Stakeholder Validation of Railway Public Service Obligation Governance: Refining the Thailand Railway Public Service Governance Framework

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Abstract

Railway Public Service Obligations (PSOs) require governments to reconcile social necessity, fiscal discipline, operational accountability, and network regulation. This study validates and refines the Thailand Railway Public Service Governance Framework (TRPSGF) through semi-structured interviews with 18 key informants from nine stakeholder groups spanning transport policy, regulation, railway planning, operations, finance, fiscal oversight, budgeting, users, and independent experts. A hybrid deductive inductive thematic analysis identified eight cross-stakeholder themes. The findings support the core TRPSGF architecture but require substantial modification: PSO should be defined as explicit public-service purchasing; financial traceability should become a cross-cutting enabling architecture; performance rules should distinguish controllable from non-controllable causes; and governance should incorporate multi-layer assurance, user-defined public value, fiscal safeguards, open access compatibility, and phased implementation. The study demonstrates that stakeholder validation functions as an institutional stress test rather than simple framework endorsement.

Keywords: Public Service Obligation; Railway Governance; Stakeholder Validation; Public Value; Thailand

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1. Introduction

Passenger railways occupy an unusual policy space. They are commercial transport services, capital-intensive network industries, and instruments through which governments pursue accessibility, territorial cohesion, environmental, and social objectives. Where fare revenue cannot sustain a service that government nevertheless considers socially necessary, a Public Service Obligation (PSO) can provide a formal basis for specifying the service, assigning responsibility, calculating compensation, and monitoring performance. The governance challenge is therefore broader than deciding how much subsidy an operator should receive. It concerns how public purpose is translated into a defined service, how that service is costed and contracted, how financial and operational responsibility is allocated, and how government verifies that public value has actually been delivered (Small & Verhoef, 2007; Moore, 1995; European Commission, 2007, 2023).

This distinction is especially important for the State Railway of Thailand (SRT). Thailand already has a formal administrative basis for PSO support. The State Enterprise Policy Office (SEPO) requires state enterprises requesting public service subsidies to identify the service, target groups, expected outcomes, risks, and indicators, and to maintain accounting information that separates commercial and public-service activities. SEPO's SRT-specific guidance also addresses direct and indirect cost attribution and the documentary basis required to support compensation claims (State Enterprise Policy Office, 2019). These rules establish important foundations, but they do not by themselves resolve the institutional, contractual, financial, or performance relationships that determine whether PSO funding is transparent, efficient, and accountable.

The regulatory context is also changing. The Rail Transport Act B.E. 2568 created a stronger legal basis for systematic regulation of Thailand's rail sector, while the 2026 Network Statement and related Department of Rail Transport (DRT) and SRT initiatives have made network access, capacity allocation, and participation by additional operators increasingly relevant to the governance of railway services (Department of Rail Transport, 2025, 2026; State Railway of Thailand, 2026). PSO design can therefore no longer be treated solely as a bilateral funding relationship between government and the incumbent operator. It must eventually coexist with a more explicit separation of regulatory, infrastructure management, and operating functions, together with track access charging and non-discriminatory access rules.

A preliminary Thailand Railway Public Service Governance Framework (TRPSGF) was developed from theoretical and comparative evidence to organise these relationships. Its core logic combined five governance functions service classification, institutional governance, Public Service Contracts (PSCs), performance management, and public value evaluation

supported by financial governance and independent monitoring. A conceptual framework of this kind can identify potentially transferable governance principles, but it cannot establish whether those principles are administratively workable, financially credible, or institutionally acceptable in Thailand. Policy-transfer scholarship has long cautioned that governance arrangements cannot simply be transplanted across institutional settings; transferability depends on legal authority, administrative capacity, fiscal rules, organizational incentives, and local patterns of accountability (Dolowitz & Marsh, 2000; Scott, 2014).

The present study addresses that limitation through stakeholder validation. Rather than asking whether respondents generally "agree" with TRPSGF, the study examines which components they support, which require modification, what new mechanisms emerge from practical experience, and where institutional tensions remain unresolved. Eighteen key informants were interviewed across the principal policy, regulatory, operational, financial, user, and expert communities involved in Thailand's rail governance system. The analysis shows that the preliminary framework was not simply confirmed. Its underlying architecture received broad support, but stakeholders materially changed the way several elements should operate, especially financial traceability, decision rights, controllability based performance, public value measurement, open access compatibility, and implementation sequencing.

1.1 Research Objectives and Questions

The study has three objectives. First, it evaluates the relevance, feasibility, and completeness of the preliminary TRPSGF from the perspectives of actors who formulate policy, regulate the network, operate railway services, manage financial information, allocate public resources, use railway services, or independently assess the sector. Second, it identifies which components should be supported, modified, rejected, or supplemented in the Thai context. Third, it develops an empirically refined governance architecture suitable for phased implementation.

Three research questions guide the analysis: RQ1: How do key Thai railway stakeholders assess the principal governance components of TRPSGF? RQ2: What institutional, financial, contractual, performance, public-value, and integrity mechanisms require modification or addition? RQ3: What implementation conditions and governance tensions should be incorporated into a refined framework for railway PSO governance in Thailand?

2. Literature Review and Analytical Framework

2.1 PSO as a Governance System

Welfare economics provides the conventional justification for public support when market outcomes fail to supply socially valuable mobility at the desired level. In transport, the relevant benefits can extend beyond operator revenue to accessibility, network connectivity, congestion relief, environmental effects, and distributional outcomes (Small & Verhoef, 2007). However, identifying a market failure or social objective does not determine how a PSO should be governed. Once government chooses to purchase a socially necessary service, questions arise concerning who defines the obligation, who purchases it, who delivers it, how compensation is calculated, and how performance is verified.

Network-industry and institutional perspectives further complicate this relationship. Rail services depend on shared infrastructure, scarce train paths, safety regulation, and coordination across operators and infrastructure managers. Market opening therefore does not remove the need for regulation; it changes the form of regulation and increases the importance of transparent access rules, capacity allocation, and the separation of responsibilities (Finger & Messulam, 2015; Ristić et al., 2022). Institutional theory similarly suggests that formal rules alone are insufficient. The effectiveness of a governance arrangement depends on how decision rights, information, incentives, and accountability relationships operate within a particular administrative system (Scott, 2014).

2.2 Contractual and Financial Governance

Contract theory highlights the information asymmetry that arises when government purchases services from an operator that possesses superior knowledge about costs and operational conditions. A PSC can reduce this asymmetry by defining service outputs, compensation rules, performance indicators, reporting requirements, audit rights, risk allocation, and consequences for non-performance. Yet contracts can also create perverse incentives when indicators reward activities that the operator cannot fully control or when compensation rules encourage cost inflation rather than efficiency (Laffont & Tirole, 1993).

The European PSO regime illustrates the importance of specifying public-service obligations and compensation transparently and of protecting against overcompensation (European Commission, 2007, 2023).

Financial governance is therefore inseparable from contractual governance. If PSO costs cannot be traced, if common costs are allocated through unstable rules, or if commercial and public-service activities are not meaningfully separated, the purchaser

cannot determine whether compensation reflects the defined service or absorbs unrelated inefficiency. SEPO's Thai PSO framework already recognises this problem by requiring separate commercial and public-service accounting and documentary support for cost estimates (State Enterprise Policy Office, 2019). The remaining governance question is how accounting separation should connect to service classification, contract design, performance responsibility, reconciliation, audit, and fiscal control.

2.3 Public Value, Integrity, and Adaptive Policy Transfer

Public-value theory broadens the evaluation of PSO beyond financial performance. A service can be commercially weak but socially valuable if it provides affordable mobility, access to essential destinations, territorial connectivity, or benefits to groups with limited alternatives (Moore, 1995; Benington & Moore, 2011). The challenge is to convert these normative claims into measurable criteria. Without operational indicators or evidence from users, public value can become a general justification for maintaining almost any loss making service.

Integrity is equally important because public subsidies and long term service contracts create opportunities for cost inflation, cross subsidization, conflicts of interest, regulatory capture, opportunistic renegotiation, and manipulation of performance data. OECD guidance for state-owned enterprises emphasises transparency, professional ownership, risk management, accountability, and anti-corruption controls as core governance requirements (OECD, 2019, 2024). For a railway PSO framework, this implies that financial and performance information should be auditable, contract changes should be transparent, responsibilities should be segregated where possible, and data should not be controlled solely by the party whose performance is being evaluated.

These theoretical perspectives support an adaptive rather than transplanting approach to policy transfer. Comparative experience can identify mechanisms such as service definition, accounting separation, public-service contracting, performance monitoring, and independent oversight but the institutional form through which these mechanisms operate should be adapted to the Thai legal, fiscal, and organizational context (Dolowitz & Marsh, 2000). Stakeholder validation is therefore treated here as an institutional stress test: a mechanism is retained only if actors can explain how it would function, what information it requires, who should be accountable, and what risks or boundary conditions must be addressed.

2.4 Preliminary TRPSGF and Analytical Propositions

The preliminary TRPSGF contains five core governance pillars: service classification, institutional governance, Public Service Contracts, performance management, and public-value evaluation. Financial governance and independent monitoring were initially treated as cross-cutting supports. Four analytical propositions guide the validation. P1 proposes that stakeholders will view PSO effectiveness primarily as a function of governance coherence rather than subsidy magnitude. P2 proposes that core governance functions will receive broad support but require Thailand-specific operational modification. P3 proposes that financial traceability and independent assurance will emerge as enabling conditions for credible compensation. P4 proposes that Thailand's evolving open-access environment will create additional requirements concerning track access charging, capacity allocation, and clearer separation among regulatory, infrastructure, and operating roles.

3. Research Design and Methodology

3.1 Research Design and Participant Selection

The study uses a qualitative stakeholder-validation design. Semi-structured interviews were conducted with 18 key informants selected purposively to achieve institutional coverage rather than statistical representativeness. The sample spans nine stakeholder groups: the Ministry of Transport; the Department of Rail Transport; SRT strategy and planning; SRT passenger operations; SRT finance and accounting; SEPO or Ministry of Finance; a public-budget specialist; passenger or community representatives; and independent academic or industry experts. This composition reflects the governance chain embedded in TRPSGF, from policy formulation and regulation to operation, finance, budgeting, beneficiary experience, and independent challenge. Respondents are identified only by institutional codes in order to preserve anonymity.

Table 1. Key-informant composition.

Stakeholder Group	Codes	n	Primary Validation Domain
Ministry of Transport	MOT-01–02	2	Policy objectives, PSO mandate, institutional coordination
Department of Rail Transport	DRT-01–03	3	Regulation, open access, capacity, TAC, performance verification
SRT strategy/planning	SRT-P-01–02	2	Service classification, institutional feasibility, data architecture
SRT passenger operations	SRT-O-01–02	2	Service specification, delay attribution, operational KPIs
SRT finance/accounting	SRT-F-01–02	2	Cost attribution, accounting separation, reconciliation

Source: Interview sample developed for this study.

Table 1. Key-informant composition. (Count.)

Stakeholder Group	Codes	n	Primary Validation Domain
SEPO / Ministry of Finance	SEPO-01–02	2	Compensation, fiscal accountability, independent assurance
Budget specialist	BUD-01	1	Fiscal sustainability and annual appropriation
Passenger/community representatives	USER-01–02	2	Accessibility, affordability, reliability, public value
Academic/industry experts	EXP-01–02	2	Independent critique, framework architecture, failure conditions
SEPO / Ministry of Finance	SEPO-01–02	2	Compensation, fiscal accountability, independent assurance

Source: Interview sample developed for this study.

3.2 Interview Domains and Data Handling

Interview questions were organised around the responsibilities of each stakeholder group but maintained a common analytical core: the purpose and classification of PSO services; allocation of institutional roles; the design of PSCs; compensation and cost allocation; operational and public-value indicators; independent monitoring and integrity; the interface with open access and track access charging; and implementation sequencing. The respondent-coded interview records were analysed in Thai. Short quotations reported in this article are translated into English by the author. No personal names or identifying job titles are reported.

The design intentionally allowed respondents to disagree. Validation was not defined as consensus. A component could be supported, supported with modification, rejected, or supplemented by an emergent mechanism. This was particularly important for the expert group, which was asked to identify redundant elements, missing mechanisms, and conditions under which TRPSGF could fail.

3.3 Thematic Analysis and Trustworthiness

The interview material was analysed through a hybrid deductive inductive thematic procedure. Deductive codes were derived from the preliminary TRPSGF and the four analytical propositions. Inductive coding captured mechanisms that respondents introduced or specified more precisely, including fiscal ceilings, mission tags, cost pool specific drivers, delay-attribution protocols, dual punctuality reporting, dispute resolution, passenger-defined counterfactual accessibility, and open access compatibility. Thematic analysis is appropriate

for identifying patterned meanings across qualitative data when coding decisions and theme development remain explicit and traceable (Braun & Clarke, 2006; Nowell et al., 2017).

Analysis proceeded in four stages. First, responses were coded within each institutional group. Second, codes were compared across groups to identify convergence, qualification, contradiction, and emergent mechanisms. Third, each TRPSGF component was classified as Support, Modify, Reject, or Add. Fourth, the results were synthesised into cross-stakeholder themes and a refined framework. Credibility was strengthened through triangulation across nine stakeholder groups; dependability through a stable code structure; confirmability through respondent-code-to-theme traceability; and analytical integrity through retention of divergent views rather than forcing artificial consensus (Nowell et al., 2017; Yin, 2018).

4. Findings

4.1 From Deficit Compensation to an Explicit Public-Service Mandate

The clearest cross stakeholder finding is a rejection of deficit compensation as the organising logic of PSO. Policy and fiscal respondents consistently framed PSO as the purchase of a defined public service. MOT-01 stated that the starting question should be "what service the state wants citizens to receive, not how much SRT loses." The respondent argued that service frequency, operating period, target group, minimum quality, and service type should be specified before compensation is calculated. MOT-02 supported this position but added an explicit fiscal condition: PSO should not become an open-ended promise that government will absorb all costs, and services should be periodically reviewed against alternative ways of meeting the same mobility need.

SEPO respondents reinforced the distinction. SEPO-01 argued that compensation should be based on the cost of the service defined by government, not on total corporate losses that may include inefficiency or non-PSO activities. BUD-01 further qualified the concept by arguing that public funding should ultimately be targeted toward vulnerable or policy-relevant groups rather than distributed as a general subsidy. Taken together, these responses shift service classification from a financial-loss test to a public service mandate test: a service becomes eligible for PSO when it is explicitly defined, directed toward an identified public need or target group, supported by measurable outputs or outcomes, and subject to fiscal review.

Passenger evidence gives this principle substantive meaning. USER-01 and USER-02 both rejected the assumption that low ridership or financial weakness alone demonstrates public necessity. They instead emphasised whether the railway provides an affordable and

usable alternative. This creates an important distinction: loss making status may be a signal that public support is required, but it is not sufficient evidence that a service should be classified as PSO.

4.2 Institutional Role Separation and Decision Rights

Stakeholders broadly supported separation among policy formulation, service purchasing, regulation, infrastructure management, operation, and verification, but they did not necessarily support creating new organisations. MOT-02 observed that institutional names matter less than clarity about who signs the contract, approves service changes, verifies KPIs, and authorises final compensation. This finding modifies the preliminary institutional-governance pillar from a list of organizational roles into a decision-rights architecture.

MOT respondents favoured a multi-agency decision mechanism in which transport policy, fiscal oversight, regulation, budgeting, auditing, and SRT operational information inform PSO classification. They also supported development of a distinct purchaser function with capabilities in service specification, contract management, data analytics, and financial reconciliation. SRT planning respondents reached a similar conclusion from the operator side. SRT-P-01 argued that if SRT remains both operator and infrastructure manager, the decision process and capacity-allocation information must be separated sufficiently to control conflicts of interest. SRT-P-02 accepted that direct award may remain appropriate during transition, but only if contracts are transparent and benchmarkable.

The emerging open-access environment strengthens the importance of these decision rights. DRT respondents emphasised that regulator, infrastructure manager, and operator perform different functions and should not be treated as interchangeable. The combined evidence therefore supports role separation, but with a pragmatic Thai interpretation: the immediate priority is not structural fragmentation; it is explicit allocation of authority, data access, verification responsibility, and dispute-resolution rights.

4.3 Financial Traceability as a Cross-Cutting Enabling Architecture

The strongest modification to TRPSGF concerns financial governance. Finance, fiscal, budget, and expert respondents converged on the view that financial traceability should not be treated as one supporting pillar among several. It is the information architecture that makes service classification, contracting, performance assessment, and subsidy accountability possible.

SRT-F-01 argued that the long-term objective should be cost traceability to service-package and route/train-kilometre levels, while recognising that current information may begin at cost-centre level. The respondent therefore proposed mapping existing accounts to mission tags so that PSO-related transactions can be traced without requiring immediate organizational restructuring. SRT-F-02 recommended staged costing: direct costs should be separated first, followed by progressively more sophisticated common-cost rules. This respondent warned against producing "figures that look precise but are not supported by data," a concern that directly challenges overly ambitious accounting reform.

Both finance respondents rejected the idea of a single universal cost driver. Station costs may require service-frequency or passenger-based drivers; central administration may require staff or direct-cost bases; and maintenance may require rolling-stock hours or train-kilometres. This implies a documented allocation manual by cost pool, combined with version control and formal approval when drivers change. The objective is not mathematical complexity but comparability, transparency, and an audit trail.

Reconciliation emerged as equally important. SRT-F-01 proposed a quarterly process linking approved service packages and budgeted eligible costs to actual cost, actual revenue, and actual service delivered, with variances explained by volume, price, efficiency, or accounting adjustments. SRT-F-02 proposed a management-readable reconciliation statement linking approved compensation, advances, verified eligible costs, related revenues, performance adjustments, and final settlement. SEPO respondents supported this logic and added that overcompensation claw-back should be separated from performance penalties because the former corrects the financial entitlement while the latter addresses service quality.

BUD-01 introduced an additional fiscal boundary: multi-year service commitments may be useful for planning, but they must be distinguished from annual appropriations. SEPO-02 similarly favoured a rolling multi-year indicative envelope rather than an unconditional guarantee of future funding. The combined evidence therefore produces a financial chain that is more operational than the preliminary framework: service package > mission tagging > direct attribution > cost pools and drivers > eligible cost and related revenue > compensation > periodic reconciliation > final settlement > independent assurance.

4.4 Public Service Contracts and Controllability-Based Performance

Operational and regulatory respondents strongly supported PSCs but insisted that performance rules reflect controllability. SRT-O-01 identified timetable implementation, train dispatch, staffing, disruption management, station facilitation, and some elements of

punctuality as areas within operational control, while delays caused by track, signalling, or externally imposed speed restrictions should not attract the same penalty. SRT-O-02 favoured a small set of intelligible indicators service delivered, controllable punctuality, operator attributable cancellations, safety compliance, and passenger-information response rather than a large administrative scorecard.

This view was mirrored by DRT respondents. DRT-01 proposed predefined delay-attribution codes covering operator, rolling stock, infrastructure, external events, and force majeure. DRT-02 went further by suggesting two punctuality measures: passenger-facing punctuality, which records the experience of the traveller, and contract attributable punctuality, which isolates the operator's controllable responsibility. This distinction is analytically important because excluding infrastructure-caused delay from a financial penalty should not erase the passenger impact from public reporting.

Respondents also identified integrity risks in performance contracting. SRT-O-02 warned that linking money to unstable KPIs before the attribution system is mature can create incentives to manipulate data rather than improve service. The operational group therefore recommended a learning period in which corrective action and data-quality improvement precede aggressive financial penalties. Penalties should have thresholds and proportionality, while incentives should reward improvements beyond a credible baseline. These findings modify the PSC pillar by adding controllability rules, delay-attribution protocols, a learning phase, and operational flexibility over timetable or rolling-stock deployment where the public-service output is still protected

4.5 Public Value and Passenger-Defined Social Necessity

Passenger interviews transformed public value from an abstract policy principle into a set of observable mobility conditions. USER-01 prioritised reliability and predictability over speed, explaining that an inexpensive railway service has limited practical value if severe delays make daily planning impossible. USER-02 similarly argued that "cheap fares do not solve the problem if the timetable does not connect," and suggested that evaluation should consider journey completion rather than the in-train segment alone.

The most useful methodological contribution from the user group is a counterfactual test of social necessity. Both respondents described more expensive or less available alternatives if the railway service disappeared. This suggests that the public-value assessment of a PSO candidate should ask what users would do without the service, how much additional cost or travel burden would arise, and whether reasonable alternatives

exist. A service with low average ridership may still have high public value at specific times of day or for specific groups; conversely, low ridership alone does not justify subsidy.

User respondents also argued for structured feedback in PSC evaluation, including satisfaction and dissatisfaction surveys, complaint resolution, accessibility evidence, and the quality of information during disruptions. This modifies the preliminary public-value pillar by adding direct beneficiary evidence and by making affordability, accessibility, reliability, connectivity, alternative travel cost, and information quality measurable dimensions of social necessity.

The expert group did not fully agree on the structural location of public value. EXP-01 argued that it should be an outcome layer within performance management to avoid duplication, whereas EXP-02 favoured retaining a distinct pillar so that financial and operational metrics do not crowd out societal objectives. This disagreement is analytically valuable. It indicates strong support for the function of public-value evaluation, but not consensus on its architectural position within the framework.

4.6 Multi-Layer Assurance, Integrity, and Data Governance

Independent monitoring received strong support, but respondents rejected the idea that one institution should verify every dimension of PSO. DRT-01 distinguished regulatory and operational monitoring from financial verification and contract management. SEPO-01 similarly argued that financial and service output verification should be performed through separate lines of review because the claimant should not fully validate its own entitlement.

DRT-02 introduced the concept of a single source of truth for KPIs and argued that verifiers should have access to raw data rather than rely solely on operator-reported aggregates. SRT-P-01 extended this requirement internally by calling for a common data dictionary across planning, finance, operations, and maintenance. SRT-F-02 added version control for allocation rules, while EXP-02 argued that multi-layer assurance requires an orchestration mechanism and common reporting standards to prevent duplicated audits and inconsistent datasets.

Integrity emerged as an endogenous governance issue rather than an external compliance requirement. Interviewees identified potential data gaming, cost shifting, cross-subsidisation, conflicts of interest, and regulatory capture. The resulting assurance model therefore combines common data definitions, audit trails, financial review, performance verification, conflict controls, and a dispute or appeal mechanism. This interpretation aligns with OECD guidance that transparency, risk management, and integrity should be embedded

within state-owned-enterprise governance rather than treated as peripheral controls. (OECD, 2019, 2024).

4.7 Open Access and Track Access Charging as a New Boundary Condition

Open access and Track Access Charging (TAC) emerged as the clearest addition to the preliminary framework. DRT respondents argued that PSO services cannot simply receive automatic priority over other operators. DRT-02 explicitly distinguished "priority because it is PSO" from "automatic priority," proposing that capacity allocation should consider public-service importance, network efficiency, timetable robustness, and effects on other services. DRT-03 added that protected public-service paths should be identified through the Network Statement and service contract so that the infrastructure manager can plan for PSO requirements in advance.

TAC was treated as a service-related but largely non-controllable cost. Respondents therefore favoured transparent pass-through rules rather than using TAC as a measure of operator efficiency. DRT-03 proposed reconciliation against actual train paths or train-kilometres to prevent double recovery or unsupported claims. These findings add capacity-allocation rules, TAC pass-through and reconciliation, protected service paths, and dispute resolution to TRPSGF. More fundamentally, they establish open-access compatibility as a boundary condition: PSO governance must remain coherent when several operators use the same infrastructure under common access rules.

4.8 Data Readiness and Phased Implementation

A final cross-stakeholder theme concerns sequencing. Respondents repeatedly cautioned against implementing sophisticated contractual and financial mechanisms before the underlying information systems are credible. SRT-P-02 proposed shadow reporting for Commercial-PSO-Infrastructure activities for at least one reporting cycle before linking results to real funding. SRT-F respondents favoured staged costing. SRT-O respondents recommended a learning period before strong financial incentives. SEPO respondents argued for practical rather than excessively complex compensation formulas.

The expert group articulated the risk most directly. EXP-01 warned that when "the contract is sophisticated but the data are weak, the system will create disputes" rather than accountability. EXP-02 added role ambiguity and regulatory capture as failure conditions. The empirical implication is that implementation readiness should be treated as a governance component in its own right, assessed through data quality, accounting capability,

decision-right clarity, contract-management capacity, regulatory independence, and fiscal predictability.

Table 2. Cross-stakeholder thematic findings.

Theme	Cross-Stakeholder Finding	Principal Groups	Empirical Interpretation
1	Explicit public-service mandate	MOT, SEPO, BUD, USER	PSO should purchase a defined socially necessary service, not reimburse aggregate deficits.
2	Decision rights and role separation	MOT, DRT, SRT-P, EXP	Clarify policy owner, purchaser, regulator, infrastructure manager, operator, verifier, and dispute roles.
3	Financial traceability architecture	SRT-F, SEPO, BUD, EXP	Mission tags, cost pools/drivers, reconciliation, final settlement, and assurance enable accountability.
4	Controllability-based contracting	DRT, SRT-O, SEPO	KPIs, penalties, and incentives should distinguish controllable from non-controllable causes.
5	Passenger-defined public value	USER, MOT, EXP	Accessibility, affordability, connectivity, alternative cost, reliability, and user feedback define social necessity.
6	Multi-layer assurance and integrity	DRT, SRT-F, SEPO, EXP	Common data, raw-data access, audit trails, separate assurance layers, and integrity controls are required.
7	Open-access and TAC compatibility	DRT, SRT-P	Capacity rules, TAC treatment, protected paths, and dispute mechanisms must coexist with multiple operators.
8	Data readiness and phased implementation	SRT-P, SRT-O, SRT-F, SEPO, BUD, EXP	Shadow systems and learning phases should precede full performance-based funding.

Source: Author's thematic synthesis of 18 key-informant interviews.

5. Empirical Refinement of TRPSGF

The interviews broadly supported the underlying governance functions of TRPSGF, but validation was conditional rather than confirmatory. No core function was rejected outright. Instead, nearly every component required operational modification, and several mechanisms emerged that were not sufficiently explicit in the preliminary framework. The empirically refined framework is referred to here as TRPSGF-V, where "V" denotes stakeholder-validated and context-refined rather than statistically validated.

The most significant architectural change is the elevation of financial governance into a cross-cutting enabling layer. Cost attribution, accounting separation, compensation, performance adjustment, and independent assurance are not discrete financial tasks; they form the traceability chain that connects the public-service mandate to the use of public funds. The second change is the conversion of institutional governance into a decision-rights architecture. The third is the addition of market-interface compatibility covering open access, TAC, capacity allocation, and conflict management. The fourth is the addition of data governance, fiscal sustainability, user feedback, and phased implementation as explicit cross-cutting conditions.

Table 3. Stakeholder validation and refinement of TRPSGF.

TRPSGF Component	Validation Result	Empirical Refinement
Service classification	Support + Modify	Add explicit public-service necessity, target groups, alternatives, and periodic fiscal review.
Institutional governance	Support + Modify	Convert role listing into a decision-rights architecture and multi-agency decision process.
Public Service Contracts	Support + Modify	Add controllability, delay attribution, risk allocation, learning period, and operational flexibility.
Financial governance	Strongly strengthen	Elevate to cross-cutting architecture: mission tags, cost pools/drivers, reconciliation, final settlement, assurance.
Performance management	Support + Modify	Separate passenger-facing from contract-attributable performance and retain a concise KPI set.
Public value	Support + Modify	Add counterfactual accessibility, affordability, connectivity, user feedback; retain structural debate over pillar status.
Independent monitoring	Strongly strengthen	Adopt multi-layer financial, regulatory, contractual, and policy assurance with common data standards.

Source: Author's synthesis of interview findings.

Table 3. Stakeholder validation and refinement of TRPSGF.

TRPSGF Component	Validation Result	Empirical Refinement
Integrity safeguards	Add	Address data gaming, cross-subsidisation, conflicts, capture, claw-back, and transparent adjustment rules.
Open access / TAC	Add	Add capacity allocation, TAC pass-through/reconciliation, protected PSO paths, and dispute mechanisms.
Data governance	Add	Common data dictionary, single source of truth, raw-data access, audit trail, and version control.
Fiscal sustainability	Add	Affordability ceiling, medium-term fiscal impact, indicative multi-year envelope, annual appropriation rule.
Implementation sequencing	Add	Use shadow reporting, staged costing, pilot PSCs, learning periods, and phased market integration.

Source: Author's synthesis of interview findings.

6. Discussion

6.1 Theoretical Contribution

The study advances railway PSO governance in three ways. First, it reconceptualises PSO as an integrated public-service purchasing system rather than a subsidy mechanism. The empirical evidence supports the welfare-economic rationale for intervention but shows that social necessity must be translated into an explicit mandate, target group, measurable output, and fiscal boundary before compensation is legitimate. This closes the gap between the normative question of why government should intervene and the administrative question of what government is actually purchasing.

Second, the findings clarify functional complementarity among governance mechanisms. Financial governance is not simply one dimension beside contracting and performance; it is the enabling information architecture that makes those dimensions credible. Similarly, institutional separation is less about creating separate entities than about allocating decision rights, controlling conflicts, and ensuring independent access to data. This supports an institutional interpretation in which comparable governance functions can be delivered through different organizational forms as long as accountability relationships remain coherent. (Scott, 2014)

Third, the findings extend adaptive policy-transfer theory by showing how domestic stakeholder validation changes the content of a framework, not merely its implementation plan. Open access and TAC were not simply operational details appended after validation; they emerged as a boundary condition that changes how PSO capacity, cost, priority, and risk must be governed. Likewise, passenger-defined counterfactual accessibility transformed public value from a broad normative principle into a testable question about mobility alternatives. Stakeholder validation therefore operates as an institutional stress test that can reveal missing mechanisms and internal tensions before policy adoption.

6.2 Institutional Tensions

Four tensions should remain visible rather than be resolved artificially. The first concerns public value. Experts agreed that societal outcomes must be protected but disagreed over whether public value should remain a separate pillar or become an outcome layer within performance management. The second concerns PSO priority under open access. Regulatory respondents accepted the social importance of PSO services but rejected unconditional priority over other operators. The third concerns fiscal predictability. Operators and planners benefit from multi-year certainty, while fiscal respondents require annual appropriation and flexibility. The fourth concerns performance incentives. Policy and fiscal logic favours stronger accountability, while operational respondents warn that monetising immature data can encourage gaming. These tensions are not weaknesses in the findings; they are design constraints that TRPSGF-V must manage.

6.3 Policy Implications for Thailand

For the Ministry of Transport and fiscal authorities, the first policy task is to establish a formal public-service mandate and decision process before determining compensation. A PSO decision should identify the service package, target users, minimum service level, public-value rationale, alternatives, expected outcomes, and fiscal envelope. The purchaser function should then be assigned clearly, whether within an existing institution or a dedicated organizational arrangement, with explicit authority over contracting, performance verification, service changes, and final settlement.

For SRT, the immediate reform priority is informational separation before structural separation. Mission tags, a common data dictionary, cost-pool-specific allocation rules, and shadow Commercial-PSO-Infrastructure reporting can create a credible evidence base without requiring an immediate reorganisation of legal entities. Once the information architecture is stable, pilot PSCs can link service packages to a limited set of controllable KPIs, compensation formulas, and quarterly reconciliation.

For DRT and infrastructure-governance actors, PSO rules should be designed together with Network Statement procedures, capacity allocation, TAC, and access-dispute mechanisms. Protected public-service paths may be justified, but the criteria should be transparent and should not amount to automatic preferential treatment. TAC should be treated transparently in PSO compensation and reconciled against actual infrastructure usage so that the operator is neither penalised for an externally determined charge nor overcompensated.

For SEPO and budget authorities, compensation rules should distinguish eligible public-service cost from total corporate loss, separate overcompensation adjustments from performance penalties, and reconcile multi-year service planning with annual appropriations. The interviews support a rolling indicative funding envelope combined with periodic review, an affordability ceiling, and a clear mechanism for final financial settlement.

Implementation should therefore proceed in phases. Phase 1 should establish service classification, decision rights, mission tagging, accounting separation, and data definitions. Phase 2 should operate shadow accounts and cost-allocation rules long enough to test reliability. Phase 3 should introduce pilot PSCs with limited controllable KPIs and transparent compensation. Phase 4 should add independent financial and performance assurance, performance adjustments, claw-back, and structured user feedback. Phase 5 should integrate PSO governance fully with open access, TAC, capacity allocation, and a multi-operator railway market. This sequence reduces the risk of implementing sophisticated contracts before the data and institutions required to administer them are ready.

7. Conclusion

This study validates and refines the Thailand Railway Public Service Governance Framework through interviews with 18 key informants across nine stakeholder groups. The results provide broad support for the core governance logic of TRPSGF but do not amount to simple confirmation. Stakeholders redefined PSO as explicit public-service purchasing rather than aggregate deficit compensation; elevated financial traceability to a cross-cutting enabling architecture; converted institutional governance into decision rights; required controllability-based performance rules; operationalised public value through accessibility, affordability, connectivity, and counterfactual alternatives; and added multi-layer assurance, fiscal safeguards, data governance, open-access compatibility, and phased implementation.

The refined TRPSGF-V is therefore both more demanding and more implementable than the preliminary framework. It is more demanding because compensation must be traceable to a defined service, attributable cost, related revenue, performance responsibility, and final reconciliation. It is more implementable because the framework recognises data

limitations, annual budget constraints, operational controllability, and the need for transitional shadow systems and learning periods. Most importantly, the interview evidence shows that the central reform problem is not the absence of individual PSO instruments. Thailand already possesses many of the necessary elements. The challenge is to connect them through a coherent architecture of mandate, data, contracts, finance, verification, and public value.

The study is limited by its purposive sample and by its focus on national and system-level governance rather than route-level economic evaluation. Future research should test TRPSGF-V against route-specific cost and demand data, expand passenger and community sampling, examine the purchaser function in greater institutional detail, and evaluate pilot PSC performance over time. A quantitative or mixed-method extension could subsequently test relationships among governance quality, financial transparency, service performance, and perceived public value.

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