Journal of Social Research

E-ISSN: 2828-335x
Vol. 5, No. 12, November 2026, pp. 5856-5873
DOI: 10.55324/josr.v5i12.3556
Journal of Social Research

Strategic Asset Classification for Non-Core Property Portfolio: Case Study of PT PLN (Persero) UIP Jawa Bagian Barat

Christoffel Handika Putra Sigalingging*, Gallang Perdana Dalimunthe
Institut Teknologi Bandung, Indonesia
Email: chrisgalingging@gmail.com

Keywords:
non-core property assets; asset utilization; SMAD framework; Gates; AHP; TOPSIS; state-owned enterprise.

This is an open access article under the CC BY-SA license.

Copyright © 2026 by Author. Published by International Journal Labs

Abstract

Non-core property portfolios impose recurring financial burdens and governance challenges on infrastructure enterprises when asset utilization decisions lack systematic prioritization. This study aimed to establish an inventory baseline and develop an accountable asset classification framework for non-core properties managed by PT PLN (Persero) UIP Jawa Bagian Barat. An applied single-case study approach integrated document review, inventory reconciliation, governance compliance screening, the Analytic Hierarchy Process (AHP), and the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) within a Secure–Monetize–Activate–Dispose framework. Expert elicitation was planned across four institutional domains, while the analytical procedures were tested using simulated responses representing 13 experts. Inventory reconciliation identified 21 property intervention alternatives, comprising 10 idle and 11 underutilized locations, with estimated annual carrying costs of IDR 512.42 million. Three locations did not meet governance screening requirements and required remediation of asset registration or supporting documentation. The simulation classified five alternatives under Monetize, seven under standard disposal, six under priority disposal, and none under Activate. Insufficient asset-specific documentation regarding potential alternative uses constrained activation options, while sensitivity analysis of classification thresholds revealed provisional assignments for assets near decision boundaries. These simulation-based results demonstrated the operational feasibility of the classification workflow rather than its empirical validity. The proposed framework provided a transparent and traceable basis for strategic asset classification and decision-making. However, practical implementation required actual expert elicitation, comprehensive supporting documentation, independent asset valuation, and formal managerial approval before any proposed asset transactions could be executed.

INTRODUCTION

PT PLN (Persero) operates under competing institutional pressures arising from its national electricity infrastructure mandate, BPI Danantara's expectations regarding asset productivity, and the financial burden of maintaining property assets that generate limited or no economic returns (DiMaggio & Powell, 1983). These pressures have become increasingly significant following the establishment of BPI Danantara in 2025 and the introduction of a

strengthened state-owned enterprise (SOE) asset management framework under Law No. 1 of 2025, as amended by Law No. 16 of 2025, and Government Regulation No. 10 of 2025, as amended by Government Regulation No. 19 of 2026 (Republik Indonesia, 2025a, 2025b). Within this institutional context, BPI Danantara established a return on assets (ROA) target of 7% and a consolidated SOE net profit target of IDR 360 trillion for 2026. These performance expectations reinforced the importance of improving asset productivity, particularly by identifying opportunities to reduce the financial burden of idle properties and generate economic value from underutilized resources (Kaganova, 2011; OECD, 2015).

For PLN, these expectations were reflected in its 2026 Management Contract (SK.038/PS.DAM/I/2026), which established a corporate key performance indicator (KPI) for the difference between return on invested capital and the weighted average cost of capital (ROIC–WACC) of −1.56 percentage points and a net income target of IDR 11.03 trillion. The negative ROIC–WACC spread indicated that the company's expected return on invested capital remained below its weighted average cost of capital (Arhinful et al., 2024; Badr, 2026). Combined with a net profit margin of approximately 7% and substantial foreign-currency-denominated debt obligations, this condition underscored the importance of improving capital efficiency and managing financial exposure. Against this background, PLN's 2026 Corporate Work Plan and Budget (Rencana Kerja dan Anggaran Perusahaan, RKAP) identified the utilization of idle property assets through the Rupiah Beyond kWh program as part of its non-tariff revenue strategy. This initiative offered opportunities to generate additional revenue from existing assets without relying exclusively on new infrastructure investments, although the financial contribution of individual properties was expected to remain relatively modest compared with PLN's overall corporate performance (Cooke et al., 2021; Haynes & Nunnington, 2010).

The institutional requirement to improve property asset utilization was further reinforced by internal regulations. On May 15, 2025, PLN's President Director issued Board of Directors Regulation No. 0001.KS/DIR/2025 concerning the Strategic Policy for Property Asset Management (PT PLN (Persero), 2025a), replacing Board of Directors Regulation No. 0136.P/DIR/2019. Article 5.3.2.1 required business units to implement planned, integrated, and continuous property utilization programs, including those involving nonoperational and unused fixed assets. Article 4.2.7.1 further emphasized risk-based decision-making by considering financial costs, legal exposure, and asset performance within a life-cycle costing framework. Approximately three weeks later, Implementing Regulation No. 0004.SPo/DIR/2025 (PT PLN (Persero), 2025b) established a four-stage property utilization procedure comprising planning, development, implementation, and monitoring, evaluation, and reporting. The regulation required asset data mapping and a highest and best use (HBU) assessment before implementing utilization plans. It also established asset registration in PLN's SAP enterprise resource planning system as a prerequisite for leasing, loan-for-use arrangements, or partnerships. In addition, Internal Audit Findings Report No. 002 (PT PLN (Persero) Satuan Pengawasan Intern, 2025), issued in 2025 concerning property asset management practices at UIP Jawa Bagian Barat (UIP JBB), identified matters requiring management attention and corrective action. Together, these regulatory and audit requirements established a formal basis for strengthening accountability, documentation, and risk-based property asset management.

Access to UIP JBB's internal asset records, contractual documentation, and management

histories enabled this study to examine property management conditions within a PLN construction unit. UIP JBB was responsible for planning, procuring, constructing, and commissioning electricity transmission lines and substations across Banten, the Special Capital Region of Jakarta (Daerah Khusus Ibukota Jakarta, DKI Jakarta), and West Java. Supporting properties, including base camps, warehouses, and field offices, were generally acquired or utilized to support infrastructure projects (Lundin & Söderholm, 1995; Turner & Müller, 2003). Consequently, some properties became idle following project completion or postponement associated with revisions to the Electricity Supply Business Plan (Rencana Usaha Penyediaan Tenaga Listrik, RUPTL) (Kementerian Energi dan Sumber Daya Mineral, 2025; PT PLN (Persero), 2021). The inventory contained 105 individual property records, covering 216,404 m^2 of land and 38,422 m^2 of buildings, which were consolidated into 51 distinct parent locations. Preliminary screening using internal monitoring records identified 24 candidate locations, which were subsequently verified through a June 2026 working paper. Three locations already had designated utilization arrangements, leaving 21 intervention alternatives as the analytical population, comprising 10 idle and 11 underutilized locations. However, the conditions of these properties varied considerably. While some were no longer required for operational purposes, others remained associated with infrastructure projects postponed under revised RUPTL schedules. Accordingly, permanent disposal could not be considered appropriate for every idle property without assessing its potential future operational requirements. Furthermore, four of the 105 asset records had not been registered in SAP, including three within the candidate portfolio, making registration remediation necessary before their proposed utilization could proceed. The 21 intervention alternatives incurred estimated annual carrying costs of IDR 512,420,944, comprising IDR 419,074,591 in cash expenditures for taxes, levies, and security services and IDR 93,346,353 in noncash depreciation expenses. Although these costs were relatively small compared with PLN's overall financial position, their recurring nature highlighted the economic consequences of maintaining properties without corresponding commercial returns.

Although the Board of Directors Regulation (Peraturan Direksi, Perdir) and its Implementing Regulation (Peraturan Pelaksanaan, Perlak) established formal requirements for property asset management, they did not, by themselves, provide a comprehensive analytical mechanism for prioritizing properties with different operational conditions, legal constraints, financial characteristics, and utilization opportunities. Without a structured decision-making approach, asset prioritization could become inconsistent, insufficiently transparent, and difficult to justify during internal audits (Anbari Moghadam & Besiktepe, 2025; Behzadian et al., 2012; Belton & Stewart, 2002; Masmoudi et al., 2026; Park et al., 2025). This study addressed that methodological gap by integrating the Analytic Hierarchy Process (AHP) and the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS). AHP was used to structure expert judgments and derive relative weights for asset assessment criteria, while TOPSIS was applied to rank alternatives according to their relative distances from positive and negative ideal solutions (Hwang & Yoon, 1981; Saaty, 1980). Their integration provided a systematic approach to operationalizing the risk-based requirements of the Perdir and supporting the asset evaluation process required under the Perlak, including considerations relevant to HBU assessments.

The central research problem concerned the absence of a standardized and auditable

decision-making mechanism for determining appropriate utilization strategies and implementation priorities across UIP JBB's 21 idle and underutilized non-core property locations. Although inventory information and carrying cost data were available, these records had not been integrated into a consistent multicriteria decision-making framework capable of supporting differentiated asset management strategies (Dixit & Pindyck, 1994; Ingram & Hong, 2012). Accordingly, the study examined how UIP JBB could implement its property utilization obligations systematically, transparently, and accountably. Three research questions guided the investigation: how to establish a reliable inventory baseline, how to develop a systematic asset prioritization mechanism, and how to translate prioritization results into actionable property management strategies. The corresponding objectives were to establish an accurate inventory baseline consistent with the eligibility requirements of the Perlak, develop and test an integrated AHP–TOPSIS prioritization framework, and formulate strategic recommendations using the Secure–Monetize–Activate–Dispose (SMAD) framework, accompanied by an implementation sequence (Cooke & Appel-Meulenbroek, 2024; Lindholm & Leväinen, 2006; Manning & Roulac, 1999; Nourse & Roulac, 1993). The study sought to contribute a potentially transferable decision-support methodology for PLN business units while extending the application of multicriteria decision-making (MCDM) approaches to property asset governance within Indonesia's evolving SOE regulatory environment.

METHOD

Research Design

This study employed an applied, instrumental single-case study design (Stake, 1995; Yin, 2009) to address property asset management challenges at PT PLN (Persero) UIP Jawa Bagian Barat (UIP JBB). The qualitative approach was informed by an interpretive-pragmatic perspective and focused on developing a context-specific decision-support framework for managing non-core property assets. UIP JBB was selected because its asset management conditions reflected challenges encountered by infrastructure-focused state-owned enterprises (SOEs), while institutional access enabled the examination of internal asset records and supporting documentation. The research followed six sequential stages: defining the asset scope, collecting and reconciling asset data, conducting governance compliance screening, applying the integrated Analytic Hierarchy Process–Technique for Order Preference by Similarity to Ideal Solution (AHP–TOPSIS) methodology, assigning strategic alternatives using the Secure–Monetize–Activate–Dispose (SMAD) framework, and assessing methodological validity and ethical considerations.

Research Setting and Asset Scope

UIP JBB is a PLN construction unit that acquires land ahead of transmission and substation projects and retains residual property once those projects conclude. From an initial inventory of 105 property records, consolidation into unique parent locations and sequential screening against utilization status and committed-pathway exclusions narrows the population to 21 intervention alternatives, each treated as one consolidated analytical unit regardless of how many underlying land or building records it comprises.

Data Collection and Expert Input

Data collection draws on three streams. A documentary review covers PLN's regulatory framework, audit findings, RUPTL planning documents, SAP records, field inventory data,

and a carrying-cost computation used descriptively rather than analytically. A structured elicitation involves thirteen purposively selected experts across four institutional domains, who independently provide pairwise criterion comparisons and rubric-anchored asset scores under strict independence and anonymity controls. A post-analysis interview with the unit's General Manager informs interpretation without altering any classification.

Analytical Framework: AHP and TOPSIS

The analytical framework combines AHP, used solely to derive criteria weights from expert judgment through geometric-mean aggregation and consistency testing (Cheng & Li, 2001; Duleba & Szádoczki, 2022; Forman & Peniwati, 1998), with TOPSIS, used to score and rank the gate-eligible assets by their relative closeness to an ideal solution (Zavadskas et al., 2010) across seven criteria organized into two clusters, Infrastructure Alignment and Stewardship Justification.

SMAD Strategic Category Assignment

Assets first pass through a binary governance compliance gate, and those with unresolved registration or documentation issues are assigned to Secure and withheld from further scoring. The remaining assets are positioned against pre-specified thresholds on both clusters, yielding one of four outcomes, Monetize, Activate, or one of two Dispose pathways, while overall closeness scores guide sequencing within each category rather than determining the category itself.

Validity, Limitations, and Ethical Considerations

Validity rests on triangulating criteria across literature, regulation, and expert review, supported by sensitivity checks on thresholds, weights, and panel composition. Limitations center on the single-case scope and the temporal boundedness of the underlying asset data, while ethical safeguards ensure informed participation, anonymized reporting, and full managerial discretion over final asset decisions.

RESULTS AND DISCUSSION

Important Note for Supervisory Review This chapter is an illustrative preview for supervisory discussion. AHP weights, asset scores, TOPSIS coefficients, SMAD assignments, and sensitivity results are simulated, not empirical findings, and demonstrate the intended analytical workflow and reporting form. All simulated values will be replaced once expert elicitation per Chapter III is complete. Descriptive inventory figures and the Andara Signature SPKLU implementation status are factual, based on the research setting and internal project information.

Chapter Overview and Status of Results

Simulated Assumption — Draft for Research Pipeline Testing — Not Empirical Data

This chapter reports one complete run of the SMAD analytical pipeline. All expert responses, threshold review answers, and strategic-informant statements are synthetic — none describe what any PLN professional actually thinks. The instruments, aggregation logic, and calculator were built before being exercised with a full dataset; running synthetic responses tests coherence and readability before thirteen professionals are asked for their time. Replacement later only requires loading real responses into the same input sheets and switching the data-status control.

Two layers run through the chapter and are kept apart: the factual layer (population chain,

asset register, Governance Gate outcome, documentary evidence, researcher clarifications) and the simulated analytical layer (criterion weights, asset scores, closeness coefficients, SMAD categories, sensitivity runs, informant interpretation). Tables/figures carry the label that applies. The run is reproducible from seed 29124402; Generation logic is documented in SIMULATION_MANIFEST_FINAL.xlsx.

Portfolio Reconciliation and Evidence Validation

The population chain is factual. 105 individual inventory records consolidated into 51 parent locations, 24 idle/underutilized candidates. Removing three committed-pathway locations (Andara, Karang Laptenis, Ancol II) leaves 21 intervention alternatives (A01–A21), locked at the 13 June 2026 population lock.

One correction was applied to baseline utilisation: A01 (mess), A07 (reserve office parking), part of A20 (material storage), and A21 (transit mess/meeting facility) were confirmed as already in use before the lock, so all four move from Idle to Underutilized.

Table 1 Baseline use split before/after reconciliation (factual)

Baseline	Idle	Underutilized	Total
Admin baseline, 31 Dec 2025	14	7	21
Reconciliation (A01, A07, A20, A21)	−4	+4	0
Reconciled baseline, 13 Jun 2026	10	11	21

A20 remains a Governance-Gate Secure case, since SAP/documentation condition is assessed separately from utilisation. A16 was handled differently: field records simultaneously claim vacancy (damage) and occupation by retirees/families in relatively good condition. The researcher confirmed occupancy; evidence shown to experts was corrected to remove any implication of vacancy, with occupancy reported separately from physical condition. A16's baseline classification stays Idle because, unlike the other four assets, the pre-lock timing of occupancy could not be verified.

Evidence readiness was assessed on three layers: presence of a factual statement, variation across criteria, and source citation. All 459 evidence rows now carry a factual statement (no red-band cells), but source traceability is weaker: of 147 criterion-level cells feeding Round 2, only 66 carry a source code, 81 do not — a gap recorded rather than closed by assumption (revisited in Chapter V).

One evidence pattern matters for the results: the optionality column repeats the same sentence for all 21 assets, stating RUPTL PLN 2025–2034 records no infrastructure requirement at the location — a documented negative whose consequence is discussed in IV.6.

Governance Gate Results

The Governance Gate is factual, with no expert judgement involved. An alternative fails when unregistered in SAP, when a material audit finding is open, or a physical-record discrepancy is unresolved. Three alternatives fail — A02 Tanah Pancoran Mas, A05 Tanah Rancaoray, A20 Tanah Rawa Denok — and are assigned Secure, leaving before normalisation (affecting no coefficient). Eighteen alternatives remain (m = 18).

Simulated AHP Expert Weighting Results

Simulated Assumption — Draft for Research Pipeline Testing — Not Empirical Data

Thirteen Round-1 response sets were generated per the approved panel composition (three L1, three L2, four L3 including the researcher, three L4). Each simulated respondent's

latent priority vector combined a panel baseline, domain emphasis, and individual variation; the 21 pairwise judgements were built from that vector with judgement noise, rounded to the Saaty 1–9 scale (intensities 8–9 kept rare). Matrices outside the acceptable consistency band were discarded whole and regenerated, never repaired. All 13 matrices satisfy CR ≤ 0.10 (0.01567–0.04848).

Aggregation followed Chapter III: element-wise geometric mean within each lens gives four lens matrices, combined by weighted geometric mean (25% each) into one consolidated group matrix. Individual priority vectors remain diagnostics only, never averaged into the main model.

Table 2 Simulated consolidated criterion weights

Criterion	Name	Cluster	Weight w
C1	Current RUPTL Project Relevance	Infrastructure Alignment	0.1951
C2	Technical-Functional Suitability	Infrastructure Alignment	0.1302
C3	Strategic Location	Infrastructure Alignment	0.1881
C4	SAP Governance Compliance	Stewardship Justification	0.1347
C5	Revenue-Generating Potential	Stewardship Justification	0.1620
C6	Organizational Competence Fit	Stewardship Justification	0.1027
C7	Physical Condition	Stewardship Justification	0.0871

Group matrix CR = 0.002453; weights sum to 1.0000. The panel weights Current RUPTL Project Relevance (0.1951) and Strategic Location (0.1881) highest, then Revenue-Generating Potential (0.1620) and SAP Governance Compliance (0.1347); Technical-Functional Suitability sits at 0.1302; lowest are Organizational Competence Fit (0.1027) and Physical Condition (0.0871). A panel spanning planning, technical, governance, and commercialisation functions collectively treats need and location as more decisive than physical condition.

Simulated Asset Scoring and Unified

Topsis Simulated Assumption — Draft for Research Pipeline Testing — Not Empirical Data

Round 2 produced 798 asset–criterion judgments: 778 numerical, 15 IE (insufficient evidence), 5 BP (outside professional understanding) — IE/BP never entered a mean. Mean numerical score 3.42 (1–5 scale), 3 and 4 most frequent. Each respondent answered only their domain's criteria: L1→C1,C2,C3; L2→C2,C3,C6,C7; L3→C4,C6; L4→C3,C5,C6. Aggregation: mean within primary lens, then mean across lenses at equal influence. A criterion enters analysis only when each designated lens reaches ≥2 valid numerical judgments — all 147 cells satisfy this.

(Table IV.5, the full 21×7 decision matrix, is retained as an appendix given its size; in summary, C1 scores are low and fairly uniform across the portfolio (~2.0–3.0), while C2 and C3 tend high (many assets >4.0), indicating locations are generally seen as strategic even where RUPTL project relevance is weak.)

One unified TOPSIS model runs over the 18 gate-eligible alternatives, all seven criteria treated as benefit criteria. Three coefficients come from the same weighted normalised matrix: a composite closeness coefficient (all 7 criteria), an Infrastructure Alignment coefficient (C1–C3), and a Stewardship Justification coefficient (C4–C7) — one solution, not two models.

Table 3 Simulated TOPSIS closeness coefficients (m = 18)

Asset	Composite CC	CC_IA	CC_SJ	IA position	SJ position
A03	0.683	0.401	0.812	Low	High
A14	0.633	0.625	0.636	High	High
A07	0.599	0.564	0.609	High	High
A15	0.590	0.523	0.628	High	High
A21	0.579	0.748	0.530	High	High
A17	0.561	0.759	0.506	High	High
A13	0.551	0.779	0.480	High	Low
A01	0.529	0.075	0.696	Low	High
A19	0.524	0.614	0.492	High	Low
A18	0.518	0.455	0.544	Low	High
A12	0.425	0.511	0.382	High	Low
A16	0.415	0.423	0.411	Low	Low
A10	0.396	0.416	0.387	Low	Low
A11	0.370	0.158	0.421	Low	Low
A08	0.352	0.259	0.376	Low	Low
A09	0.351	0.304	0.365	Low	Low
A06	0.344	0.348	0.343	Low	Low
A04	0.332	0.613	0.205	High	Low

A02, A05, A20 leave before normalisation and have no coefficients. The 0.50 separator applies to CC_IA and CC_SJ only, never to the composite coefficient (which serves sequencing).

Simulated SMAD Strategic Assignment

Simulated Assumption — Draft for Research Pipeline Testing — Not Empirical Data

Assignment follows fixed rules with no analyst discretion.

Table 4 SMAD assignment rules (locked) — summary

Condition	Assignment
Governance Gate failed	Secure
CC_IA ≥ 0.50 and CC_SJ ≥ 0.50	Monetize
CC_IA < 0.50 and CC_SJ ≥ 0.50, with documented longer-horizon optionality	Activate
CC_IA < 0.50 and CC_SJ ≥ 0.50, without documented longer-horizon optionality	Dispose — Standard Transfer, under the stewardship-transfer logic. The strong stewardship position is what separates this case from Dispose — Priority Transfer.
CC_IA ≥ 0.50 and CC_SJ < 0.50	Available — Standard Transfer
CC_IA < 0.50 and CC_SJ < 0.50	Dispose — Priority Transfer

Table 5 Simulated SMAD assignment — summary by category

Assets	**Property location**	**Area**	**CC_IA**	**CC_SJ**	**SMAD category**	**Sec.**
A02	Land of Pancoran Mas	Depok			Secure	1
A05	Rancaoray Land	Bandung			Secure	2
A20	Swamp Land Denok	Depok			Secure	3
A14	Ex-Retired Official House 1	Jakarta	0,625	0,636	Monetize	1
A07	LAND OWNED ON JL. OLD SUBSTATION	Depok	0,564	0,609	Monetize	2

A15	Ex-Retired Official House 2	Jakarta	0,523	0,628	Monetize	3
A21	LAND LOCATION OF MES BARANANGSIANG	Bogor	0,748	0,530	Monetize	4
A17	Ex-Retired Official House 4	Bandung	0,759	0,506	Monetize	5
A04	Land of Tanjung Barat Raya, Jagaka	South Jakarta	0,613	0,205	Available — Standard	1
A12	Cibadak Warehouse	São Paulo	0,511	0,382	Available — Standard	2
A18	Ex-Retired Official House 5	Bandung	0,455	0,544	Available — Standard	3
A19	Ex-Retired Official House 6	Bandung	0,614	0,492	Available — Standard	4
A01	LAND LOCATION EX PI TRANST OFFICE LOCATION	Depok	0,075	0,696	Available — Standard	5
A13	Krukut Land, Depok	Depok	0,779	0,480	Available — Standard	6
A03	LAND LOCATION EX PRASARANA PLTP G	São Paulo	0,401	0,812	Available — Standard	7
A06	LAND OWNED BY CIKASO	São Paulo	0,348	0,343	Dispose — Priority	1
A09	Babakan Loa Land	Bandung	0,304	0,365	Dispose — Priority	2
A08	Land Jl. Marunda Barat RT03/04,	North Jakarta	0,259	0,376	Dispose — Priority	3
A11	Afternoon Warehouse	Bandung	0,158	0,421	Dispose — Priority	4
A10	Ciampea Land	Bogor	0,416	0,387	Dispose — Priority	5
A16	Ex-Retired Official House 3	Jakarta	0,423	0,411	Dispose — Priority	6

Distribution: 3 Secure, 5 Monetize, 0 Activate, 7 Dispose–Standard, 6 Dispose–Priority. Four factors produce this: weak RUPTL relevance across most of the portfolio (holding CC_IA down), wide variation in stewardship justification (separating the two disposal tracks), thin market-demand evidence (weakening CC_SJ), and no asset-specific record of longer-horizon optionality (closing the Activate route entirely).

The empty Activate quadrant follows from evidence, not the model. Three alternatives — A01 (0.075/0.696), A03 (0.401/0.812), A18 (0.455/0.544) — combine weak alignment with strong stewardship justification, the exact Activate profile, but fall to Dispose–Standard because no location-specific optionality statement exists. The classification is correct under the locked rule but exposes a documentation gap (Chapter V).

The six former-pensioner residential assets do not cluster: three fall in Monetize, three in disposal categories, separated by location strength, documentation completeness, and condition rather than asset type — a sub-portfolio that looks homogeneous on the register does not behave that way under assessment.

Observed Implementation Benchmark: Andara Signature SPKLU as a Monetize Pathway

This case is factual, reported separately from the simulated panel results, as an observed

instance of a Monetize-type pathway executed on a PLN property asset — evidence the category has a real operational analogue. It does not validate any simulated coefficient, and no inference is drawn about the corporate relationship between the operating entities, since no direct factual evidence on that point was obtained.

Sensitivity, Robustness, and Structural Feasibility

Simulated Assumption — Draft for Research Pipeline Testing — Not Empirical Data

Six procedures were run to identify which assignments hold and which sit close enough to a boundary to be treated as provisional.

Table 6 Threshold sensitivity — 0.45/0.50/0.55

Threshold	Secure	Monetize	Activate	Available–S	Dispose–P	Assets changing
0.45	3	8	0	4	6	A13, A18, A19
0.50	3	5	0	7	6	none (main run)
0.55	3	2	0	8	8	A12, A15, A17, A18, A21

Researcher-exclusion control (E09 removed): weight shifts are tiny (largest 0.0043, on C3), group CR stays at 0.002735; only 2 alternatives change category (A17, A19), both already in the boundary band — reflecting proximity to the separator, not researcher influence.

Criterion-weight perturbation (±20%, renormalised): of 14 runs, 9 move at least one alternative, 5 move none; no run moves more than two, all from the same small boundary set, and none disturbs Secure assignments or the priority-disposition group.

Table 7 Boundary register — alternatives within 0.06 of the separator

Asset	CC_IA	CC_SJ	Category (main run)	Axis near separator
A12	0.511	0.382	Available–Standard	CC_IA
A13	0.779	0.480	Available–Standard	CC_SJ
A15	0.523	0.628	Monetize	CC_IA
A17	0.759	0.506	Monetize	CC_SJ
A18	0.455	0.544	Available–Standard	CC_IA & CC_SJ
A19	0.614	0.492	Available–Standard	CC_SJ
A21	0.748	0.530	Monetize	CC_SJ

The equal-individual-vector comparison (averaging individual priority vectors instead of aggregating judgements) produces no category change — a diagnostic only, not a license to use that aggregation method anywhere in the model.

Lens-Removal Structural Feasibility Test

Leave-one-lens-out cannot run as a numerical sensitivity test, because applicability design requires ≥2 valid numerical judgements per designated primary lens per criterion. Removing L1 empties C1; L2 empties C7; L3 empties C4; L4 empties C5 — no substitute scores were generated and no non-designated lens was allowed to fill the gap, since either step would invent data. All four runs are NOT COMPUTABLE — STRUCTURALLY INDISPENSABLE LENS, read as evidence of domain non-substitutability rather than a sensitivity coefficient. The contingent C4 test was not triggered, since aggregated C4 scores (2.00–4.75, SD 0.78) already differentiate sufficiently.

Simulated Strategic-Informant Interpretation

Simulated Gm Response — For Drafting Only

This section is a reconstruction of strategic informant interviews to test the readability and followability of the model output, rather than the actual transcript. The interview is conducted after the results of the analysis are completed so that the managerial direction does not affect the weight, score, coefficient, or SMAD category. Key points of GM simulation instructions:

1. Secure (3 assets): complete SAP logging and documents within three months before talking about utilization; escalation to the center if the obstacle is beyond the unit's authority.
2. Monetize (5 assets): don't do it at the same time — take the two most ready documents and their locations as a quick win, the remaining three parallel paths in the study stage; Prepare feasibility studies, utilization schemes, and land documents before inviting partners.
3. The Activate quadrant is empty: the uniform optionality sentence is considered inadequate; Ask the Planning Division to reassess per location with a specific, dated statement.
4. Three stewardship assets are strong but fall to Dispose–Standard due to undocumented optionality: hold in the preparation phase with a six-month deadline; If there is no written basis, proceed with the transfer process.
5. Dispose–Priority (6 assets): don't let it hang — use another unit, transfer it to the appropriate asset manager, or follow the official release path, starting at the weakest value.
6. Retired official houses: order the status of the residence (occupant data, base, since when), make a valid use agreement or prepare an orderly and humane return.
7. Assets that were previously idle but are now partially used: record honestly as used, formalize the user and the basis of use, optimize the remaining capacity.
8. One asset was judged to be too early in the release group — disagreements were recorded without changing the numbers; recalculated only when there is new evidence.
9. Escort: each asset has a person in charge, next steps, documents pursued, target time — discussed monthly in a single monitoring page.

Table 7 Analytical finding vs simulated managerial direction — summary. Of nine analytical findings checked against GM direction: seven are aligned (governance remediation, Monetize sequencing, the empty Activate quadrant read as a documentation gap rather than a final conclusion, Dispose–Priority handling, regulating residential occupancy, baseline reconciliation, monthly action register); one is aligned on tempo, not category (a conditional six-month hold for three strong-stewardship assets); one diverges (the informant's disagreement is recorded without changing the result). No managerial statement became a numerical input — no weight, score, coefficient, or category was altered to match the informant's view.

Preliminary Discussion by Research Question

RQ1 — Actual state of the property asset inventory at UIP JBB. Answered from the factual layer: 105 individual records → 51 parent locations, 24 idle/underutilized candidates (confirmed 13 June 2026), 3 excluded (committed pathways), 21 intervention alternatives. Baseline shifted from 14 idle/7 underutilized (31 Dec 2025) to 10 idle/11 underutilized (13 Jun 2026) after field confirmation on A01, A07, A20, A21. Three alternatives fail the Governance Gate on documentary grounds. Cost burden: Rp512,420,944/year (Rp419,074,591 cash-related), concentrated on 12 of 21 locations (9 carry no recorded cost). Evidence is stronger on

physical/locational facts than on source traceability (66/147 cells cited) and optionality (one generic sentence for the whole portfolio) — so inventory state is not just an asset count but a description of what is documented well enough to act on.

RQ2 — How non-core assets should be evaluated and prioritized systematically and accountably. Evaluation runs in two stages: a documentary Governance Gate screens first (SAP registration, open audit findings, physical-record discrepancies) with no expert judgement, routing failures to Secure; the 18 alternatives that pass are assessed on seven criteria across two clusters (Infrastructure Alignment: C1–C3; Stewardship Justification: C4–C7). Weights come from 13 experts across four domains (within-then-across-lens geometric aggregation, equal influence, CR≤0.10 controlled); scoring is competence-based (each lens answers only its domain criteria, ≥2 valid judgements required). One unified TOPSIS model produces a composite coefficient plus per-cluster coefficients, locating each alternative on two axes with a within-category sequence. Accountability is procedural: every number traces to an individual response, the researcher-exclusion control shows the result is not driven by researcher participation, and the boundary register flags provisional assignments. The mechanism works end to end; The empirical answer awaits the real elicitation, for which instruments are frozen and ready.

RQ3 — Recommended strategic actions per asset category. Secure requires documentary remediation before any commercial conversation (A02, A05, A20). Monetize requires a highest-and-best-use/feasibility assessment, scheme selection, then a partner process (5 alternatives, sequenced by composite coefficient). Activate requires reversible interim use with an exit clause, but no alternative qualifies in this run since optionality is undocumented — the protocol remains prospective. Dispose–Standard (7 alternatives) requires transfer preparation within the routine cycle; Dispose–Priority (6 alternatives) requires a route decision (intra-PLN transfer, appropriate asset steward, or authorised disposal pathway), starting from the weakest composite coefficient. Two cross-cutting actions apply regardless of category: regularise residential occupancy by retirees, and formalise the partial uses already running on A01, A07, A20, A21. The simulated strategic-informant review confirmed the output reads as management instruction, adding an execution rule the model itself does not produce: sequence the work rather than starting everything at once, with each alternative carrying an owner, next action, required document, and target date, reviewed monthly.

Items for Supervisory Note and Implementation Confirmation

Four items carried forward, unresolved in this chapter: (1) the optionality evidence — one generic RUPTL-based sentence across 21 assets — cannot ground an asset-level judgement and closes one SMAD category; a location-specific, dated assessment is needed before the real elicitation; (2) source traceability covers only 66/147 criterion-level cells; the rest should be completed from the archive, not inferred; (3) the A01/A07/A20/A21 reconciliation rests on researcher clarification SRC-07 — for A01 specifically, the confirmed fact is pre-lock use as a mess by UIP JBB; documentation of pre-lock timing should be attached before final submission; (4) A16 stays classified as recorded — occupancy confirmed, start date not — to be revisited only if timing documentation is found.

Portfolio Carrying-Cost Exposure and Financial Overlay

This section is factual (from the unit carrying-cost computation, reconciled to codes A01–A21); allocation across SMAD categories is illustrative, since it depends on the simulated

assignment. The 21 alternatives carry Rp512,420,944/year: Rp419,074,591 cash (property tax/levies Rp411,724,591; security Rp7,350,000) and Rp93,346,353 non-cash depreciation. No maintenance expenditure is recorded for these 21 alternatives — no evidence of no maintenance need, only that none was booked.

Table 8 Annual carrying cost of the 21 intervention alternatives, by component (factual)

Component	Nature	Rp/year	Share
Property tax & levies	Cash-out, statutory	411,724,591	80.3%
Depreciation	Non-cash	93,346,353	18.2%
Security	Cash-out	7,350,000	1.4%
Maintenance	—	0	0.0%
Total		512,420,944	100.0%

The burden is concentrated: 12 of 21 locations carry a recorded cost, 9 do not (not evidence of costlessness). The five most expensive locations account for the substantial majority of the total — the economic case for acting rests on a small, identifiable set of locations, not the portfolio as a whole.

Table 9 Allocation of annual carrying cost across SMAD categories (cost factual; allocation simulated) — summary

Category (simulated)	Alt.	Rp/year	Share	Cash-out (Rp)
Secure	3	159,659,890	31.2%	159,659,890
Monetize	5	137,298,975	26.8%	116,884,712
Activate	0	0	0.0%	0
Dispose (Standard)	7	32,051,510	6.3%	16,980,675
Dispose (Priority)	6	183,410,569	35.8%	125,549,314
Total	21	512,420,944	100.0%	419,074,591

Three points follow, all about the framework rather than which asset belongs where: (1) the Secure group carries 31.2% of cost on three alternatives where no commercial action is permitted — remediation doesn't remove the exposure but unlocks the blocked decision; (2) the priority-disposition group now carries the largest share (35.8%), reversing the earlier illustrative intuition and strengthening the case for deciding their route; (3) Activate carries no asset or cost in this run (protocol remains prospective); Monetize (Rp137,298,975/year, Rp116,884,712 cash-related) is the one category where exposure may be economically offset by revenue — why the framework separates monetisation from disposal rather than collapsing both into a retain-or-release choice.

A caution: these figures state annual carrying-cost exposure, not avoided cost. Whether any component is ultimately avoided, transferred, or offset depends on the final SMAD pathway, contract structure, tax treatment, transfer timing, and cash/non-cash nature. The figures are not a valuation, revenue projection, or transaction cost — net financial benefit would require appraisal and transaction costing, outside this study's scope. What they establish is the recurring exposure that persists while no decision is taken, the quantity the framework is designed to bring to a decision point.

Business Solution

The business issue in Chapter I is not a shortage of assets or regulatory instruction, but the absence of a defensible mechanism for deciding what to do with each non-core property

location under a mandate requiring systematic, data-driven, accountable decisions. The proposed solution is a decision architecture converting a heterogeneous property portfolio into a governed, sequenced, auditable action register, with four components:

Table 10 Components of the proposed business solution — summary

Component	What it is	Business function	Evidence in this chapter
Verified population baseline	A reconciled chain from 105 individual inventory records to 51 parent locations, 24 idle or underutilized candidates, and 21 intervention alternatives	Removes the ambiguity that previously made portfolio-level decisions contestable; establishes a single agreed unit of decision	Section IV.2; Appendices 4A-0 and 4A-1
Governance Gate	A pre-analytical screen that routes any location failing a registration or land-legal condition to Secure before it can be commercially evaluated	Prevents the organization from marketing or transferring an asset whose legal and registration position is not yet defensible	Section IV.3; Appendix 4E
Lens-balanced AHP–TOPSIS prioritization	Criteria weights elicited from four institutional lenses at equal influence, and asset performance scored only by the lens competent in the underlying evidence	Produces a transparent priority ordering that no single function can dominate and that can be reproduced line by line under audit	Sections IV.4 and IV.5; Appendices 4A–4C and 4F
SMAD action assignment	Translation of each analytical position into one of four named actions — Secure, Monetize, Activate, Dispose — each with a defined procedural instrument	Converts an analytical ranking into an instruction that an operating unit can actually execute and be held to	Sections IV.6 and IV.13; Appendix 4G

The architecture is category-forming rather than score-reporting: an operating unit can act on "Activate with reversible interim use" in a way it cannot act on "rank 7 of 18." It is also reversible where uncertainty is genuine — the Activate category exists because some assets are constrained by planning optionality that may resolve either way, and irreversible commitment would destroy option value the organization currently holds for free.

The solution has an explicit limit: it classifies and sequences, it does not value. Monetary consideration for any Monetize or Dispose action remains subject to independent appraisal and PLN's delegation-of-authority approval thresholds — the architecture indicates which assets to bring forward and in what order, not what price to accept.

Implementation Plan and Justification

The plan is expressed at category level, since individual category membership depends on expert elicitation not yet conducted. Sequencing logic, procedural instruments, accountable owners, and regulatory basis are fixed by the framework design and won't change when empirical assignments arrive — only category membership will. This lets the organization prepare instruments in parallel with elicitation.

Table 11 Category-level implementation plan — summary

Internship	Category	First procedural step	Owner	Window	Regulatory basis
1	Secure	Complete SAP registration and land-legal documentation; Re-enter Next Assessment Cycle	KAU + Licensing & Land Field	Months 0–6	Lost 0001.KS/DIR/2025

2	Dispose (Priority)	Prepare transfer dossier, identify receiving unit, escalate to regional asset committee	KAU field + regional asset committee	Months 3–12	Perlak 0004.SPo/DIR/2025
3	Monetize	Independent appraisal, market sounding, lease/partnership term sheet	UIP JBB management + Property Asset Division, Head Office	Months 6–18	Perdir 0001.KS/DIR/2025 Art. 5.3.2.1
4	Activate	Confirm optionality documentation, structure reversible interim use with exit clause aligned to RUPTL decision point	Field of Planning + KAU Field	Months 6–24	Lost 0001.KS/DIR/2025
5	Dispose (Standard)	Prepare transfer dossier, schedule into standard periodic cycle	KAU Field	Months 12–24	Perlak 0004.SPo/DIR/2025

The sequencing is not arbitrary. Secure comes first because an unregistered or legally unclear asset cannot lawfully be offered to a counterparty, and remediation is cheap and within the unit's own control. Dispose (Priority) comes second because those locations consume custodial attention while returning nothing, thus releasing them early frees capacity for negotiation-heavy categories. Monetize precedes Activate because it most directly satisfies the planned-utilization obligation and realizes revenue soonest. Activate follows because its interim arrangements must be structured around a planning decision point that hasn't arrived yet — designing them prematurely risks an exit clause written against the wrong date. Dispose (Standard) is last, carrying neither urgency nor negotiation risk.

Three implementation risks are visible from the analysis and carried to Chapter V: (1) the Secure population is defined by a documentary condition the unit can close, so the principal risk is administrative slippage, not external dependency; (2) Monetize execution depends on counterparty appetite outside the unit's control — the Andara benchmark (IV.7) evidences organizational feasibility, not commercial certainty; (3) Activate arrangements are only defensible if the exit clause is genuinely enforceable — an interim use that cannot in practice be terminated when infrastructure need materializes is a disposal in all but name.

Finally, the plan is designed to re-enter itself: Secure locations are not removed from the portfolio — once remediation is complete they are re-assessed in the following cycle and receive a substantive category. This closes the loop and makes the architecture a repeating annual management instrument rather than a one-off study output.

CONCLUSION

This study concluded that the non-core property portfolio of PT PLN (Persero) UIP Jawa Bagian Barat (UIP JBB) comprised 21 intervention alternatives, including 10 idle and 11 underutilized assets, with estimated annual carrying costs of IDR 512.42 million. Three assets did not meet the requirements of the governance compliance screening and therefore required remediation of asset registration and supporting documentation before becoming eligible for utilization or commercialization. The integration of the Secure–Monetize–Activate–Dispose (SMAD) framework with the Analytic Hierarchy Process (AHP) and the Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) provided a structured, transparent, and

auditable approach to asset evaluation, classification, and prioritization. However, the resulting criterion weights, asset scores, classifications, and rankings were based on simulated expert responses rather than actual expert elicitation and therefore could not be interpreted as empirically validated findings. Practical implementation required more comprehensive asset-level documentation, particularly concerning potential alternative uses and future operational requirements, as well as expert participation across four relevant institutional domains. Accordingly, management should establish clear accountability by assigning a responsible asset owner, identifying the next required action, specifying supporting documentation, and setting implementation deadlines for each asset, supported by regular monitoring and evaluation. Future research should incorporate actual expert assessments, develop and validate an asset-level instrument for evaluating alternative utilization options, and examine the framework's applicability and robustness across other PLN business units.

REFERENCES

Anbari Moghadam, M., & Besiktepe, D. (2025). Synthesis of multi-criteria decision-making applications in facilities management and building maintenance: Trends, methods, and future research directions. *Buildings, 15*(18), Article 3258. https://doi.org/10.3390/buildings15183258

Arhinful, R., Mensah, L., Amin, H. I. M., & Obeng, H. A. (2024). The influence of cost of debt, cost of equity and weighted average cost of capital on dividend policy decision: Evidence from non-financial companies listed on the Frankfurt Stock Exchange. *Future Business Journal*, *10*(1), 99.

Badr, H. H. (2026). From ROIC to Equity Burden: A Closed-Loop Structural Derivation of the Weighted Average Cost of Equity (WACE). *Available at SSRN 6132991*.

Behzadian, M., Khanmohammadi Otaghsara, S., Yazdani, M., & Ignatius, J. (2012). A state-of the-art survey of TOPSIS applications. *Expert Systems with Applications, 39*(17), 13051–13069. https://doi.org/10.1016/j.eswa.2012.05.056

Belton, V., & Stewart, T. J. (2002). *Multiple criteria decision analysis: An integrated approach*. Kluwer Academic Publishers.

Cheng, E. W. L., & Li, H. (2001). Analytic hierarchy process: An approach to determine measures for business performance. *Measuring Business Excellence, 5*(3), 30–37. https://doi.org/10.1108/EUM0000000005864

Cooke, H., & Appel-Meulenbroek, R. (2024). A multi-disciplinary view on a corporate real estate alignment model. *Journal of Corporate Real Estate, 26*(1), 5–20. https://doi.org/10.1108/JCRE-09-2022-0029

Cooke, H., Appel-Meulenbroek, R., & Arentze, T. (2021). Lifting the lid on the black box of corporate real estate decision-making: Dealing with surplus property. *Journal of European Real Estate Research, 14*(1), 100–119. https://doi.org/10.1108/JERER-05-2020-0029

DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review, 48*(2), 147–160. https://doi.org/10.2307/2095101

Dixit, A. K., & Pindyck, R. S. (1994). *Investment under uncertainty*. Princeton University Press.

Duleba, S., & Szádoczki, Z. (2022). Comparing aggregation methods in large-scale group AHP: Time for the shift to distance-based aggregation. *Expert Systems with Applications, 196*, Article 116667. https://doi.org/10.1016/j.eswa.2022.116667

Forman, E., & Peniwati, K. (1998). Aggregating individual judgments and priorities with the

analytic hierarchy process. *European Journal of Operational Research, 108*(1), 165–169. https://doi.org/10.1016/S0377-2217(97)00244-0

Haynes, B. P., & Nunnington, N. (2010). *Corporate real estate asset management: Strategy and implementation*. EG Books.

Hwang, C.-L., & Yoon, K. (1981). *Multiple attribute decision making: Methods and applications*. Springer-Verlag. https://doi.org/10.1007/978-3-642-48318-9

Ingram, G. K., & Hong, Y.-H. (Eds.). (2012). *Value capture and land policies*. Lincoln Institute of Land Policy.

Kaganova, O. (2011). Government property assets in the wake of the dual crisis in public finance and real estate: An opportunity to do better going forward? *Real Estate Issues, 35*(3).

Kementerian Energi dan Sumber Daya Mineral. (2025). *Keputusan Menteri ESDM No. 188.K/TL.03/MEM.L/2025 tentang Pengesahan Rencana Usaha Penyediaan Tenaga Listrik (RUPTL) PT PLN (Persero) Tahun 2025–2034*.

Lindholm, A.-L., & Leväinen, K. I. (2006). A framework for identifying and measuring value added by corporate real estate. *Journal of Corporate Real Estate, 8*(1), 38–46. https://doi.org/10.1108/14630010610664796

Lundin, R. A., & Söderholm, A. (1995). A theory of the temporary organization. *Scandinavian Journal of Management, 11*(4), 437–455. https://doi.org/10.1016/0956-5221(95)00036-U

Manning, C., & Roulac, S. E. (1999). Corporate real estate research within the academy. *Journal of Real Estate Research, 17*(3), 265–280. https://doi.org/10.1080/10835547.1999.12090978

Masmoudi, M., Alshamsi, M., Piya, S., & Gupta, S. (2026). Contractors allocation for public building maintenance: A sustainable approach aligned with SDGs using AHP-TOPSIS and bi-objective optimization. *International Transactions in Operational Research, 33*(4), 2535–2576. https://doi.org/10.1111/itor.70022

Nourse, H. O., & Roulac, S. E. (1993). Linking real estate decisions to corporate strategy. *Journal of Real Estate Research, 8*(4), 475–494. https://doi.org/10.1080/10835547.1993.12090723

OECD. (2015). *OECD guidelines on corporate governance of state-owned enterprises, 2015 edition*. OECD Publishing. https://doi.org/10.1787/9789264244160-en

Park, C., Son, M., Kim, J., Kim, B., Ahn, Y., & Kwon, N. (2025). TOPSIS and AHP-based multi-criteria decision-making approach for evaluating redevelopment in old residential projects. *Sustainability, 17*(15), Article 7072. https://doi.org/10.3390/su17157072

PT PLN (Persero). (2021). *Rencana Usaha Penyediaan Tenaga Listrik (RUPTL) 2021–2030*.

PT PLN (Persero). (2025a). *Peraturan Direksi No. 0001.KS/DIR/2025 tentang kebijakan strategis pengelolaan aset properti* [Internal regulation].

PT PLN (Persero). (2025b). *Peraturan Pelaksana No. 0004.SPo/DIR/2025 tentang tata cara pemanfaatan aset properti* [Internal regulation].

PT PLN (Persero) Satuan Pengawasan Intern. (2025). *Laporan hasil audit (LHA) No. 002* [Internal audit document].

Republik Indonesia. (2025a). *Peraturan Pemerintah No. 10 Tahun 2025 tentang BPI Danantara, sebagaimana diubah dengan Peraturan Pemerintah No. 19 Tahun 2026*.

Republik Indonesia. (2025b). *Undang-Undang No. 1 Tahun 2025 tentang perubahan atas Undang-Undang BUMN, sebagaimana diubah dengan Undang-Undang No. 16 Tahun 2025*.

Saaty, T. L. (1980). *The analytic hierarchy process: Planning, priority setting, resource allocation*. McGraw-Hill.

Stake, R. E. (1995). *The art of case study research*. Sage Publications.

Turner, J. R., & Müller, R. (2003). On the nature of the project as a temporary organization. *International Journal of Project Management, 21*(1), 1–8. https://doi.org/10.1016/S0263-7863(02)00020-0

Yin, R. K. (2009). *Case study research: Design and methods* (4th ed.). Sage Publications.

Zavadskas, E. K., Vilutienė, T., Turskis, Z., & Tamošaitienė, J. (2010). Contractor selection for construction works by applying SAW-G and TOPSIS grey techniques. *Journal of Business Economics and Management, 11*(1), 34–55. https://doi.org/10.3846/jbem.2010.03