022), who demonstrated that conventional cost-control mechanisms struggle to contain schedule risk once procurement or technical disruptions occur, particularly for the kind of extreme, supply-chain-driven overrun that very large infrastructure projects

can experience. The findings contrast with Ogega and Pedo's (2023) more unreservedly positive results from Kenyan public hospital construction, where cost control was found to substantially improve timely completion; the researcher attributes this difference to Somalia's comparatively more volatile import environment and supply chains, which leave timely completion exposed to procurement risk that financial controls alone cannot resolve, even where, as at Amtel Ltd., those controls are otherwise well implemented.

Overall, the results support both theoretical frameworks guiding the study, and indicate that cost control outperformed both cost planning and budgeting as a predictor of project performance in this setting. Consistent with the Iron Triangle Theory, cost control functioned as the most active defender of the cost-time-quality balance during implementation, detecting and correcting expenditure deviation in closer to real time than planning or budgeting alone could achieve, such that the single weakest-rated cost-control item, its contribution to timely completion, was also the one most clearly bounded by factors, procurement and technical risk, that cost control cannot directly govern. Consistent with Agency Theory, the qualitative evidence of expenditure approvals, variance analysis, and periodic audit illustrates cost control functioning as the most continuous and corrective of the three cost-management accountability mechanisms, constraining managerial discretion over project resources throughout implementation rather than only at its outset or at the point of budget approval.

7. CONCLUSION

The study concludes that cost control is a significant, theory-consistent, and the strongest single determinant of network expansion project performance at Amtel Ltd. among the cost-management dimensions examined in this line of research. Continuous, well-documented expenditure monitoring and corrective action were strongly and positively associated with project performance, explaining over half of its variance, while the comparatively weaker contribution of cost control to timely completion identifies a specific, addressable constraint, rooted in procurement and technical risk rather than financial indiscipline, on realising the full performance benefit that cost control can offer. This pattern validates the Iron Triangle Theory's premise that actively defending project expenditure during implementation underpins the balancing of cost, schedule, and quality, and supports Agency Theory's framing of cost control as the most immediate and corrective accountability mechanism available to principals once implementation begins. It is therefore clear that strengthening cost control, while also addressing procurement and schedule risk directly, would contribute substantially to improving the performance of network expansion projects at Amtel Ltd.

8. RECOMMENDATIONS

For government regulatory agencies responsible for telecommunication infrastructure development in Somalia, the study recommends establishing sector-wide financial accountability standards that require telecommunication companies to strengthen expenditure monitoring, financial auditing, and project cost reporting throughout implementation, enforced regularly to improve transparency and minimise financial mismanagement across the sector.

For Amtel Ltd. management and other network providers, the study recommends investing in integrated project financial management systems capable of real-time expenditure monitoring, automated budget-variance reporting, and continuous financial performance evaluation, implemented across all network expansion projects to strengthen cost control and reduce the likelihood of cost overruns, while coupling these systems with stronger procurement planning and schedule-risk management so that financial discipline translates more fully into timely project completion.

For project managers, finance officers, engineers, and technical leaders, the study recommends conducting routine financial monitoring, expenditure verification, and project performance evaluation throughout the implementation period, through coordinated financial review meetings and regular project audits at every project phase, to identify financial deviations early, implement corrective actions promptly, and improve the overall performance of network expansion projects.

9. CONTRIBUTION TO KNOWLEDGE

This study contributes to the theoretical body of knowledge by jointly applying the Iron Triangle Theory and Agency Theory to the specific function of cost control within a private telecommunications firm operating in a fragile, post-conflict economy, a combination rarely examined empirically in this context. Beyond confirming a statistically significant positive relationship, the study demonstrates that cost control operates as the most continuous and corrective of the three cost-management accountability mechanisms, actively defending the cost-time-quality balance throughout implementation in a way that cost planning and budgeting, being more front-loaded, cannot by themselves achieve, while also showing empirically that financial discipline and schedule performance are related but distinct outcomes that respond to different underlying risks. Methodologically, the study's integration of descriptive statistics, Pearson correlation, simple linear regression, and thematic analysis of key informant interviews provides a mixed-methods framework that future researchers can adopt when investigating project cost-control practices in similarly fragile,

aid- and remittance-influenced economies. Practically, the findings provide Amtel Ltd. and comparable telecommunications operators with empirical evidence that cost control is their most effective single cost-management lever, while also showing that its performance returns are bounded by procurement and technical risks that cost control alone cannot resolve, thereby supporting investment that pairs financial monitoring systems with stronger schedule and supply-chain risk management.

10. AREAS FOR FURTHER RESEARCH

(i) A longitudinal study tracking how the rigour of cost-control mechanisms applied during implementation translates into schedule and quality outcomes measured at project completion, since the present cross-sectional design captures cost-control practice and performance at a single point in time.

(ii) A comparative study involving multiple telecommunications operators in Somalia and other fragile or post-conflict economies, to determine whether the relationship between cost control and project performance observed at Amtel Ltd. holds across different organisational, procurement, and regulatory environments.

(iii) A qualitative study focused specifically on the procurement and supply-chain mechanisms through which cost control's influence on timely project completion could be strengthened, extending the present study's finding that schedule delay is driven more by procurement and technical factors than by financial indiscipline.

(iv) Further research examining the influence of predictive, simulation-based cost-monitoring systems, as opposed to the reactive expenditure monitoring currently practised at Amtel Ltd., on the ability of telecommunications operators to anticipate and pre-empt cost deviations before they materialise.

REFERENCES

Abani, J., & Ogedengbe, F. A. (2023). Impact of project cost control on the financial performance of selected construction firms in North-Central Nigeria. *Educational Administration: Theory and Practice*, *29*(4), 3610-3623.

Abdullahi, M., & Noor, A. (2021). Infrastructure project performance in fragile states: Evidence from Somalia. *Journal of Development Studies*, *57*(6), 1023-1038.

Acebes, F., Pereda, M., Poza, D., Pajares, J., & Galán, J. M. (2024). Stochastic earned value analysis using Monte Carlo simulation and statistical learning techniques. *arXiv*.

Abdillahi, M. M., & Benjamin, B. O. (2025). Market-Economic Decentralization and Governance in Hargeisa Local Government, Somaliland. BISNIS & BIROKRASI: Jurnal Ilmu Administrasi dan Organisasi, 32(3), 10-20476.

Abdillahi, M. M. (2026). E-Government and Digital Service Delivery: Investigating the Adoption of Digital Platforms for the Purpose of Citizens' Service Access, Transparency Increase, and Administrative Efficiency Promotion. Moccasin Journal De Public Perspective, 3(1), 15-32.

Abdillahi, M. M. (2025). Fiscal Decentralization: A Review of Theories, Evidence, And Policy Implications.

Abdillahi, M. M., Oluka, B. B., & Tindyebwa, J. (2025). Fiscal Decentralisation and Governance in Hargaisa Local Government, Somaliland. International Journal of Sub-Saharan African Research, 3(3), 162-176.

Abdillahi, M. M. (2025). Somaliland Democracy and Election's. International Journal of Research and Innovation in Social Science, 9(4), 7146-7170.

Abdillahi, M. M. (2025). Navigating Adversity: A Systematic Review of Rural Livelihood Challenges in Somaliland.

Abdillahi, M. M. (2025). Decentralization in Somaliland. Available at SSRN 5588030.

Abdillahi, M. M., Oluka, B. B., & Tindyebwa, J. (2026). Political Decentralization And Governance In Hargaisa Local Government, Somaliland. APPLIED RESEARCH IN ADMINISTRATIVE SCIENCES, 7(1), 4-18.

Abdillahi, M. M. (2026). The Khat Conundrum: Balancing Economic Reality, Social Welfare, and Sovereignty in Public Policy for Somaliland. Mahogany Journal De Social, 3(2), 110-124.

Abdillahi, M. M. (2025). Gender Roles in Somaliland: A Narrative Review of Traditions, Transitions, and Transformations.

Abdillahi, M. M. (2026). Public Sector Leadership: A Meta-Analysis of Transformational Leadership's Efficacy in Bureaucratic Change and Development. Moccasin Journal De Public Perspective, 3(2), 76-93.

Abdillahi, M. M. (2026). AI, Algorithms, and Automation in Government: Investigating the ethical, legal, and practical implications of using artificial intelligence for decision-making in social services, policing, and welfare distribution.

Abdillahi, M. M. Public Financial Management in Somaliland: A Review of Challenges, Reforms, and Prospects.

African Development Bank. (2023). *African economic outlook: Somalia country report*. AfDB Publications.

Ahmed, M. N. (2024). Impact of cost overruns on infrastructure project failures and effective cost management to reduce overruns. *Global Journals of Research in Engineering, 24*(J2), 13-28.

Ali, A. Y., & Mohamed, S. A. (2021). Project management practices and performance of telecommunication projects in fragile states: Evidence from Somalia. *International Journal of Project Management Research, 9*(2), 55-67.

Atkinson, R. (1999). Project management: Cost, time and quality, two best guesses and a phenomenon; it's time to accept other success criteria. *International Journal of Project Management, 17*(6), 337-342. https://doi.org/10.1016/S0263-7863(98)00069-6

Baributsa, O., & Gitahi, N. (2023). Influence of project cost control on performance of construction projects in Rwanda: Case of Baxons Construction Limited. *Strategic Journal of Business & Change Management, 10*(4), 902-915.

Braun, V., & Clarke, V. (2021). *Thematic analysis: A practical guide*. Sage Publications.

Bryman, A. (2021). *Social research methods* (6th ed.). Oxford University Press.

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). Sage Publications.

Creswell, J. W., & Creswell, J. D. (2023). *Research design: Qualitative, quantitative, and mixed methods approaches* (6th ed.). Sage Publications.

Eisenhardt, K. M. (2020). Agency theory: An assessment and review. *Journal of Management Studies, 57*(7), 1310-1335. https://doi.org/10.1111/joms.12502

Farah, A. M. (2021). The evolution of Somalia's telecommunications sector: Growth, challenges, and prospects. *Somali Economic Review, 9*(2), 54-71.

Fleming, Q. W., & Koppelman, J. M. (2016). *Earned value project management* (4th ed.). Project Management Institute.

Flyvbjerg, B., Budzier, A., Lee, J. S., Lunn, D., & Bester, D. (2022). The empirical reality of IT project cost overruns: Discovering a power law distribution. *arXiv*.

Guest, G., Namey, E., & Mitchell, M. (2020). *Collecting qualitative data: A field manual for applied research* (2nd ed.). Sage Publications.

Hassan, A., & Ali, M. (2024). Innovation and performance in Somali telecom companies. *African Journal of Business and Technology, 9*(1), 66-82.

Ibrahim, Y. A. (2023). *Project management practices and project performance: Case of Bosaso Airport road construction* [Unpublished thesis].

International Telecommunication Union. (2023). *Telecommunication infrastructure and workforce statistics report*. ITU Publications.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics, 3*(4), 305-360. https://doi.org/10.1016/0304-405X(76)90026-X

Joslin, R., & Müller, R. (2022). Evaluating project success beyond the iron triangle: A stakeholder perspective. *Project Management Journal, 53*(3), 215-229. https://doi.org/10.1177/87569728221077649

Kerzner, H. (2022). *Project management: A systems approach to planning, scheduling, and controlling* (13th ed.). Wiley.

Kothari, C. R., & Garg, G. (2021). *Research methodology: Methods and techniques* (5th ed.). New Age International Publishers.

Mir, F. A., & Pinnington, A. H. (2019). Exploring the value of project management: Linking project management performance and project success. *International Journal of Project Management, 37*(5), 666-679. https://doi.org/10.1016/j.ijproman.2019.01.007

Mohamed, A. H., & Abdirahman, Y. M. (2023). Cost allocation and financial sustainability of telecom projects in Somalia: Evidence from Mogadishu. *Horn of Africa Business Review, 5*(2), 65-83.

Nguyen, T. P., & Dang, Q. T. (2023). Agency problems and project cost control in emerging markets. *Asian Journal of Management Science, 18*(2), 89-102.

Ogega, A. P., & Pedo, L. (2023). Effect of cost control on performance of construction projects in public hospitals in Nairobi County. *International Journal of Social Sciences Management & Entrepreneurship, 7*(2), 420-435.

Project Management Institute. (2021). *A guide to the project management body of knowledge (PMBOK Guide)* (7th ed.). PMI.

Sari, N., & Othman, R. (2021). Agency theory and its application in project governance. *Journal of Contemporary Project Studies, 11*(3), 145-162.

Saunders, M., Lewis, P., & Thornhill, A. (2022). *Research methods for business students* (8th ed.). Pearson Education.

Serrador, P., & Turner, R. (2020). The relationship between project success and project efficiency: Revisiting the iron triangle. *Project Management Journal, 51*(4), 342-356. https://doi.org/10.1177/8756972820939302

Serrador, P., & Turner, R. (2022). The relationship between project success and project efficiency. *International Journal of Project Management, 40*(4), 345-357.

Slovin, E. (1960). *Introduction to sampling*. Harper & Row.

World Bank. (2022). *Digital development and telecommunications workforce report*. World Bank Publications.

World Bank. (2023). *Somalia economic update*. World Bank Publications.

DECLARATION OF COMPETING INTERESTS

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