

Performance Improvement Strategy Based on Balanced Scorecard Gap Analysis and Root Cause Analysis in an Internal Control Unit of A Commercial Bank

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Keywords	Abstract
Balanced Scorecard, gap analysis, Root Cause Analysis, internal control, operational risk, commercial bank, mixed methods, span of control.	Operational risk remains a persistent challenge for commercial banks due to complex processes, high transaction volumes, and stringent regulatory requirements. This study develops and tests an integrated evaluation model that combines Balanced Scorecard measurement, gap analysis, risk-based prioritisation, and Root Cause Analysis to identify improvement priorities for an internal control unit in a commercial bank. An explanatory sequential mixed-methods design was applied. Quantitative analysis used 14 Balanced Scorecard indicators for fiscal year 2024, standardised to a 1-to-5 scale, and combined with perception survey results from 50 respondents. Qualitative data were collected through semi-structured interviews, limited observation, and document review to explain quantitative patterns and classify gap typologies. Results indicate high overall performance with a total index of approximately 4.56 out of 5.00, while gaps concentrate in a small subset of outcome-oriented indicators. The highest priorities for Root Cause Analysis correspond to a financial outcome indicator, a stakeholder satisfaction indicator, and an efficiency indicator, reflecting misalignment between outcome metrics and controllable activities, as well as service and documentation constraints. The integrated model produces a structured improvement roadmap consisting of 22 actions grouped into quick wins for 2025 and strategic initiatives for 2026, and is validated through member checking and triangulation. The study contributes a practical and auditable approach to performance evaluation for internal control units in commercial banking by embedding span-of-control reasoning, risk-based prioritisation, and actionable Root Cause Analysis outputs.

INTRODUCTION

Commercial banks operate under continuous exposure to operational risk stemming from process failures, fraud, human error, systems disruption, and external events. Regulatory frameworks and international standards emphasise governance, internal control, and risk management across organisational levels, including the expectation that first line functions maintain effective controls and demonstrate measurable performance (Basel Committee on Banking Supervision, 2011; Committee of Sponsoring Organizations of the Treadway Commission, 2017; International Organization for Standardization, 2018). However, performance management systems may generate biased assessments when outcome indicators are cascaded to units that do not control the main causal drivers of such outcomes (Awan et al., 2020; Gawlick & Audoye, 2019; Khwaja Asim, 2024; Mansoor, 2023; Siraj & Hågen, 2023). This misalignment can weaken accountability, distort improvement priorities, and reduce the credibility of internal performance evaluation.

A recurring practical concern in banking is that internal control units are evaluated using bank wide outcome indicators such as profit or non performing loans, despite the fact that internal control activities primarily affect loss prevention, loss limitation, recovery, compliance quality, and service responsiveness. Figure 1 provides a contextual illustration of fraud dynamics that motivate sustained attention to operational risk governance. The figure is presented as internal trend data for the study context, with institutional identity anonymised.

The central argument is that internal control performance evaluation should distinguish controllable and uncontrollable components of outcome indicators, and should monetise control

benefits where feasible to connect operational risk governance to financial protection. Balanced Scorecard is widely used to integrate multi perspective indicators into a single strategic performance system (Faraji et al., 2022; Gazi et al., 2022; Hegazy et al., 2022). Yet, Balanced Scorecard implementation requires careful indicator design, weighting, and causal linkage specification to avoid measurement distortion (Tawse & Tabesh, 2021; Zizlavsky, 2014). Gap analysis can provide a diagnostic basis for identifying where performance deviates from targets (Cummings & Worley, 2015), while Root Cause Analysis supports systematic identification of underlying causes and formulation of corrective actions (Kaelin, 2018; Okes, 2019; Shaik, 2022).

This study proposes an integrated model that combines Balanced Scorecard measurement, composite scoring of actual and perception, gap based prioritisation with risk impact weighting, and Root Cause Analysis for actionable improvement planning. The model is applied to an internal control unit in a commercial bank, focusing on fiscal year 2024 performance with follow up qualitative explanation and validation.

This study is guided by two research questions. First, how can priority performance problems for an internal control unit be identified using Balanced Scorecard gap analysis integrated with indicator importance and operational risk impact? Second, how can Root Cause Analysis be used to formulate feasible and structured improvement strategies for the prioritised indicators? Correspondingly, the study pursues two objectives: to develop a quantitative prioritisation mechanism that integrates Balanced Scorecard composite scores, gap analysis, indicator weights, and operational risk impact; and to develop and validate structured improvement strategies using Root Cause Analysis supported by qualitative evidence and stakeholder confirmation.

The study contributes in three ways: methodologically, through an auditable formula-based integration of actual performance and perception measures combined with risk-weighted prioritisation; practically, through a structured set of improvement actions and a roadmap aligned to organisational feasibility constraints; and from a governance perspective, by embedding span of control logic and documentation requirements into performance evaluation for internal control functions.

METHOD

An explanatory sequential mixed methods design was applied (Creswell & Plano Clark, 2018). Quantitative analysis was conducted first to compute composite scores, gaps, perspective indices, and priority ranking. Qualitative analysis followed to explain patterns, validate interpretations, and support action planning through Root Cause Analysis.

Figure 1 presents the research flow adapted to the anonymised context.

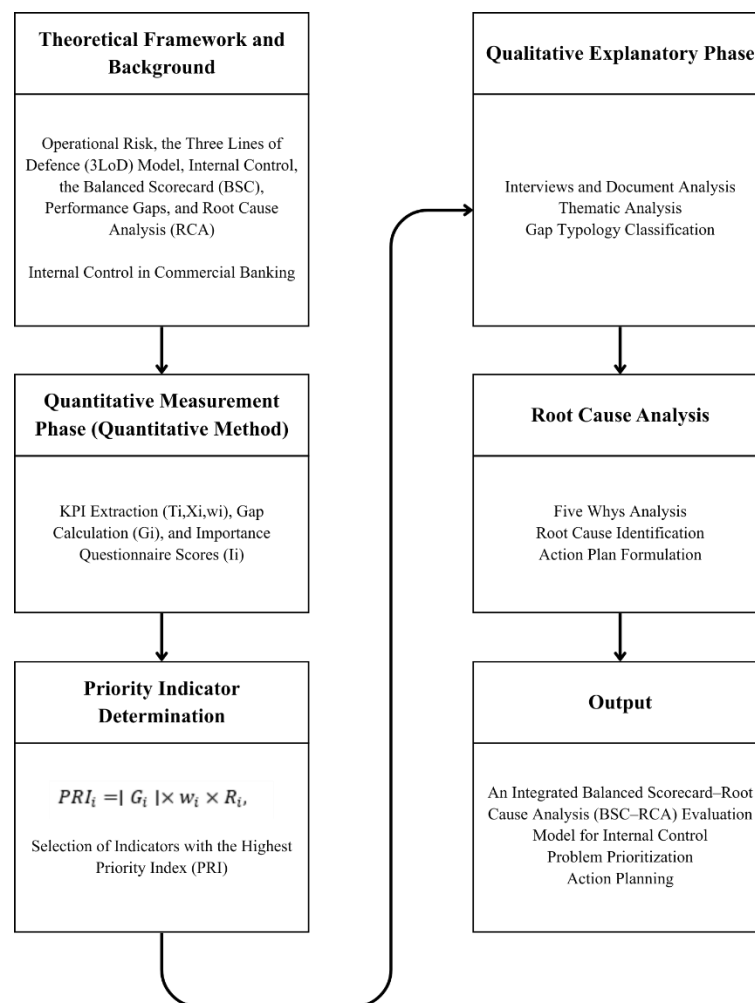


Figure 1. Research flow diagram for the explanatory sequential design

The study used 14 Balanced Scorecard indicators grouped into four perspectives.

1. Financial perspective with four indicators coded F1 to F4.
2. Customer perspective with one indicator coded C1.
3. Internal process perspective with eight indicators coded I1 to I8.
4. Learning and growth perspective with one indicator coded L1.

Quantitative data sources include:

1. Organisational Balanced Scorecard documents for fiscal year 2024, providing targets and actual realisation values for each indicator.
2. A perception survey administered to 50 respondents, using a Likert scale 1 to 5 mapped to indicator statements aligned with the Balanced Scorecard.
3. Expert assessment of operational risk impact scores R_i on a 1 to 5 scale, based on consensus among relevant senior stakeholders in the study context.

Qualitative data sources include:

1. Semi structured interviews with key stakeholder groups including internal control leadership, second line risk management counterparts, internal audit representatives, and operational risk coordinators.
2. Limited process observation of internal control monitoring routines and incident reporting workflow.
3. Supporting documents such as templates, meeting notes, and evidence requirements.

Variable Definitions and Scoring Model

Let $i \in \{1, 2, \dots, 14\}$ denote indicator index, and $j \in \{1, 2, \dots, 50\}$ denote respondent index.

Perception Score

Perception score per indicator is computed as the mean Likert value.

$$Y_i = \frac{1}{n} \sum_{j=1}^n s_{ij} \quad (1)$$

where $n = 50$ and $s_{ij} \in \{1,2,3,4,5\}$.

Standardised Actual Score

Actual performance values are standardised to a 1 to 5 scale. Two rule sets are used depending on indicator orientation.

For larger is better indicators.

$$X_i = \min \left(5, \max \left(1, \frac{A_i}{T_i} \times 5 \right) \right) \quad (2)$$

For smaller is better indicators.

$$X_i = \min \left(5, \max \left(1, \frac{T_i}{\max(A_i, \varepsilon)} \times 5 \right) \right) \quad (3)$$

where T_i denotes target, A_i denotes actual realisation, and ε is a small constant used to avoid division by zero.

Composite Score and Gap Score

Composite score integrates actual and perception using a weighted combination emphasising actual performance.

$$Z_i = 0.7X_i + 0.3Y_i \quad (4)$$

Gap score is defined as distance from the ideal maximum score 5.

$$G_i = 5 - Z_i \quad (5)$$

Indicator Weights and Perspective Weights

Let w_i denote normalised weight of indicator i within its perspective, satisfying $\sum_{i \in p} w_i = 1$ for each perspective p . Let W_p denote perspective weight in the total index. In this study the perspective weights are.

$$W_{\text{fin}} = 0.25, \quad W_{\text{cus}} = 0.05, \quad W_{\text{int}} = 0.65, \quad W_{\text{lg}} = 0.05 \quad (6)$$

Perspective Index and Total Index

Within each perspective, weighted indicator indices are aggregated and multiplied by perspective weight.

$$IKPI_i = w_i Z_i \quad (7)$$

$$IP_p = W_p \sum_{i \in p} IKPI_i = W_p \sum_{i \in p} w_i Z_i \quad (8)$$

Total index is computed as the sum across perspectives.

$$I = \sum_p IP_p \quad (9)$$

Priority Score for Root Cause Analysis

Priority score combines gap magnitude, indicator weight, and operational risk impact.

$$PRI_i = G_i \times w_i \times R_i \quad (10)$$

Qualitative Analysis and Gap Typology Classification

Qualitative evidence was analysed thematically to explain why gaps occur and to classify each indicator into a gap typology. The typology includes.

1. Indicator design gap
2. Service gap
3. Temporary structural gap
4. Causal pathway gap
5. Documentation gap
6. Capacity gap
7. No gap

The typology logic uses both quantitative patterns of X_i , Y_i , and G_i , and qualitative explanations from interviews and observations.

Validity and Confirmation Procedures

Validity was strengthened through triangulation across stakeholder groups and data types and through member checking of key model components, priority results, and action plan feasibility [5], [6].

RESULTS AND DISCUSSION

Perception Survey Descriptive Statistics

Table 1 summarises perception survey descriptive statistics for the 14 indicators. The pattern indicates that process and control indicators exhibit higher means and lower dispersion than financial outcome indicators, consistent with the expectation that respondents perceive execution quality as strong while recognising constraints in outcome attribution.

Table 1. Descriptive statistics of perception scores for 14 indicators (N = 50)

Code	Mean	Median	Mode	SD
F1	3.60	4	4	0.62
F2	3.40	3	3	0.71
F3	3.10	3	3	0.78

Code	Mean	Median	Mode	SD
F4	4.80	5	5	0.40
C1	4.20	4	4	0.55
I1	4.90	5	5	0.30
I2	4.10	4	4	0.58
I3	4.90	5	5	0.31
I4	4.85	5	5	0.35
I5	4.60	5	5	0.49
I6	4.70	5	5	0.44
I7	4.00	4	4	0.63
I8	4.90	5	5	0.30
L1	4.50	5	5	0.51

Perspective Indices and Total Performance Index

Perspective indices were computed using the weighted aggregation described in Variable definitions and scoring model section. Table 2 summarises the indices by perspective. The internal process perspective dominates the total index due to its higher perspective weight, while the financial perspective shows lower relative achievement against its ideal weighted target.

Table 2. Perspective index summary based on weighted aggregation

Perspective	Weight W_p	Total $\sum_{i \in p} w_i Z_i$	IP_p	Ideal $W_p \times 5$	Relative achievement
Financial	0.25	3.718	0.9295	1.25	74.4%
Customer	0.05	4.510	0.2255	0.25	90.2%
Internal process	0.65	4.861	3.1597	3.25	97.2%
Learning and growth	0.05	4.850	0.2425	0.25	97.0%
Total	1.00		4.5572	5.00	91.2%

The total index is approximately $I \approx 4.56$, indicating high overall performance on a 1 to 5 scale. The distribution of gaps, however, is uneven, motivating prioritisation.

Risk Impact Scoring

Operational risk impact scores R_i were obtained through expert consensus using a 1 to 5 scale. The highest impact scores are concentrated in indicators linked to credit quality sensitivity, operational loss, compliance criticality, and fraud relevance. These scores serve as risk based multipliers in the priority formula.

Priority Ranking for Root Cause Analysis

Priority scores PRI_i were computed using $PRI_i = G_i \times w_i \times R_i$. Table 3 presents the priority ranking and categorisation. The results show a clear separation between the top four priorities and the remaining indicators, indicating that improvement resources should focus on a small subset of gaps.

Table 3. Priority ranking using $PRI_i = G_i \times w_i \times R_i$

Rank	Code	Indicator label	G_i	w_i	R_i	PRI_i	Category
1	F3	Financial outcome sensitivity	3.37	0.20	5	3.370	Root Cause Analysis priority
2	C1	Stakeholder satisfaction	0.49	1.00	3	1.470	Root Cause Analysis priority

Rank	Code	Indicator label	G_i	w_i	R_i	PRI_i	Category
3	F2	Cost efficiency	1.53	0.20	4	1.224	Root Cause Analysis priority
4	F1	Profit alignment	1.39	0.20	4	1.112	Root Cause Analysis priority
5	L1	People development	0.15	1.00	3	0.450	Routine improvement
6	I7	Compliance evidence quality	0.59	0.0909	5	0.268	Documentation improvement
7	I2	Review closure discipline	0.27	0.1818	5	0.245	Scheduling improvement

The top four indicators form the Root Cause Analysis scope for improvement strategy development.

Integration Matrix and Gap Typology Outcomes

Quantitative patterns and qualitative evidence were integrated to classify each indicator into a gap typology. The integration supports interpretation that high gaps in certain financial outcome indicators arise from indicator design and causal linkage issues rather than execution failure, while moderate gaps in service and compliance stem from service standardisation and documentation processes. Table 4 provides the operational definition of each gap typology used in the study.

Table 4. Operational definitions of gap typologies for integrated interpretation

Typology	Definition	Typical quantitative pattern	Typical qualitative signal
Indicator design gap	Gap arises because the indicator is not aligned with unit function, authority, or span of control.	Very low X_i , moderate Y_i , very large G_i .	Statements that key determinants are outside unit control and indicator is bank wide.
Service gap	Gap arises because service speed or communication consistency does not meet stakeholder expectations.	High X_i , moderate to high Y_i , small to moderate G_i .	Complaints focus on response time and transparency rather than technical quality.
Temporary structural gap	Gap arises because the period represents capability consolidation rather than steady state operations.	Moderate X_i and Y_i , moderate G_i .	Explanations emphasise transition costs and capability build up.
Causal pathway gap	Gap arises because the causal link between control activities and outcome indicators is not specified or monetised.	Moderate X_i and Y_i , moderate G_i .	Lack of attribution mechanism and weak financial narration of control benefit.
Documentation gap	Gap arises because evidence is incomplete, not because control is absent.	Moderate to high X_i , moderate Y_i , small G_i .	Evidence gaps, administrative burden, and system usability constraints.
Capacity gap	Small gap arises due to uneven competence or capacity across segments.	High X_i , moderate to high Y_i , very small G_i .	Variation in capability and need for targeted mentoring.
No gap	Indicator meets or exceeds target with strong consensus.	Very high X_i and Y_i , very small G_i .	No significant complaints and stable execution.

Root Cause Analysis Synthesis and Action Plan Outputs

Root Cause Analysis using Five Whys was applied to the top four priorities. The causal patterns fall into three themes.

1. Span of control misalignment for outcome oriented financial indicators.
2. Service governance gaps such as absence of formal service level targets, ticketing, and dashboards.

3. Financial attribution gaps where control benefits are not monetised into measurable value such as loss avoidance and recovery.

The improvement outputs are structured as action plans with what who when how and measure fields, consolidated into 22 actions. Actions are grouped into quick wins targeted for 2025 and strategic initiatives targeted for 2026, with most budget allocation associated with system development for service ticketing and dashboards.

Interpretation of Overall Performance and Concentrated Gaps

The total Balanced Scorecard index indicates high performance. However, prioritisation reveals that performance risk is concentrated in a small subset of indicators. This pattern is consistent with Balanced Scorecard theory that multi perspective indices can mask concentrated weaknesses if aggregation is interpreted without gap based diagnostics (Kaplan & Norton, 1992; Tawse & Tabesh, 2021). The integrated model demonstrates that high internal process performance does not automatically imply that financial outcome indicators are fairly attributable to the internal control function.

Span of Control and Indicator Design Distortion

The highest priority indicator corresponds to a financial outcome sensitivity measure with very low X_i but moderate Y_i , producing a large gap G_i . This pattern is characteristic of indicator design gap. The qualitative evidence indicates that key determinants of the outcome are controlled by business and macro factors rather than the internal control unit. This aligns with span of control arguments that evaluation should be based primarily on controllable dimensions and that uncontrollable factors should be separated or adjusted (Maas & Matějka, 2009).

A practical implication is that performance evaluation in internal control should distinguish bank wide outcome indicators as strategic alignment indicators rather than operational accountability indicators. Furthermore, leading indicators that capture controllable processes should be added to preserve accountability while avoiding unfair penalisation. This reasoning is consistent with guidance on aligning performance systems with strategy and risk governance (Huber et al., 2025; Committee of Sponsoring Organizations of the Treadway Commission, 2017).

Service Governance as a Driver of Stakeholder Satisfaction Gaps

The stakeholder satisfaction indicator shows high actual control execution but moderate perception relative to ideal, consistent with a service gap. Qualitative findings indicate that dissatisfaction is driven less by technical quality than by variability in response time and communication transparency. The literature on internal service quality suggests that stakeholder expectations depend on responsiveness, reliability, and communication clarity (Parasuraman et al., 1991). In internal control contexts, service standardisation through service level agreements and workflow transparency tools can improve perceived value without changing the substantive control methods.

The proposed improvements, including service level agreements, integrated ticketing, and dashboards, operationalise ISO 31000 communication and consultation principles and support monitoring and review practices (International Organization for Standardization, 2018). Additionally, the approach supports internal audit planning by enabling measurable service level performance that can be audited and monitored (Committee of Sponsoring Organizations of the Treadway Commission, 2017).

Temporary Structural Efficiency Gaps in Capability Build Up Periods

The efficiency indicator shows a moderate gap associated with capability consolidation spending. This is consistent with a temporary structural gap, where a unit in a consolidation phase requires investment in training, systems, and socialisation to achieve future risk reduction benefits. In such cases, uniform efficiency targets may be inappropriate. The model suggests maturity adjusted targets and cost classification separating build up from routine costs. This aligns with performance management principles that targets should be context sensitive and strategically justified (Tawse & Tabesh, 2021).

Monetisation of Control Benefits and Causal Pathway Clarity

A key theme is causal pathway gap: internal control benefits are not fully captured in financial indicators because loss prevention and recovery are not monetised. The proposed inclusion of loss avoidance and loss recovery indicators provides a bridge between operational control execution and financial protection. This supports risk governance logic where expected loss considerations and loss management strategies are central to operational risk frameworks (Basel Committee on Banking Supervision, 2011; Committee of Sponsoring Organizations of the Treadway Commission, 2017). It also strengthens strategic communication by enabling a defensible narrative linking control quality to financial stability and stakeholder value.

Model Validity and Governance Alignment

The model was validated through member checking and triangulation. The validation indicates agreement that key gaps correspond to indicator design rather than execution failure, and that proposed improvements are feasible when separated into quick wins and strategic initiatives. From a governance perspective, the model is consistent with COSO ERM emphasis on risk capacity and performance integration, ISO 31000 emphasis on context and continuous review, and supervisory expectations for adequate risk management information systems (Committee of Sponsoring Organizations of the Treadway Commission, 2017; International Organization for Standardization, 2018; Basel Committee on Banking Supervision, 2011).

CONCLUSION

The integrated Balanced Scorecard gap analysis and Root Cause Analysis model offers a structured approach to pinpoint and prioritize performance gaps in a commercial bank's internal control unit, revealing high overall performance but concentrated issues in four key indicators driven by span-of-control misalignment, service governance weaknesses, temporary cost patterns, and unmonetized control benefits. Despite its strengths, the study faces limitations including single-case generalizability, subjective risk scoring via expert consensus, reliance on the organization's 14 existing indicators, and focus on one fiscal year's data without longitudinal validation. For future research, a promising direction would be longitudinal tracking of the 22 improvement actions' impact on Balanced Scorecard indices across multiple banks, incorporating empirical loss data and machine learning to refine prioritization formulas like $Z_i = 0.7X_i + 0.3Y_i$, while integrating with real-time risk dashboards to test transferability to other governance functions.

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