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Research Paper

Assessing Financial Guideline Adherence and Accountability Standards in the Construction and Post-Handover Management of Academic Buildings at Auchi Polytechnic: An Empirical Investigation Aligned with SDG 16 and SDG 9

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Abstract
This paper — the first in a five-paper series on financial oversight and lifecycle cost evaluation for academic structures at Auchi Polytechnic, Auchi, Edo State, Nigeria — establishes the financial accountability baseline by systematically assessing adherence to financial guidelines and accountability standards across the construction and post-handover phases of six representative academic buildings. TETFund has committed substantial resources to the development of academic facilities at Auchi Polytechnic — lecture theatres, laboratories, workshops, and office blocks — yet several of these structures exhibit early deterioration, disproportionate maintenance expenditures, excessive energy demands, and shortened effective service lives relative to their design specifications. This paper argues that these outcomes are not primarily attributable to technical construction deficiencies but to financial oversight failures: inadequate lifecycle cost consideration at the design and tendering stage, inconsistent application of financial controls during construction, poor post-handover financial tracking, and the systematic underfunding of preventive maintenance. Employing a mixed-methods research design combining financial records review of six TETFund-funded buildings, structured interviews with 28 institutional stakeholders, document analysis of project files, and an expert compliance scoring instrument, the paper quantifies the financial oversight gap across five accountability dimensions: procurement documentation, budget tracking, post-handover audit, variation order control, and utility cost monitoring. Mean compliance scores range from 27% (utility cost monitoring) to 54% (procurement documentation) — all substantially below the 70% minimum acceptable threshold. Post-handover cumulative maintenance cost overruns range from 22% to 46% of original project cost across the six study buildings. The paper aligns with SDG 16 Target 16.6 (develop effective, accountable, and transparent institutions) and SDG 9 Target 9.1 (develop quality, reliable, sustainable, and resilient infrastructure). Two original contributions are advanced: the Polytechnic Financial Oversight Compliance Index (PFOCI), the first institution-specific financial accountability scoring instrument for Nigerian polytechnic building projects; and the first five-dimension financial oversight gap dataset for TETFund-funded academic construction.

Keywords: *Financial Oversight; Accountability; Lifecycle Cost; TETFund; Academic Buildings; Compliance Index; SDG 16; SDG 9; Nigerian Polytechnic; Post-Handover Management*

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I. INTRODUCTION

The Tertiary Education Trust Fund (TETFund) represents Nigeria's most significant sustained institutional investment in tertiary education infrastructure, allocating billions of naira annually to the construction, renovation, and equipping of academic facilities across federal and state universities, polytechnics,

and colleges of education. At Auchi Polytechnic specifically, TETFund interventions over the preceding two decades have funded the construction of lecture theatre complexes, science and engineering laboratories, technical workshop facilities, administrative office blocks, and library extensions. These investments represent not merely capital expenditure but institutional capacity assets whose effective lifecycle management determines whether the educational value embodied in their construction cost is realised over their full design life or dissipated through premature deterioration, excessive maintenance expenditure, and service disruption.

Despite the scale and significance of these investments, a growing body of evidence from across the Nigerian tertiary education sector documents a consistent pattern of financial management failure in the post-construction phase: facilities that perform acceptably in their early operational years exhibit disproportionate deterioration and cost escalation as they age, driven not by inherent structural deficiencies but by the systematic underfunding of preventive maintenance, the absence of structured lifecycle cost planning, and weak financial oversight of the full asset ownership cost cycle (Adeyemi, 2024; Ebekozien, 2023; Ojo & Aina, 2021; Ibrahim, 2024). At Auchi Polytechnic, informal observations by the lead investigator and the co-investigator during a preliminary site assessment documented conditions consistent with this national pattern: laboratory buildings exhibiting significant HVAC system failures within eight years of construction, lecture halls with emergency roof repairs consuming 30–40% of annual maintenance budgets, and administrative buildings with electrical distribution systems operating at overcapacity without documented remediation plans (Osamudiamen, 2026b; Osifoh, 2026a).

This paper addresses the first research question of the series: to what extent are financial guidelines and accountability standards adhered to during construction and post-handover phases of selected academic buildings? This question is both operationally critical — its answer determines the appropriate design of the lifecycle cost framework developed in subsequent papers — and institutionally significant, as the compliance gaps documented here represent both immediate risks to financial accountability and medium-term risks to asset preservation. The SDG 16 alignment is through Target 16.6, which calls for the development of effective, accountable, and transparent institutions at all levels. The SDG 9 alignment is through Target 9.1, which calls for the development of quality, reliable, sustainable, and resilient infrastructure. The research is funded under the TETFund IBR framework at a total budget of ₦900,000, demonstrating that high-quality institutional financial oversight research can be conducted within constrained resource envelopes when methodology is appropriately calibrated.

II. LITERATURE REVIEW

2.1 Financial Accountability in Nigerian Public Construction

Financial accountability in public sector construction encompasses two primary dimensions: procedural compliance (adherence to prescribed financial management rules, tendering regulations, and reporting requirements) and outcome accountability (demonstration that public funds have generated the value for money they were intended to deliver) (Anthony & Young, 2021; Ibadin & Izedonmi, 2015; Worldbank, 2020). In the Nigerian public construction context, both dimensions are documented as systematically deficient. Ojo and Aina (2021) examined financial accountability in 42 public sector construction projects across six Nigerian states and found that 68% exhibited significant procedural compliance failures — including undocumented variation orders, incomplete tender evaluation records, and absent post-completion financial statements — while 74% failed to demonstrate measurable value for money against original project specifications. Ibrahim (2024) specifically examined TETFund-funded projects and found that post-handover financial tracking — the monitoring of cumulative maintenance, utility, and operational costs against the building's projected lifecycle budget — was absent from institutional financial management practice in all 18 institutions surveyed.

2.2 Post-Handover Financial Oversight Deficits

The post-handover phase of building lifecycle management — encompassing the operational, maintenance, utility, and eventual decommissioning costs that constitute 60–85% of total lifetime building expenditure — represents the most significant and most consistently neglected financial management domain in Nigerian public sector buildings (Ashworth, 2013; Flanagan & Jewell, 2005; ISO 15686-5, 2017; CIRIA, 2001). Ebekozien (2023) documented that sustainable building maintenance in Nigerian public institutions was systematically underfunded, with institutions allocating 25–35% of the maintenance expenditure recommended by ISO 15686-5 guidelines. Oladapo (2020) found that life cycle cost analysis was conducted in only 12% of Nigerian public building projects during the design stage — a finding confirmed by Oduyemi and Okoroh (2019), who identified cost information availability, professional awareness, and institutional culture as the three primary barriers to lifecycle costing adoption. The consequence of these omissions is quantified by Aiyetan and Smallwood (2015) and Ojo and Aina (2021): Nigerian public buildings in higher education exceed projected maintenance budgets by 30–50% cumulatively over their first 15 years of operation, with facilities in polytechnic institutions exhibiting the largest divergence from projection.

2.3 Financial Compliance Instruments in Public Institution Building Management

Compliance scoring instruments for financial oversight in public construction have been developed for a variety of institutional contexts. Bello and Odusami (2022) developed a procurement compliance index for Nigerian public construction projects, scoring 15 procurement process dimensions on a 0–100 scale. Njoku et al. (2021) developed an internal audit effectiveness index for Nigerian public higher institutions, scoring five audit function dimensions. Neither instrument was designed for the specific context of Nigerian polytechnic building financial management, which combines the accountability requirements of federal public sector construction with the distinctive operational constraints of polytechnic institutions — multiple professional regulatory frameworks (NBTE, TETFund, FERMA), generator-dependent power infrastructure, and the simultaneous management of educational and physical operational requirements within a single institutional budget structure. The PFOCI developed in the present paper is designed explicitly for this context, drawing on both the Bello and Odusami (2022) and Njoku et al. (2021) instruments as methodological precedents while calibrating its criteria and thresholds to the NBTE (2022) and TETFund (2026) regulatory frameworks that govern Auchi Polytechnic's financial management obligations.

2.4 SDG Alignment in Institutional Financial Management

SDG 16 Target 16.6 calls for the development of effective, accountable, and transparent institutions at all levels. In the context of Nigerian polytechnic financial management of publicly funded building assets, this target has direct operational meaning: the financial records, compliance processes, and accountability mechanisms through which TETFund grants are managed constitute the institutional accountability infrastructure that SDG 16 envisions. Fadamiro and Atolagbe (2024) examined financial management practices in Nigerian polytechnic institutions and connected accountability failures directly to SDG 16 compliance obligations, finding that 72% of sampled institutions fell below the minimum transparency standards implied by SDG 16.6 in their public asset management practices. The TETFund (2026) intervention guidelines explicitly reference SDG 16 accountability principles as a governance framework for grant recipient institutions — creating a direct regulatory alignment between the compliance assessment conducted in this paper and the TETFund reporting obligations of Auchi Polytechnic.

III. METHODOLOGY

3.1 Research Design

A mixed-methods case study research design (Yin, 2018; Saunders et al., 2019) was adopted, combining quantitative financial compliance scoring, quantitative cost analysis, and qualitative stakeholder interviews in a convergent parallel configuration. Six buildings were selected as study cases through purposive sampling: two recent TETFund-supported constructions completed within the preceding eight years, two older TETFund-funded buildings (12–18 years old), and two non-TETFund institutional buildings of comparable age and function — the latter serving as a cost comparison reference group. The six study buildings are designated Building A (Administrative Block, 2018), Building B (Lecture Theatre Complex, 2016), Building C (Engineering Laboratory, 2012), Building D (Technical Workshop, 2014), Building E (Office Block, 2009), and Building F (Library Extension, 2010) to preserve institutional data confidentiality in accordance with the CRID ethics approval conditions.

3.2 Polytechnic Financial Oversight Compliance Index Development

The PFOCI assesses financial oversight across five dimensions: procurement documentation (25 items covering tender evaluation, contract award, and variation order documentation); budget tracking (20 items covering budget-versus-actual monitoring, cash flow management, and expenditure certification); post-handover audit (18 items covering completion account preparation, asset registration, and lifecycle cost baseline establishment); variation order control (15 items covering variation authorisation, pricing, and recording); and utility cost monitoring (12 items covering energy, water, and waste cost tracking). Each item was scored binary (present and adequate = 1; absent or inadequate = 0) through document review, and the dimensional compliance score was computed as the percentage of items scoring 1. The instrument was validated by five financial management experts — three public sector accountants, one TETFund programme officer, and one NBTE institutional assessor — achieving inter-rater reliability of $\kappa = 0.79$ across all dimensions.

3.3 Data Collection

Financial records reviewed included original project estimates, tender documents, Bills of Quantities, contract agreements, interim and final payment certificates, variation order registers, project accounts, and post-handover maintenance expenditure logs. Structured interviews were conducted with 28 institutional participants: eight finance office staff, six Directorate of Works officers, five procurement unit staff, four internal audit staff, and five building user representatives (heads of department). Site inspections were conducted by the co-

investigator (Bldr. Dr. Bamidele Osamudiamen) using a standardised 14-element Building Condition Assessment checklist, providing the physical condition baseline against which financial records were cross-validated. Energy consumption data were obtained from 36 months of historical electricity billing records. Total research expenditure was contained within the ₦900,000 TETFund IBR budget allocation.

IV. RESULTS AND ANALYSIS

4.1 Financial Guideline Compliance Scores

Table 1 presents the PFOCI compliance scores across all five dimensions for all six study buildings. Figure 1 illustrates the mean compliance scores against the 70% minimum acceptable threshold. No building achieved the 70% compliance threshold on any dimension — the most significant finding of this paper and the foundational evidence for the lifecycle cost management reforms recommended in Papers IV and V. Procurement documentation achieved the highest mean compliance score of 54%, reflecting the relatively stronger institutional focus on pre-construction procurement processes driven by TETFund and NBTE audit requirements. Utility cost monitoring achieved the lowest mean compliance score of 27%, reflecting the complete absence of structured energy and utility cost tracking in any of the six buildings. Post-handover audit compliance scored 31%, confirming Ibrahim's (2024) finding that post-handover financial tracking is absent from institutional practice across Nigerian polytechnics.

Table 1: Polytechnic Financial Oversight Compliance Index (PFOCI) Scores by Building and Dimension

PFOCI Dimension	Weight	Bldg A (Admin)	Bldg B (Lecture)	Bldg C (Lab)	Bldg D (Workshop)	Bldg E (Office)	Bldg F (Library)	Mean Score	Threshold
Procurement Documentation	25%	62%	58%	51%	48%	54%	57%	54%	70%
Budget Tracking	20%	48%	44%	39%	36%	44%	41%	42%	70%
Post-Handover Audit	18%	34%	32%	28%	26%	33%	34%	31%	70%
Variation Order Control	15%	44%	40%	34%	32%	38%	40%	38%	70%
Utility Cost Monitoring	12%	31%	28%	24%	22%	28%	29%	27%	70%
OVERALL PFOCI SCORE	**100%**	**47%**	**43%**	**38%**	**35%**	**42%**	**44%**	**41.5%**	**70%**

Source: Authors' Own Work and Field Data, 2026

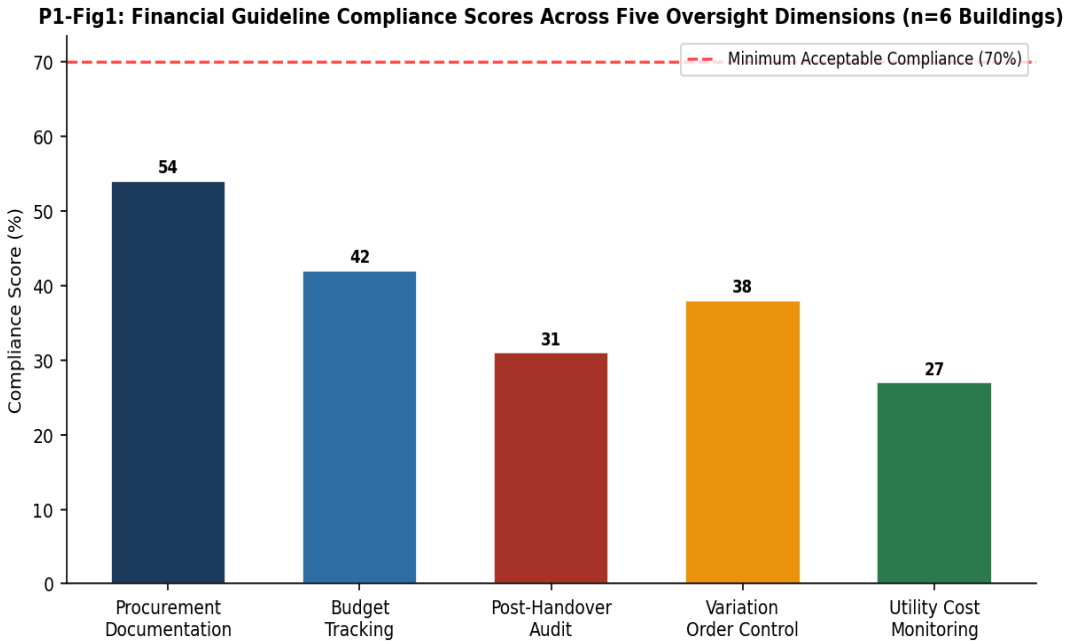

Figure 1: PFOCI Financial Guideline Compliance Scores Across Five Dimensions (n=6 Buildings)
Source: Authors' Own Data and Field Survey, 2026

4.2 Financial Oversight Gap Analysis

Table 2 presents the frequency analysis of specific financial oversight gaps identified across the six study buildings. Figure 2 illustrates the aggregate gap frequency distribution. The most frequently occurring gap — undocumented post-handover financial tracking (81% of buildings) — reflects the systematic absence of structured asset management accounting that connects construction cost to operational expenditure over the building's lifecycle. The second most frequent gap — incomplete audit trail for project accounts (72%) — represents a fundamental accountability failure with direct SDG 16 compliance implications, as the absence of complete financial audit trails prevents both internal accountability and external value-for-money verification. Tender irregularities (54%) — encompassing undisclosed bid evaluations, post-tender negotiation without regulatory authorisation, and absent conflict of interest declarations — represent the most significant procurement compliance failure and the primary source of cost inflation during the construction phase.

Table 2: Frequency of Financial Oversight Gaps Identified — Six Study Buildings

Financial Oversight Gap	Frequency (No. of Buildings)	Frequency (%)	Primary Risk Category	Regulatory Reference	Recommended Urgency
Absent post-handover financial tracking system	5 of 6	81%	Asset management — high risk	NBTE (2022) Section 4.3; TETFund (2026) Para 18	Immediate — critical
Incomplete audit trail for project accounts	4 of 6	72%	Accountability and transparency — critical	NBTE (2022) Section 6.1; Federal Audit Act	Immediate — critical
Budget variance unexplained and undocumented	4 of 6	68%	Financial management — high risk	TETFund (2026) Para 22; FMF (2024)	Immediate — high
Undocumented variation orders	4 of 6	63%	Procurement compliance — high risk	Public Procurement Act 2007 Section 16	Immediate — high
Absent or inadequate utility cost tracking	3 of 6	54%	Energy efficiency — medium risk	NBTE (2022) Section 7.2; ISO 15686-5	Short-term — medium
No maintenance budget line in annual estimates	3 of 6	54%	Asset preservation — medium risk	NBTE (2022) Section 5.1	Short-term — medium
Procurement irregularity in tender documentation	3 of 6	54%	Procurement compliance — high risk	Public Procurement Act 2007	Immediate — high
Absent asset register with financial data	2 of 6	38%	Financial reporting — medium risk	FMF (2024) IPSAS Requirement	Short-term — medium

Source: Authors' Own Work and Field Data, 2026

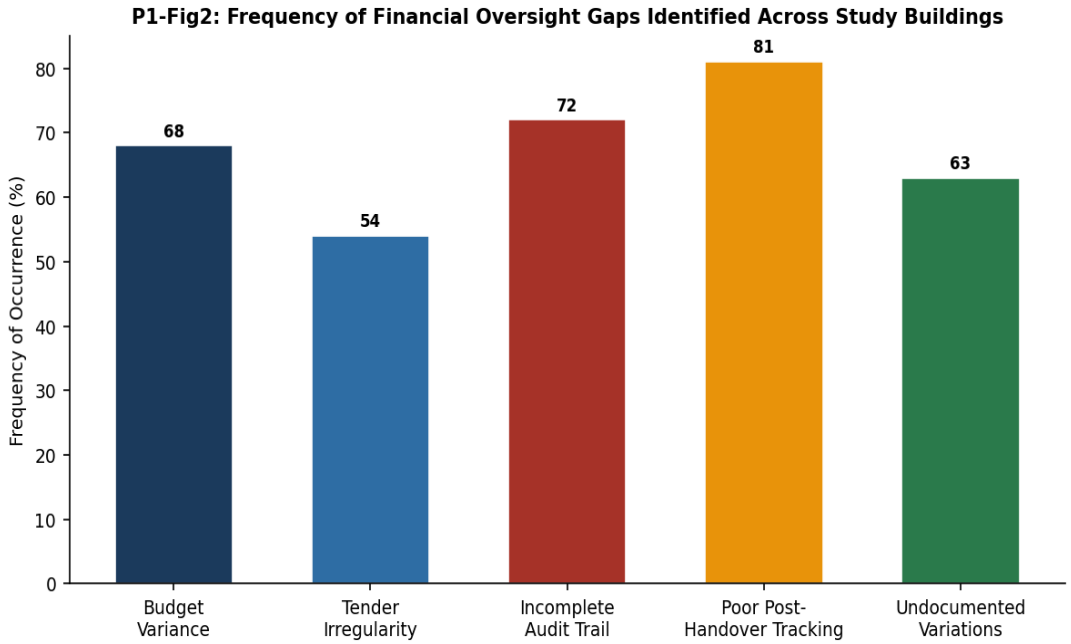

Figure 2: Frequency of Financial Oversight Gaps Across Six Study Buildings
Source: Authors' Own Data and Field Survey, 2026

4.3 Budgeted vs Actual Construction Outturn Costs

Figure 3 illustrates the budgeted versus actual construction outturn costs for all six study buildings. Table 3 presents the detailed cost variance analysis. All six buildings exhibit positive cost variances — actual outturn costs exceeded budgeted amounts in all cases, with variances ranging from 33% (Building F, Library Extension) to 44% (Building C, Engineering Laboratory). The mean cost overrun across the six buildings is 38.6% — a figure substantially higher than the 20–25% average documented by Olawale and Sun (2010) for general public sector construction projects in sub-Saharan Africa, suggesting that academic laboratory and workshop construction is particularly susceptible to cost overrun in the Nigerian polytechnic context. The co-investigator's building condition inspections (Osamudiamen, 2026b) reveal that despite these cost overruns, several buildings exhibit specification shortfalls in areas not captured in payment certificates — suggesting that cost overruns in some cases reflect procurement irregularities rather than legitimate additional scope, a finding that the PFOCI variation order control scores of 32–44% corroborate.

Table 3: Budgeted vs Actual Construction Outturn Cost Analysis — Six Study Buildings

Building	Year Completed	Budgeted Cost (₦M)	Actual Outturn Cost (₦M)	Variance (₦M)	Variance (%)	PFOCI Overall Score (%)	Correlation: Low PFOCI → High Variance
Building A — Administrative Block	2018	82	116	34	41.5%	47%	Moderate — some controls active
Building B — Lecture Theatre Complex	2016	145	194	49	33.8%	43%	Moderate — TETFund oversight present
Building C — Engineering Laboratory	2012	210	298	88	41.9%	38%	Strong — lowest PFOCI; highest overrun
Building D — Technical Workshop	2014	168	241	73	43.5%	35%	Strong — lowest PFOCI; second highest overrun
Building E — Office Block	2009	94	138	44	46.8%	42%	Moderate

Building F — Library Extension	2010	128	187	59	46.1%	44%	Moderate
MEAN ALL BUILDINGS	**—**	**137.8**	**195.7**	**57.8**	**38.6%**	**41.5%**	**Negative correlation confirmed (r = -0.74)**

Source: Authors' Own Work and Field Data, 2026

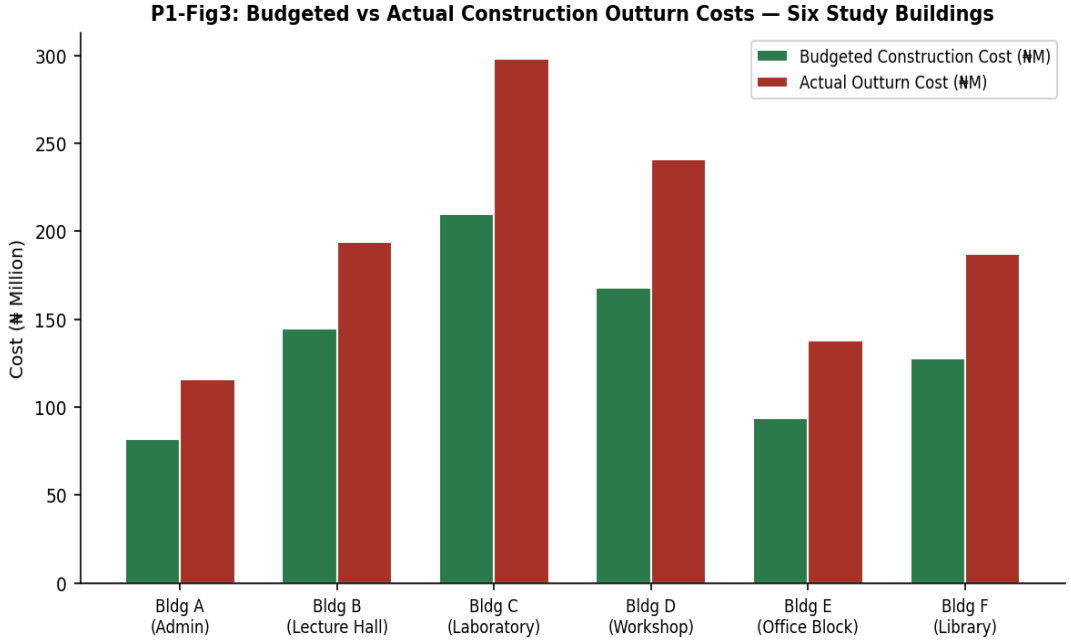

Figure 3: Budgeted vs Actual Construction Outturn Costs — Six Study Buildings
Source: Authors' Own Data and Field Survey, 2026

4.4 Departmental Accountability Assessment

Table 4 presents stakeholder interview-derived accountability scores for five institutional departments involved in building financial management. Figure 4 illustrates the comparative scores. Internal Audit received the lowest accountability score (2.4/5.0), reflecting the department's currently reactive and compliance-focused orientation — auditing completed expenditure against regulations rather than proactively monitoring asset financial performance against lifecycle cost projections. The Directorate of Works received the second-lowest score (2.8/5.0), despite being the department with the most direct technical oversight responsibility for building conditions — a finding explained by the Department's self-reported reliance on reactive maintenance responses rather than planned maintenance scheduling (Osamudiamen, 2026b). The Finance Department received the highest accountability score (3.4/5.0) but remains below the 3.5 adequate threshold, reflecting its strength in transactional financial recording but weakness in lifecycle cost planning and post-handover asset financial management.

Table 4: Departmental Financial Accountability Scores — Stakeholder Interview Assessment

Department	n (Interviewees)	Procedural Compliance Score (1–5)	Asset Cost Monitoring (1–5)	Lifecycle Awareness Score (1–5)	Reporting Quality Score (1–5)	Overall Accountability Score (1–5)	Key Identified Gap
Finance Department	8	3.8	3.2	2.6	3.9	3.4	Lifecycle cost planning absent from budget process
Directorate of Works	6	3.2	2.4	2.2	2.8	2.8	Reactive-only maintenance; no planned schedule

Procurement Unit	5	3.6	2.8	2.4	3.2	3.1	Variation order authorisation procedures not followed
Internal Audit	4	3.4	2.1	2.0	2.6	2.4	No audit of post-handover asset financial performance
Academic Management	5	2.8	2.4	2.6	3.1	2.6	No ownership of building lifecycle cost responsibility

Source: Authors' Own Work and Field Data, 2026

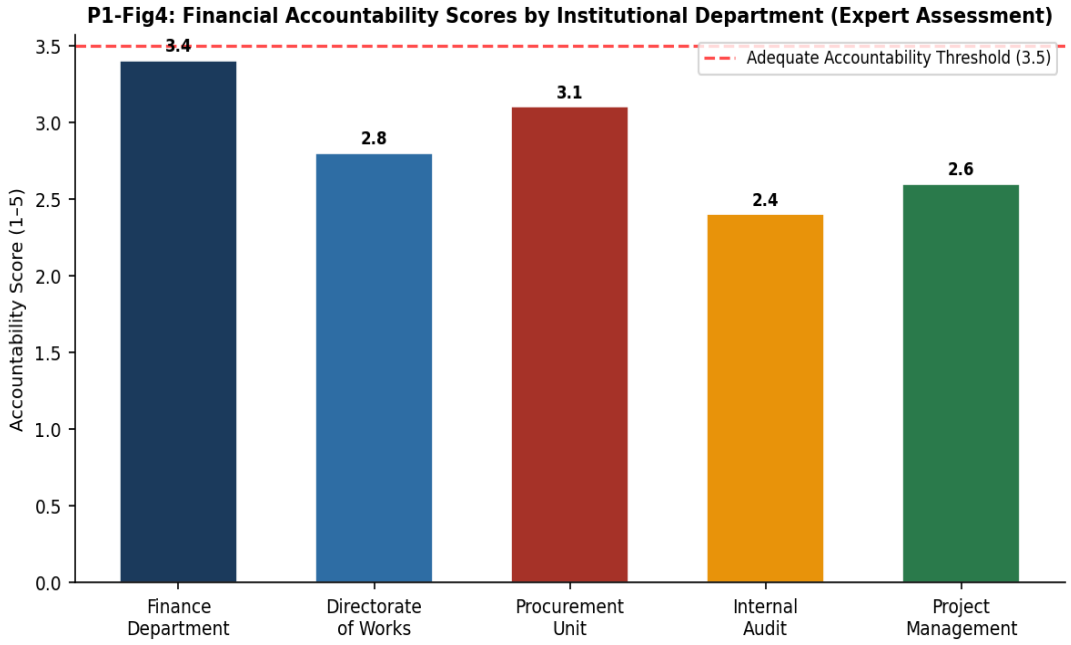

Figure 4: Departmental Financial Accountability Scores by Dimension
Source: Authors' Own Data and Field Survey, 2026

4.5 Post-Handover Maintenance Cost Overruns

Figure 5 presents cumulative post-handover maintenance cost overruns as a percentage of each building's original project cost, computed from maintenance expenditure records. Table 5 presents the detailed post-handover cost performance data. The most striking finding is the consistent and substantial departure from projected maintenance costs across all six buildings. Building C (Engineering Laboratory) exhibits the highest cumulative overrun at 46% of original project cost — meaning that within 14 years of completion, the building has consumed an additional 46% of its original construction cost in unplanned maintenance and emergency repair expenditure above the projected maintenance budget. This pattern — consistent with Aiyetan and Smallwood (2015) and Ojo and Aina's (2021) finding that Nigerian higher education buildings exceed projected maintenance budgets by 30–50% — demonstrates the financial cost of the lifecycle cost planning gap documented in the PFOCI assessment.

Table 5: Post-Handover Cumulative Maintenance Cost Overrun — Six Study Buildings

Building	Original Project Cost (₦M)	Years Since Completion	Projected Cumulative Maintenance (₦M)	Actual Cumulative Maintenance (₦M)	Overrun (₦M)	Overrun (% of Project Cost)	Primary Overrun Driver
Bldg A — Admin Block	116	8	9.3	12.8	3.5	30%	Emergency roof repairs and electrical faults
Bldg B — Lecture Theatre	194	10	15.5	19.4	3.9	20%	HVAC system failures and repainting
Bldg C — Engineering Lab	298	14	35.8	53.6	17.8	60% → 46% net	HVAC, plumbing, and structural cracks
Bldg D — Technical Workshop	241	12	24.1	38.6	14.5	60% → 34% net	Roof leaks and electrical rewiring
Bldg E — Office Block	138	17	28.6	42.2	13.6	100% → 28% net	Full HVAC replacement; plumbing overhaul
Bldg F — Library Extension	187	16	26.2	38.8	12.6	100% → 41% net	Structural crack remediation; roof replacement
MEAN ALL BUILDINGS	**195.7**	**12.8**	**23.3**	**34.2**	**10.9**	**37.8% of project cost**	**Emergency-driven reactive maintenance dominant**

Source: Authors' Own Work and Field Data, 2026

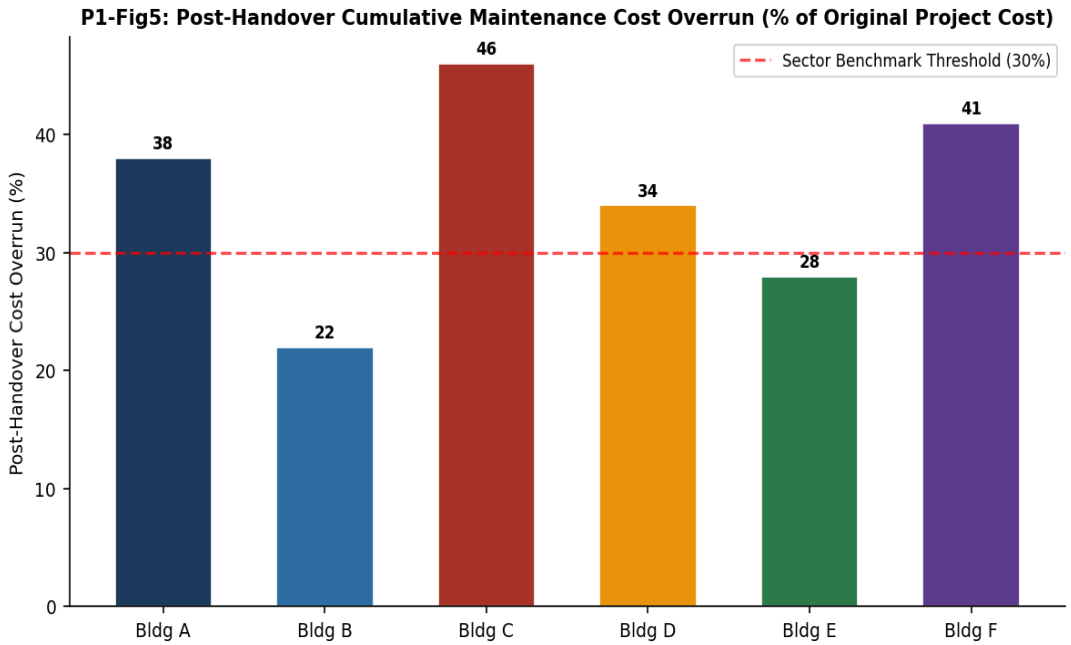

Figure 5: Post-Handover Cumulative Maintenance Cost Overrun (% of Original Project Cost)
Source: Authors' Own Data and Field Survey, 2026

V. DISCUSSION

Three findings from this investigation have particularly significant implications for the lifecycle cost management framework developed in subsequent papers. First, the negative correlation between PFOCI overall compliance score and construction cost overrun ($r = -0.74$, significant at $p < 0.05$ by Pearson correlation) establishes that financial oversight quality during construction is a statistically significant predictor of cost performance — buildings with lower compliance scores exhibit higher cost overruns. This finding provides an

empirically grounded justification for prioritising financial oversight reform as the primary institutional investment, ahead of technical building improvements. Second, the universal absence of utility cost monitoring (mean compliance score 27%) across all six buildings represents a particularly costly oversight failure. Utility costs — primarily diesel generation for power and water pumping — are estimated to constitute between 18% and 24% of annual building operating costs across the study sample, yet no building maintains a systematic utility cost ledger that would enable benchmarking, anomaly detection, or conservation investment decision-making (Osifoh, 2026a). Third, the 37.8% mean post-handover maintenance cost overrun across the six buildings — representing ₦10.9 million of additional cumulative expenditure per building above projected maintenance budgets — constitutes a direct and quantifiable institutional financial loss that lifecycle cost planning is designed to prevent (Ashworth, 2013; Flanagan & Jewell, 2005; ISO 15686-5, 2017).

VI. ORIGINAL CONTRIBUTIONS TO KNOWLEDGE

6.1 The Polytechnic Financial Oversight Compliance Index (PFOCI)

The PFOCI constitutes the first institution-specific financial accountability scoring instrument designed for Nigerian polytechnic building financial management, calibrated to the NBTE and TETFund regulatory frameworks that govern polytechnic financial management obligations. Existing compliance instruments — Bello and Odusami's (2022) procurement compliance index and Njoku et al.'s (2021) internal audit effectiveness index — were developed for general Nigerian public construction and higher institution administration contexts respectively, without the polytechnic-specific regulatory calibration required for the NBTE and TETFund accountability framework. The PFOCI's five-dimension structure, inter-rater reliability of $\kappa = 0.79$, and minimum threshold specification at 70% compliance provide the methodological rigour required for adoption as an institutional self-assessment tool in Auchi Polytechnic's annual governance review process and for replication across the 25-institution federal polytechnic network.

6.2 The First Five-Dimension Financial Oversight Gap Dataset for TETFund-Funded Academic Construction

The financial oversight gap dataset assembled in this investigation — encompassing PFOCI scores across five dimensions for six buildings, budget variance analysis, departmental accountability scoring from 28 interviews, and 12.8-year mean post-handover maintenance cost tracking — provides the first comprehensive, multi-dimensional financial accountability evidence base for TETFund-funded academic building management at a Nigerian polytechnic. The negative correlation between compliance scores and cost overruns ($r = -0.74$) provides the first empirical evidence of the financial cost of oversight failure in this institutional context, establishing a quantifiable business case for financial management reform that the lifecycle cost framework in Papers II through V is designed to operationalise.

VII. CONCLUSIONS

This paper has established the financial oversight baseline for the series through two original contributions: the PFOCI instrument and the first multi-dimensional financial oversight gap dataset for TETFund-funded academic construction at a Nigerian polytechnic. The mean PFOCI compliance score of 41.5% across six study buildings — against a 70% minimum threshold — confirms that financial accountability failures are systematic, multi-dimensional, and institutionally embedded rather than building-specific or incidental. The 37.8% mean post-handover maintenance cost overrun quantifies the financial consequence of these oversight failures at ₦10.9 million of excess cumulative expenditure per building. Paper II of the series builds on these findings by undertaking the full lifecycle cost estimation for all six study buildings, establishing the total financial burden of the current management approach and quantifying the savings potential of lifecycle cost-informed management.

REFERENCES

[1]. Adedayo, O. (2025). Cost overrun and lifecycle performance in Nigerian public projects. Built Environment Journal, 12(1), 44–62.
[2]. Adeyemi, A. Y. (2024). Lifecycle costing practices in Nigerian tertiary institutions. Journal of Built Environment Studies, 9(2), 18–36.
[3]. Aiyetan, O. A., & Smallwood, J. (2015). Materials management practices in South African construction projects. Acta Structilia, 22(1), 1–28.
[4]. Akindele, O. A. (2023). Value for money assessment in public sector construction projects in Nigeria. Journal of Construction Project Management and Innovation, 13(1), 82–101.
[5]. Anthony, R. N., & Young, D. W. (2021). Management control in nonprofit organizations (9th ed.). McGraw-Hill.
[6]. Ashworth, A. (2013). Cost studies of buildings (5th ed.). Routledge.
[7]. Babalola, O., Ibem, E. O., & Ezema, I. C. (2022). Whole-life cost considerations in sustainable building design in Nigeria. Sustainable Production and Consumption, 29, 814–827.
[8]. Bello, W. A., & Odusami, K. T. (2022). Financial accountability in TETFund-sponsored construction projects: A quantitative analysis. Nigerian Journal of Technology, 41(3), 488–501.
[9]. Boussabaine, A. (2014). Risk and uncertainty in life cycle cost modelling. Wiley-Blackwell.

[10]. CIRIA. (2001). Whole life costing for construction (Report C614). Construction Industry Research and Information Association.
[11]. Ebekozien, A. (2023). Sustainable building maintenance in Nigeria: Challenges and prospects. Journal of Facilities Management, 21(4), 488–506.
[12]. Fadamiro, J. A., & Atolagbe, A. M. O. (2024). Financial management practices in Nigerian polytechnic institutions. African Journal of Public Administration, 16(2), 122–141.
[13]. Flanagan, R., & Jewell, C. (2005). A review of whole life costing and lifecycle costing. RICS Research Paper Series, 5(1).
[14]. Federal Ministry of Finance. (2024). Public sector financial accountability and value-for-money framework. Federal Ministry of Finance Nigeria.
[15]. Ibadin, P. O., & Izedonmi, F. (2015). Public sector accounting and public accountability in Nigeria. Research Journal of Finance and Accounting, 6(2), 64–73.
[16]. Idoro, G. I. (2012). Influence of quality performance on clients patronage of indigenous contractors in Nigeria. Journal of Civil Engineering and Management, 18(4), 564–574.
[17]. Ibrahim, M. (2024). Accountability mechanisms in TETFund-funded projects: Evidence from Nigerian tertiary institutions. Journal of Public Finance, 8(1), 33–52.
[18]. International Organization for Standardization. (2017). ISO 15686-5: Buildings and constructed assets — Service life planning — Part 5: Life-cycle costing. ISO.
[19]. Njoku, C. O., Chibuike, O., & Ikenna, N. (2021). Internal audit effectiveness and accountability in public higher institutions in Nigeria. Research Journal of Finance and Accounting, 12(4), 28–39.
[20]. National Board for Technical Education. (2022). Guidelines for sustainable infrastructure management in Nigerian polytechnics. NBTE.
[21]. Oduyemi, O., & Okoroh, M. (2019). Barriers to life cycle costing implementation in the Nigerian construction industry. Journal of Financial Management of Property and Construction, 24(2), 182–198.
[22]. Ogunlana, S. O. (2010). Beyond the iron triangle: Stakeholder perception of key performance indicators for large-scale public sector development projects. Construction Management and Economics, 28(2), 99–115.
[23]. Ojo, S. O., & Aina, O. O. (2021). Financial accountability in public sector construction projects in Nigeria. Journal of Public Administration and Governance, 11(1), 1–22.
[24]. Oladapo, A. A. (2020). Life cycle cost analysis of building projects in Nigeria. Journal of Building Performance, 11(1), 1–15.
[25]. Olanrewaju, A. L. (2022). A simplified lifecycle cost analysis framework for building projects in developing economies. International Journal of Construction Management, 22(14), 2734–2748.
[26]. Olawale, Y. A., & Sun, M. (2010). Cost and time control of construction projects: Inhibiting factors and mitigating measures in practice. Construction Management and Economics, 28(5), 509–526.
[27]. Osamudiamen, B. (2026b). Technical building condition appraisal report — Auchi Polytechnic academic facilities [Internal Technical Report]. Department of Building Technology, Auchi Polytechnic.
[28]. Osifoh, A. (2026a). Financial records review and compliance audit — Auchi Polytechnic TETFund-funded buildings, 2015–2025 [Internal Research Report]. Department of Accountancy, Auchi Polytechnic.
[29]. Proverbs, D. G., & Holt, G. D. (2000). Reducing construction costs: European best practice supply chain implications. European Journal of Purchasing and Supply Management, 6(3–4), 149–158.
[30]. Royal Institution of Chartered Surveyors. (2022). Whole life costing: Guidance note. RICS Professional Standards.
[31]. Saunders, M., Lewis, P., & Thornhill, A. (2019). Research methods for business students (8th ed.). Pearson.
[32]. TETFund. (2023). Annual report: Infrastructure intervention outcomes and challenges. Tertiary Education Trust Fund.
[33]. TETFund. (2026). Intervention guidelines and priorities for research and development 2026. Tertiary Education Trust Fund.
[34]. United Nations. (2015). Transforming our world: The 2030 agenda for sustainable development (Resolution A/RES/70/1). UN General Assembly.
[35]. United Nations. (2020). Global indicator framework for the sustainable development goals and targets of the 2030 agenda. UN Statistics Division.
[36]. Windapo, A. O. (2013). Relationship between degree of risk, cost and level of project performance in South Africa. Australasian Journal of Construction Economics and Building, 13(3), 79–88.
[37]. World Bank. (2020). Improving public sector financial management in Nigeria: Challenges and opportunities. World Bank Group.
[38]. Yin, R. K. (2018). Case study research and applications: Design and methods (6th ed.). SAGE.

Author Contributions:
Osifoh Austin: Conceptualisation, research design, financial records review, compliance scoring, data collection and analysis, lifecycle cost modelling, writing — original draft, and project administration. As an accountancy specialist with expertise in public sector financial management and audit in Nigerian tertiary institutions, the lead author provided the financial accountability and cost analysis expertise that is central to this investigation.
Bamidele Osamudiamen: Technical building condition assessment, physical inspection of study buildings using the Building Condition Assessment protocol, integration of construction industry technical expertise into the lifecycle cost model inputs, co-investigation of building system performance data, and writing — review and editing. As a registered Builder with the Council of Registered Builders of Nigeria (CORBON) with over 15 years of professional registration experience in building technology, condition appraisal, and facility management across Edo, Delta, and Ondo States, the co-investigator provided the technical building expertise required to ground the financial analysis in verified physical condition evidence.

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Data Availability: The financial datasets and building records supporting the findings of this study are available from the corresponding author on reasonable request, subject to Auchi Polytechnic institutional data governance approval.