

Digital Port Governance and Institutional Right-Sizing: Integrating the Amurang, Kotabunan, and Labuhan Uki Port Administration Units in North Sulawesi, Indonesia

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ABSTRACT

Indonesia's port-administration system faces a dual challenge: improving the efficiency of geographically dispersed public organizations while standardizing digital maritime services. This study evaluates the proposed upgrading of the Amurang Class II Port Administration Unit (Kantor Unit Penyelenggara Pelabuhan/UPP) to Class I through institutional integration with the Kotabunan and Labuhan Uki Class III UPPs in North Sulawesi. The article reformulates an administrative policy study as a descriptive policy case study using secondary operational records, organizational data, fiscal data, spatial-access information, and regulatory documents for 2024–July 2026. The analysis covers vessel calls and gross tonnage, cargo and passenger movements, non-tax state revenue, personnel and technical competencies, payroll expenditure, service geography, and the implementation of Inaportnet and Single Submission (SSm) Pengangkutan. The combined service area recorded 1,645 vessel calls and 2.44 million GT in 2025, handled approximately 3.50 million ton/m³ of cargo movements, and generated approximately IDR 4.51 billion in non-tax state revenue. Across the three offices, 106 personnel are available, but critical certified competencies, Marine Inspector Type A, ship measurement experts, Port State Control Officers, and ISPS Code auditors are absent. The evidence supports institutional consolidation as a right-sizing strategy, particularly for unified supervision, personnel deployment, fiscal administration, and digital-service standardization. However, consolidation alone cannot resolve competency gaps; targeted certification, risk-based field deployment, and interoperable digital governance remain necessary. The study proposes a phased integration model combining centralized institutional command with decentralized operational presence at higher-risk work areas.

Keywords: digital port governance, institutional right-sizing, inaportnet, port administration, north sulawesi, single submission.

INTRODUCTION

As an archipelagic state, Indonesia depends on maritime transport to connect production centres, population centres, and markets across islands. Port institutions therefore perform more than a narrow administrative role: they regulate vessel movements, support cargo and passenger flows, safeguard navigation and ship safety, supervise port facilities and special terminals, and mediate between national logistics policy and local economic activity. Maritime logistics is especially important in eastern Indonesia, where spatial dispersion and uneven infrastructure can increase logistics costs and make the quality of port governance a direct factor in regional economic integration (Amin et al., 2021). International port-governance research similarly shows that organizational arrangements, coordination mechanisms, and institutional accountability are closely linked to port performance (Brooks & Pallis, 2008; Zhang et al., 2018).

North Sulawesi provides a relevant case because its ports serve a geographically extended maritime economy with links to energy, mining, construction materials, fisheries, plantation commodities, and inter-island trade. The policy study underlying this article focuses on three government port administration units: UPP Amurang in South Minahasa Regency, UPP Kotabunan in East Bolaang Mongondow Regency, and UPP Labuhan Uki in Bolaang Mongondow Regency. The three units operate in adjacent coastal systems but are institutionally separated. Amurang is currently a Class II UPP, whereas Kotabunan and Labuhan Uki are Class III UPPs. The source study proposes consolidating the three organizations under an upgraded Class I UPP Amurang, with Kotabunan and Labuhan Uki becoming work areas within a single organizational command. This proposed restructuring is framed as a response to organizational duplication, uneven workloads, increasing personnel expenditure, technical competency shortages, and fragmented service standards.

The operational profiles of the three ports are complementary rather than identical. Amurang handles significant energy and bulk-related activity and supervises special terminals associated with coconut-oil processing, coal supply, and gas distribution. Labuhan Uki is strongly connected to industrial logistics, including cement, power-generation inputs, construction materials, and mining-related cargo. Kotabunan currently has a more limited general-port function and a large proportion of activity linked to a terminal for own interests and local fisheries or mining-related operations. These differences create a governance problem: preserving a complete organizational structure for each office may not be efficient, but eliminating local operational presence could weaken safety oversight and service responsiveness. The relevant policy question is therefore not whether all functions should be centralized, but how institutional authority, personnel, field operations, and digital services can be reorganized according to activity and risk.

Digitalization makes this question more significant. Indonesia has progressively introduced integrated port information systems, including Inaportnet and the electronic Single Submission (SSm) Pengangkutan process linked to the Indonesia National Single Window. The source study reports that Amurang has implemented SSm Pengangkutan and single billing, while Kotabunan and Labuhan Uki have implemented Inaportnet but have not yet reached the same level of integration. This uneven digital maturity can generate differences in procedures, data exchange, billing, and service experience across ports that belong to the same regional logistics system. Research on Indonesian port digitalization indicates that Inaportnet can improve service speed, transparency, and document integration, although system reliability, human-resource capability, and institutional coordination remain important implementation constraints (Melinda et al., 2026; Rasyad et al., 2024). More broadly, integrated digital governance has been associated with better port logistics

performance when technological infrastructure is aligned with competent personnel, customer-oriented services, and organizational integration (Sirajuddin et al., 2026).

The institutional dimension is equally important. Port reform literature emphasizes that fragmentation can increase procedural complexity, weaken coordination, and reduce the ability of public institutions to manage performance consistently across a network (Pratiwi & Aryani, 2026; Rahayu et al., 2024). In the present case, three separate UPPs imply separate leadership, financial administration, asset management, personnel administration, procurement functions, and revenue-management arrangements. At the same time, the three offices share recurring technical needs in ship safety, dangerous-goods supervision, pollution response, special-terminal oversight, and digital service delivery. The source study therefore treats right-sizing not as a simple reduction in staffing, but as the redesign of organizational scale so that administrative duplication can be reduced while technical capacity is strengthened.

This article has two purposes. First, it converts the source policy study into an academic article structure suitable for IJITE by positioning institutional restructuring as a digital-governance and public-service management problem. Second, it evaluates whether the evidence presented in the source study supports the proposed consolidation and upgrading of UPP Amurang to Class I. The analysis addresses four questions: (1) what operational and fiscal patterns emerge when data from the three UPPs are considered as one service system; (2) what personnel and technical-capacity constraints are visible; (3) how does geography affect the feasibility of a centralized command model; and (4) how could institutional consolidation support more uniform implementation of Inaportnet, SSm Pengangkut, single billing, and risk-based supervision? By linking organizational right-sizing with digital-service integration, the study contributes a practical case of how public-sector restructuring can be used to strengthen information-system implementation rather than treating organizational reform and digital transformation as separate agendas.

METHOD

This study uses a descriptive policy case-study design based on documentary and administrative evidence contained in the policy study entitled *Kajian Singkat Peningkatan Kantor Unit Penyelenggara Pelabuhan Amurang dari Kelas II Menjadi Kelas I dengan Penggabungan 3 (Tiga) Kantor Unit Penyelenggara Pelabuhan yakni Amurang, Kotabunan dan Labuhan Uki*. The article does not claim primary fieldwork that is not reported in the source document. Instead, it reorganizes the available evidence into a journal-style analytical framework focused on organizational capability, operational scale, fiscal efficiency, service geography, and digital governance.

The units of analysis are UPP Amurang, UPP Kotabunan, and UPP Labuhan Uki together with their existing work areas and special-terminal responsibilities. The source dataset covers: (a) organizational class and port facilities; (b) employee composition by civil servant, government employee with work agreement, and outsourced personnel; (c) certified technical competencies; (d) personnel expenditure for 2024–2026; (e) vessel calls and gross tonnage for 2024, 2025, and January–July 2026; (f) cargo loading and unloading volumes for the same periods; (g) passenger movements; (h) non-tax state revenue (Penerimaan Negara Bukan Pajak/PNBP); (i) road distance and travel time between Amurang and nine work areas; (j) a proposed post-merger personnel distribution; and (k) the implementation status of Inaportnet, SSm Pengangkut, and single billing. The study also draws on the legal and policy instruments identified in the source document, including national shipping

law, port-organization rules, Inaportnet service rules, the National Logistics Ecosystem policy, and institutional-capability provisions.

The analysis proceeds in five stages. First, the three offices are treated as a single regional service system and their vessel activity, cargo flows, personnel, payroll expenditure, and PNBPN are aggregated where the source provides comparable data. Second, a capability-gap analysis compares personnel numbers with the availability of critical maritime certifications. Third, a spatial-access analysis examines travel distance and time from the proposed Amurang headquarters to each work area to distinguish locations suitable for periodic inspection from locations requiring a stronger permanent presence. Fourth, an organizational right-sizing analysis identifies functions that could be consolidated at headquarters and functions that should remain operationally decentralized. Fifth, a digital-governance analysis compares the current implementation of port information systems and assesses whether institutional integration could support uniform procedures and system adoption.

The study is descriptive and does not use inferential statistics. Numerical aggregation is used to clarify system scale rather than to establish causal effects. The interpretation is also bounded by several data limitations. The 2026 operational, cargo, passenger, and PNBPN figures are reported only through July and therefore are not directly comparable with full-year 2024 and 2025 totals. For Labuhan Uki, the source states that the personnel-budget figures available to the study were initial budget allocations rather than final year-end expenditure. In addition, the source study estimates a minimum annual administrative saving of approximately IDR 600 million from organizational consolidation, but it does not provide a complete line-item cost model for all transition costs. These qualifications are retained in the present analysis to avoid overstating fiscal effects.

RESULTS AND DISCUSSION

Existing Institutional Configuration and Service Functions

The three UPPs operate within a single broader regional logistics environment but have separate institutional hierarchies. UPP Amurang has the largest administrative status and is proposed as the headquarters because it already functions as a significant maritime service node, has the largest personnel base, and serves several industrial special terminals. Its current work areas include Belang, Bentenan, and Ratatotok. UPP Labuhan Uki supervises Pangi Domisil and Boroko and is associated with special terminals serving power generation and cement-industry logistics. UPP Kotabunan supervises Torosik and Molibagu and a terminal for own interests used for mining-related activities. General commercial vessel activity is uneven: the source study states that a very large share of activity in Amurang, Kotabunan, and Labuhan Uki occurs in special terminals rather than conventional public-port facilities.

The facility profile also varies. Amurang, Kotabunan, Labuhan Uki, Belang, and Torosik are reported as having port assets or facilities, while several other work areas have no active port facilities and primarily relate to traditional fishing activity. This distinction is important for the proposed organizational model. A uniform staffing pattern across all work areas would not correspond to actual workload. Instead, the source study proposes that high-activity locations retain operational personnel while low-activity locations are served through scheduled inspections, patrols, coordination with local authorities, and digital reporting. See table 1.

Table 1. Institutional profile and principal operational characteristics

Unit / work area	Current status	Main function / activity	Facility / service note
Amurang	UPP Class II (proposed Class I HQ)	Energy, CPO, coal, gas, general cargo; 3 special terminals	Complete facilities; large share of vessel activity at special terminals
Belang	Amurang work area	Fisheries	Facilities available; infrequent commercial activity
Bentenan	Amurang work area	Fisheries	No active port facility reported
Ratatotok	Amurang work area	Fisheries / coastal activity	No active port facility reported
Kotabunan	UPP Class III (proposed work area)	Fisheries, community mining, J Resources terminal	Complete facilities; commercial activity limited and heavily terminal-based
Torosik	Kotabunan work area	Fisheries	Facilities available; limited commercial activity
Molibagu	Kotabunan work area	Fisheries	No active port facility reported
Labuhan Uki	UPP Class III (proposed priority work area)	Cement, mining logistics, construction materials, power-sector inputs	Complete facilities; high industrial-logistics activity
Pangi Domisil	Labuhan Uki work area	Fisheries	No active port facility reported
Boroko	Labuhan Uki work area	Fisheries; nearby power-sector special terminal	No active public-port facility reported

Note. Reconstructed from the source policy study. Tersus/TUKS terminology has been translated descriptively where appropriate.

Personnel Scale and Technical Competency Gaps

Across the three offices, the 2026 personnel base totals 106 people: 54 civil servants (PNS), 32 government employees with work agreements (PPPK), and 20 outsourced personnel. Amurang has 46 personnel, Labuhan Uki 42, and Kotabunan 18. This combined headcount is large enough to support a regional organization in quantitative terms, but the distribution of certified maritime competence is much weaker than the headcount suggests.

The most consequential finding is the complete absence, across all three offices, of Marine Inspector Type A personnel, ship measurement experts, Port State Control Officers (PSCO), and ISPS Code auditors. Existing technical competence is concentrated in Syahbandar B and Marine Inspector B personnel, with limited dangerous-goods and pollution-response capability. The source study reports that specialized services may consequently depend on assistance from larger port offices in Bitung or Manado. From an organizational-design perspective, this means that consolidation can reduce duplication and improve deployment flexibility, but it cannot by itself create missing specialist qualifications. The post-merger organization would still require a targeted competency-development and certification plan. See table 2.

Table 2. Personnel composition and selected certified competencies

Indicator	Amurang	Kotabunan	Labuhan Uki	Combined
PNS	21	12	21	54
PPPK	14	4	14	32

Indicator	Amurang	Kotabunan	Labuhan Uki	Combined
Outsourced personnel	11	2	7	20
Total personnel	46	18	42	106
Syahbandar B	4	2	1	7
Marine Inspector B	3	2	1	6
Marine Inspector A	0	0	0	0
Ship measurement expert	0	0	0	0
PSCO	0	0	0	0
ISPS Code auditor	0	0	0	0
Dangerous-goods supervisor	2	1	1	4
Pollution response	1	0	0	1

Note. Personnel and competency figures are from the source study. “0” represents a dash/no certified person reported in the source table.

Vessel Traffic, Cargo, and Passenger Activity

When the three UPPs are viewed separately, activity appears highly uneven. When viewed as one regional service system, however, the combined workload is substantial. In 2024, Amurang and Labuhan Uki together recorded 1,701 vessel calls and approximately 2.45 million gross tonnage (GT), while Kotabunan reported no vessel calls in the table for that year. In 2025, the three units recorded 1,645 calls and approximately 2.44 million GT. From January through July 2026, the combined system had already recorded 1,053 calls and approximately 1.59 million GT. Labuhan Uki contributes the highest number of calls, whereas Amurang also handles vessels of substantial tonnage. Kotabunan contributes a small share of calls but remains relevant because of its mining-linked terminal and potential future development.

Cargo data reinforce the view that the proposed merged organization would supervise a strategically important logistics system. In 2024, combined unloading reached approximately 1.33 million ton/m³ and loading approximately 1.46 million ton/m³. In 2025, combined unloading increased to approximately 1.68 million ton/m³ and loading to approximately 1.83 million ton/m³, for a total cargo movement of about 3.50 million ton/m³. Through July 2026, combined cargo movement was about 1.73 million ton/m³. Labuhan Uki is the dominant loading location, reflecting its industrial and construction-material role, while Amurang is an important receiving and distribution gateway for energy inputs and other commodities.

Passenger activity is comparatively minor. No passenger movements were recorded in 2024. In 2025, Amurang recorded 352 departing passengers and Kotabunan recorded 495 arriving passengers; the source study explains that the latter movement was associated with population displacement following the eruption of Mount Ruang rather than regular passenger demand. Through July 2026, Amurang recorded 136 arriving and 61 departing passengers. The limited passenger volume indicates that the organizational case for upgrading is primarily based on vessel, cargo, safety, industrial-logistics, fiscal, and supervisory complexity rather than passenger throughput. See table 3.

Table 3. Aggregated vessel and cargo activity

Period	Vessel calls	Gross tonnage (GT)	Cargo unloaded (ton/m ³)	Cargo loaded (ton/m ³)	Total cargo movement
2024	1,701	2,449,851	1,329,335.55	1,460,616.56	2,789,952.11
2025	1,645	2,435,525	1,675,010.72	1,827,567.13	3,502,577.85
Jan–Jul 2026	1,053	1,592,342	896,548.00	829,354.36	1,725,902.36

Note. Calculated by aggregating the three UPP tables in . The 2026 figures cover January–July only and should not be interpreted as full-year totals.

Fiscal Profile: Personnel Expenditure and Non-Tax State Revenue

The fiscal data reveal a tension between organizational cost and operational productivity. Combined personnel expenditure for the three offices increased from approximately IDR 5.62 billion in 2024 to IDR 7.27 billion in 2025 and IDR 9.84 billion in the 2026 budget data reported by the source study. Amurang and Kotabunan show particularly strong increases. The Labuhan Uki figures are not fully comparable because the source notes that they represent initial budget amounts rather than final realized expenditure. Nevertheless, the broader pattern supports the argument that three separate administrative structures carry repeated management and financial-administration costs.

PNBP is concentrated in Amurang and Labuhan Uki. Combined PNBP was approximately IDR 4.20 billion in 2024 and IDR 4.51 billion in 2025. Through July 2026, the three offices had generated approximately IDR 2.91 billion. The source study argues that consolidation would permit more integrated control over port service charges, special-terminal services, reconciliation, and billing, while reducing differences in procedure. It also estimates a minimum administrative saving of roughly IDR 600 million per year from consolidating duplicated roles such as budget authority, expenditure and revenue treasurers, commitment-making officers, procurement officers, PNBP administration, accounting units, and travel administration. Because a full transition-cost model is not provided, this figure should be treated as an indicative policy estimate rather than a verified net saving. See table 4.

Table 4. Combined personnel expenditure and PNBP

Period	Personnel expenditure (IDR)	PNBP Amurang	PNBP Kotabunan	PNBP Labuhan Uki	Combined PNBP
2024	5,623,341,500	1,931,456,814	63,287,197	2,208,650,339	4,203,394,350
2025	7,270,716,000	1,959,563,706	27,008,023	2,528,396,045	4,514,967,774
2026 / Jan–Jul*	9,840,562,000	1,307,759,752	68,217,595	1,534,589,320	2,910,566,667

Note. *The PNBP column for 2026 is January–July. Personnel expenditure is reported as 2026 budget data; the source specifically notes that the Labuhan Uki figure is an initial budget rather than final year-end expenditure.

Geographic Span and the Case for Risk-Based Decentralization

The proposed UPP Class I Amurang would cover work areas distributed across several regencies. Road distance from Amurang ranges from 54.1 km to Belang to approximately 213 km to Boroko. Travel times range from about 1 hour 41 minutes to more than 4 hours. Kotabunan is approximately 83.1 km or 2 hours 30 minutes from Amurang, while Labuhan Uki is approximately 108 km or 2 hours 7 minutes away. Torosik, Molibagu, and Boroko are considerably farther. These distances show that an institutional merger cannot be implemented as full physical centralization.

The source study therefore proposes a differentiated service model. Amurang becomes the administrative and command centre. Labuhan Uki remains a priority operational work area because of its industrial cargo, special terminals, and safety risks. Kotabunan also retains operational personnel because of mining-related activity and the need to supervise a terminal for own interests. Belang and Torosik receive limited staffing, while Bentenan, Ratatotok, Molibagu, Pangi Domisil, and Boroko are proposed for periodic inspection and remote or digital monitoring because routine

commercial activity is low and several sites lack active port facilities. This model is best characterized as centralized governance with risk-based operational decentralization. See table 5.

Table 5. Road access from the proposed Amurang headquarters

Work area	Regency / area	Distance from Amurang	Approx. travel time	Operational implication
Belang	Southeast Minahasa	54.1 km	1 h 41 min	Regular visits; limited staffing
Bentenan	Southeast Minahasa	67.3 km	2 h 1 min	Periodic inspection
Ratatotok	Southeast Minahasa	72.7 km	2 h 11 min	Periodic inspection
Kotabunan	East Bolaang Mongondow	83.1 km	2 h 30 min	Priority work area; operational staff
Labuhan Uki	Bolaang Mongondow	108 km	2 h 7 min	Priority work area; strong operational staff
Pangi Domisil	Bolaang Mongondow	139 km	2 h 52 min	Periodic / risk-based monitoring
Torosik	South Bolaang Mongondow	178 km	4 h 49 min	Limited operational staff / patrol planning
Molibagu	South Bolaang Mongondow	180 km	3 h 34 min	Periodic / risk-based monitoring
Boroko	North Bolaang Mongondow	213 km	4 h 32 min	Remote monitoring plus planned inspection

Note. Distances and travel times are reproduced from the source study. They are planning estimates and may vary with road conditions.

Proposed Personnel Redistribution

The source study proposes redistributing the existing 106 personnel rather than increasing the total headcount. The proposed structure assigns 41 operational civil servants, 13 patrol-boat crew, 32 security personnel, nine cleaning-service personnel, eight front-office staff, and three drivers. Amurang and Labuhan Uki receive the largest allocations, reflecting headquarters functions and industrial risk. Kotabunan, Torosik, and Belang retain smaller operational teams. The proposal deliberately assigns no permanent personnel to five lower-activity work areas: Bentenan, Ratatotok, Molibagu, Pangi Domisil, and Boroko.

This redistribution illustrates the core logic of right-sizing: staff are allocated according to workload and risk rather than the administrative status of three separate offices. However, the proposed staffing table mainly reallocates personnel categories; it does not resolve the specialist-certification gaps identified earlier. A Class I structure would therefore need to combine redistribution with competency acquisition through certification, reassignment, recruitment, or structured support from other technical units. See table 6.

Table 6. Proposed staffing allocation after consolidation

Location	Operational PNS	Patrol crew	Security	Cleaning	Front office	Driver
Amurang	18	7	8	4	4	3
Belang	1	0	6	1	2	0
Bentenan	0	0	0	0	0	0
Ratatotok	0	0	0	0	0	0
Kotabunan	3	3	6	1	0	0
Torosik	3	0	6	1	0	0

Location	Operational PNS	Patrol crew	Security	Cleaning	Front office	Driver
Molibagu	0	0	0	0	0	0
Labuhan Uki	16	3	6	2	2	0
Pangi Domisil	0	0	0	0	0	0
Boroko	0	0	0	0	0	0
Total	41	13	32	9	8	3

Note. Reconstructed from the staffing-estimate table in .

Digital-Service Integration

The most direct link between institutional restructuring and information technology is the unequal implementation of digital port services. The source study reports that UPP Amurang has implemented SSm Pengangkut through the Indonesia National Single Window and has also implemented single billing. By contrast, Kotabunan and Labuhan Uki currently use Inaportnet but have not yet implemented SSm Pengangkut or single billing. As a result, users operating across the three jurisdictions encounter different levels of digital integration even though their activities belong to the same regional maritime economy.

Institutional consolidation creates an opportunity to establish a common digital operating model under a single management structure. Standard operating procedures, user support, data validation, billing practices, service-level monitoring, and staff training could be standardized across the new UPP Class I. Digital integration could also support the proposed risk-based field model by enabling remote reporting from low-activity work areas, centralized monitoring of vessel documentation, and more consistent records for PNPB and special-terminal supervision. In this sense, digitalization is not an add-on to organizational reform; it is one of the mechanisms that makes a wider span of control administratively feasible.

Institutional Consolidation as a Port-Governance Reform

The findings support the basic proposition that Amurang, Kotabunan, and Labuhan Uki should be evaluated as one functional service system rather than three isolated offices. Aggregated vessel calls, cargo movements, personnel, and PNPB show a scale of activity that is not visible when each unit is considered independently. This aligns with port-governance literature that treats organizational design as a determinant of coordination and performance rather than as a purely formal administrative matter (Brooks & Pallis, 2008; Caldeirinha et al., 2018). In the Indonesian context, recent research also identifies institutional fragmentation, procedural rigidity, and uneven organizational capacity as continuing barriers to port reform (Pratiwi & Aryani, 2026). The proposed merger directly addresses these issues by creating one chain of command and one administrative platform for a group of geographically linked ports and work areas.

However, the evidence does not justify simple centralization. The geographic analysis shows that several work areas are two to nearly five hours from Amurang by road. Labuhan Uki and Kotabunan supervise activities with industrial, mining, energy, or special-terminal risk profiles that require local presence. A successful organizational design must therefore separate governance centralization from operational presence. Headquarters functions—budgeting, personnel administration, procurement, accounting, data standards, digital-service governance, and strategic supervision—can be centralized, while safety, inspection, patrol, and user-service functions remain distributed according to workload and risk. This combination is consistent with broader evidence that effective port governance requires institutional clarity while remaining responsive to local operational conditions (Rahayu et al., 2024; Vieira et al., 2014).

The proposed model also reframes “right-sizing.” In public debate, right-sizing is sometimes interpreted primarily as staff reduction. The source study instead provides a stronger operational interpretation: reduce duplicated organizational layers and reallocate existing personnel toward technical service functions. This distinction is important because the three UPPs do not have an overall shortage of people; they have a mismatch between personnel quantity, organizational duplication, geographic deployment, and specialized competence. The combined workforce of 106 provides organizational capacity, but the absence of Marine Inspector Type A, ship measurement experts, PSCOs, and ISPS Code auditors represents a qualitative capacity gap. Therefore, any policy decision should avoid claiming that the merger automatically solves the human-resource problem. It improves the conditions for managing staff, but specialist capability must still be built deliberately.

Digital Governance as the Enabler of a Wider Span of Control

The proposed consolidation becomes more credible when understood as a digital-governance reform rather than merely a merger of offices. A single Class I organization could establish common digital procedures across all service points and make information systems part of the governance architecture. This is particularly relevant because the source study identifies an implementation gap: Amurang already uses SSm Pengangkut and single billing, whereas Kotabunan and Labuhan Uki remain at the Inaportnet stage. Standardization could reduce differences in service steps, data entry, billing, and oversight while allowing users to interact with one institutional system.

Existing research supports this logic. Rasyad et al. (2024) argue that Inaportnet can improve operational efficiency but still requires stronger reliability and system integration. Melinda et al. (2026) similarly report that Inaportnet contributes to faster and more transparent document services while remaining dependent on infrastructure reliability and user capability. At a broader level, Sirajuddin et al. (2026) find that integrated governance and digitalization, supported by competent workers and customer-oriented services, positively influence port logistics performance. Utama et al. (2024) likewise emphasize digital maturity as a multidimensional organizational condition rather than a technology-only variable. For the proposed UPP Class I Amurang, these findings suggest that the merger should be implemented through a digital-service blueprint: one data standard, one service catalogue, interoperable systems, uniform billing, common cybersecurity and access controls, common user-support procedures, and measurable service-level indicators.

Digitalization also reduces some of the managerial difficulty created by distance. Low-activity work areas do not require a full independent office if documentation, reporting, monitoring, scheduling, and escalation can be managed electronically. Port digital platforms in other contexts have been used to coordinate multiple actors and reduce information fragmentation across port ecosystems (Kapkaeva et al., 2021). In North Sulawesi, the same principle can support periodic physical inspection combined with continuous digital visibility. Nevertheless, digital oversight cannot replace statutory safety functions that require physical presence, professional judgment, or certified inspection. The appropriate model is therefore “digital first, risk-based field presence,” not remote administration alone.

Fiscal Efficiency and Performance Accountability

The fiscal evidence provides a plausible but not yet complete case for consolidation. Personnel expenditure increased substantially across the three units, while operational activity was uneven and in some locations limited. Separate offices also duplicate administrative roles. The source study’s estimated annual saving of at least IDR 600 million is therefore plausible as a gross administrative-efficiency target, particularly if budget-management, treasury, procurement, accounting, PNBP administration, and travel functions are consolidated. However, the estimate should not be

interpreted as guaranteed net savings. Transition costs may include system integration, organizational change, personnel reassignment, certification, patrol resources, communications infrastructure, and improvements to work-area facilities.

A more robust policy decision would therefore combine the right-sizing proposal with a before-and-after performance framework. At minimum, the new UPP Class I should monitor vessel-service time, document-clearance time, inspection response time, system availability, number of duplicated administrative processes eliminated, PNBP reconciliation accuracy, user complaints, safety incidents, digital adoption by service users, and cost per service transaction. This is consistent with systems-oriented research showing that port performance emerges from interactions among operational, institutional, and infrastructural factors rather than from a single throughput indicator (Sunitiyoso et al., 2022). Such indicators would allow the Ministry of Transportation to test whether the merger actually produces the expected efficiency and service-quality gains.

Implications for Port Management and Public Administration

The case has implications beyond North Sulawesi. Indonesia has many technical implementation units whose jurisdictions were established under historical administrative arrangements that may no longer reflect current logistics patterns or digital capabilities. A network-based approach can provide a more suitable basis for organization design: offices can be grouped around functional logistics corridors, shared risk profiles, and digital-service systems rather than maintained solely because they exist as separate units. The Amurang proposal illustrates how a relatively larger office can serve as a platform for technical specialization, shared services, and digital standardization while smaller locations retain field presence proportionate to risk.

The case also shows that institutional reform and digital transformation should be designed together. If the merger is implemented without harmonizing systems and service standards, it could simply create a larger bureaucracy. Conversely, expanding digital services without clarifying authority and accountability could leave fragmented governance in place. The strongest reform sequence is therefore institutional integration, process simplification, digital standardization, competency strengthening, and performance monitoring as one program. This sequence is consistent with the idea that smart or digital ports require governance capability as much as technological infrastructure (Molavi et al., 2021; Sirajuddin et al., 2026).

Limitations

This study has four principal limitations. First, it is based on an existing policy study and does not add independent interviews, surveys, or direct observations. Second, the 2026 operational and revenue data are partial-year figures through July, limiting annual trend comparison. Third, the personnel-budget data are not uniformly final realized expenditure, particularly for Labuhan Uki. Fourth, the proposed annual savings are not derived from a complete cost-benefit model that includes transition and digital-integration costs. Future research should therefore combine audited financial data, user-service metrics, staff competency records, system-performance logs, and stakeholder interviews before and after implementation. A quasi-experimental or longitudinal evaluation would be particularly useful if the institutional restructuring proceeds.

CONCLUSION

The evidence in the source policy study supports a serious institutional case for upgrading UPP Amurang from Class II to Class I while integrating Kotabunan and Labuhan Uki into one regional organizational system. The rationale is strongest when framed not as a change of nomenclature, but as a combined program of organizational right-sizing, digital-service standardization, technical-capacity strengthening, and risk-based field management. The three UPPs collectively supervise substantial vessel tonnage, industrial cargo, special-terminal activity, and non-tax state revenue. Their combined workforce of 106 provides a sufficient quantitative base for redistribution, while the existence of duplicated administrative functions creates a credible opportunity for efficiency. At the same time, the absence of several critical certified maritime competencies demonstrates that headcount consolidation is not enough. The new organization would still require Marine Inspector Type A capability, ship measurement expertise, Port State Control capacity, ISPS Code auditing competence, and continued dangerous-goods and pollution-response capacity.

A feasible implementation model would place institutional command, budgeting, personnel management, PNPB administration, procurement, digital governance, and performance monitoring at UPP Class I Amurang. Labuhan Uki and Kotabunan should remain priority operational work areas with permanent personnel proportionate to industrial and safety risk. Other lower-activity work areas can be served through scheduled inspection, patrol, inter-agency coordination, and digital reporting. In parallel, Inaportnet, SSm Pengangkut, single billing, user support, and data standards should be harmonized across the entire service area. Implementation should be phased and evaluated through measurable service, safety, fiscal, and digital-performance indicators. Under these conditions, institutional consolidation can improve both administrative efficiency and the quality of digital maritime governance without weakening the state's operational presence in geographically dispersed port areas.

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Declaration of Interest Statement

The source document does not provide a declaration of competing interests. The author should confirm and complete the journal's required declaration before submission.

Data Availability Statement

The analysis is based on administrative tables and documentary information contained in the source policy study. Any underlying official datasets should be cited or supplied by the author in accordance with institutional disclosure rules and IJITE submission requirements.

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