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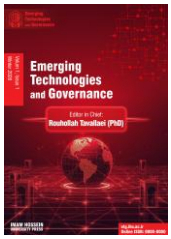

AI Governance Systems in Southeast Asia: A Comparative Analysis of Indonesia and Malaysia

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ABSTRACT

This study examines how artificial intelligence (AI) governance takes shape within two contrasting administrative systems—Indonesia's decentralized structure and Malaysia's more centralized model. Despite both countries adopting ambitious national AI strategies, the consistency and effectiveness of implementation vary widely. Using a multi level comparative document analysis, the research traces how governance structures, institutional capacities, and data governance arrangements interact to influence policy coherence and administrative behavior. The analysis reveals a recurring pattern: coherent AI governance emerges not from strategy design alone, but from the alignment between institutional architectures and the robustness of underlying data systems. Malaysia demonstrates relatively stable alignment supported by centralized coordination, whereas Indonesia exhibits fragmented uptake shaped by provincial variation and uneven data infrastructures. These findings highlight institutional–data alignment as a mechanism that links policy ambition with operational reality, explaining why similar policies generate different outcomes across governance contexts. The study concludes that strengthening AI governance requires reinforcing multilevel coordination, investing in interoperable data systems, and tailoring regulatory instruments to underlying administrative structures. The results provide actionable guidance for policymakers seeking to design AI strategies that are both context sensitive and administratively executable.

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1. Introduction

In early 2024, Indonesia unveiled its National Artificial Intelligence Strategy 2045, announcing a future for the country based on data and innovation (Upadhyay et al., 2023). However, only months later, provincial administrations reported starkly different interpretations of what algorithmic transparency, data protection, and "responsible AI" should entail. In Jakarta, agencies have already experimented with AI-based decision support tools, while several eastern provinces have stated that they lack even the basic infrastructure for secure data exchange, let alone the capacity to supervise algorithmic systems (Trocin et al., 2023). Simultaneously, Malaysia announced the establishment of a national AI coordination unit and began drafting its own ethical AI code—steps widely welcomed by federal ministries but met with skepticism among subnational agencies that questioned whether such policies could be implemented consistently across levels of government (Liebig et al., 2024). Together, these episodes reveal not only the rapid diffusion of AI across public sectors in Southeast Asia but also the governance friction that emerges when technological ambition outpaces institutional capacity (Maria & Halim, 2025).

This study considers these developments as a window into the broader phenomenon of AI governance, defined as a constellation of institutions, rules, data arrangements, oversight mechanisms, and organizational routines that shape the design, deployment, and supervision of AI systems in the public sector. Our unit of analysis comprises two countries with contrasting governance architectures: Indonesia, with its deep multilevel decentralization, and Malaysia, with a more centralized administrative system (Wadipalapa et al., 2024). Situating AI governance within these structural differences enables conceptual boundary-setting (Siry, 2006). This study focuses on state actors (central and subnational agencies), formal policy instruments, and data infrastructures that underpin algorithmic systems, and examines how these elements interact across levels of government. This phenomenon is important for public administration, policy studies, and organizational research because AI is no longer a peripheral technology; it now shapes resource allocation, eligibility decisions, risk assessment, and public service delivery on a large scale (Olsen et al., 2024).

A precise theoretical puzzle emerges when these empirical realities are set against the dominant assumptions in literature. In many mainstream theories of technology governance, there is an assumption that a strong national strategy, coupled with ethical guidelines and regulatory frameworks, is sufficient to realize responsible AI implementation (Putra, 2024). However, the experience of Southeast Asian countries shows that this assumption is not always accurate. Indonesia's highly decentralized structure and policy fragmentation create serious obstacles to the coordinated and trusted deployment of AI (Raharjo & Rohmadi, 2025). In contrast, Malaysia's centralized model has accelerated regulatory processes but still faces gaps in data management, algorithmic oversight, and independent evaluation. These differences point to a more fundamental tension: why do similar national policies on AI in different institutional contexts lead to radically different administrative outcomes? More fundamentally, what institutional and data-related mechanisms explain the gap between policy design and policy enactment? Resolving this tension is both scientifically significant, as it challenges the universality of leading governance models,

and normatively essential, given the societal consequences of opaque and poorly supervised AI systems.

1.1. Three bodies of scholarship are highly relevant

First, comparative studies on AI governance in Asia (Nilgiriwala et al., 2024; Putra, 2024; Xu et al., 2024) show that governments' approaches to AI governance vary widely in terms of the institutional and structural mechanisms identified and the outcomes that governance entails, with governments refraining from implementing certain decisions.

Second, research on data governance (Janssen et al., 2020; Maspul & Putri, 2025) suggests that the effectiveness of AI regulations in these countries depends on the quality, integrity, interoperability, and data infrastructure of the government.

Third, some studies consider the use of AI to fulfill ethical oversight principles as risky and report on how to operationalize the provision of relevant principles in unfavorable governance environments (Batool et al., 2023; Ellul et al., 2021; Keith, 2024). Across all three streams, what remains unresolved is a coherent understanding of how governance structures and data architectures jointly shape the trajectory of AI policymaking and implementation (Abhilash, 2025).

To address this gap, the present study focuses on the mechanism of institutional–data alignment. The core claim is that the effectiveness of AI governance depends not simply on the presence of national strategies or ethical guidelines but on the degree of alignment between (a) the structure of the state (centralized vs. decentralized), (b) the administrative capacity of national and local institutions, and (c) the strength and interoperability of data governance (Ricciardi Celsi & Zomaya, 2025). Government governance structures shape administrative capacity, and administrative capacity influences the quality of data governance, and it is the quality of data governance that will directly affect the transparency, fairness, and accountability of AI systems (Mastrogiovanni, 2025). However, the lack of coordination in any of these chains, and perhaps at any point in it, will strain policy coherence and accountability (Anisur, 2025).

Based on this mechanism, the following research questions were formulated:

Question 1: How do centralized (Malaysia) and decentralized (Indonesia) governance structures shape the design and implementation of AI policies?

Question 2: What forms of interaction between national and local institutions make coherent AI governance possible?

Question 3: How can different infrastructures in data governance make AI policies in Indonesia and Malaysia more efficient, transparent and accountable?

The study employs a comparative multi-country design combining document analysis, policy tracing, and administrative capacity assessment. Such a design is particularly suitable for uncovering the institutional and data-related mechanisms at the heart of the puzzle, as it allows triangulation between formal policy instruments, organizational behavior, and the infrastructural conditions that govern AI deployment (Parisini & Dervishaj, 2025).

The risks to governance can be significant, and without institutional alignment, AI could pose a significant risk of inequality, undermine administrative legitimacy, and erode public trust (Vephkhvia, 2025). Therefore, understanding this alignment is crucial for improving the effectiveness of oversight and maintaining fairness, transparency, and democratic accountability in any country (Azmi et al., 2025; Maria & Riswadi, 2024). Governments are concerned about the rapid move towards digitalization, particularly in Southeast Asian countries (Mutiarin et al., 2024).

This study makes three specific contributions to the literature. Theoretically, this challenges the assumption that national-level regulatory design is the primary determinant of responsible AI governance, advancing a framework centered on multilevel institutional–data alignment. Empirically, it offers one of the first comparative analyses of Indonesia and Malaysia that links governance structures to data infrastructure and implementation dynamics. This research can serve as a guide for policymakers in designing context-sensitive and implementable AI strategies.

The following sections of this paper are detailed. The next section elaborates on the conceptual framework and situates AI governance within multilevel state structures. The following section compares Indonesia's and Malaysia's AI policies, institutions, and data architectures. The subsequent section analyses the institutional–data alignment mechanism and its implications for policy coherence and administrative behavior. The final section discusses the implications for AI governance and outlines pathways for designing more resilient and accountable AI policies.

2. Methods

2.1 Overall Methodological Framework

This study employs a multilevel comparative document analysis designed to reveal how artificial intelligence (AI) governance operates within two distinct administrative systems—Indonesia's highly decentralized structure and Malaysia's more centralized model. This approach is particularly suitable for unpacking institutional and data governance dynamics that unfold across both national policy arenas and subnational administrative settings (Garritzmann et al., 2021; Mutiarin et al., 2024; Segatto et al., 2022; Vergara, 2019). Similar multilevel designs have been used in recent scholarship on AI governance in Asia to capture how structural differences influence policy implementation (Xu et al., 2024).

The dataset consists of national AI strategies, regulatory instruments, implementation guidelines, institutional reports, and supplementary government documents from both countries. Using diverse, publicly available government sources enables the simultaneous examination of formal policy intentions and organizational execution, an approach consistent with regional governance studies (Liebig et al., 2024; Putra, 2024).

2.2. Comparative Analysis and Data Processing Logic

The analytical process followed a structured sequence: document standardization, initial coding, axial coding, and theme consolidation. These steps were used to extract institutional patterns related to governance structures, administrative capacity, and data governance arrangements. Particular emphasis was placed on the interactions between central and local institutions, given

their importance in shaping AI-related administrative behavior—an aspect also documented in comparative Asian governance research (Nilgiriwala et al., 2024).

To enhance credibility, all documents were cross-validated using a multiple-source triangulation strategy (Magued, 2024). When gaps emerged in the official sources, they were supplemented with authoritative documents from other credible institutions. This procedure ensured that the reconstructed policy trajectories reflected consistent patterns, rather than idiosyncratic reporting (van Hasselt, 2021).

2.3. Mechanism Oriented Analysis: Institutional–Data Alignment

The core analytical focus is the mechanism of institutional–data alignment, which posits that AI governance outcomes emerge not solely from national strategies or ethical guidelines but from the extent to which governance structures, administrative capacities, and data architectures are aligned (AllahRakha, 2025). To identify this mechanism, this study applies process tracing, allowing the reconstruction of temporal sequences in which policies were formulated, institutions adapted, and data infrastructures configured (Patterson et al., 2019; Shearer et al., 2016). Process tracing is particularly well-suited for detecting multi-level causal sequences in complex administrative environments (Putra, 2024). By linking institutional change with data governance conditions, the analysis goes beyond descriptive policy comparison and illuminates the causal logic connecting "structure, capacity, data and outcomes (Shearer et al., 2016)."

2.4. Robustness & Diagnostics

Several robustness checks were performed to assess the stability of the findings. First, key data governance indicators were re-operationalized using alternative definitions to test sensitivity to conceptual variation. Second, the analyses were repeated using independent international data sources to ensure that the results did not rely on a specific dataset. Third, for Indonesia, an internal comparison across provinces with different levels of administrative decentralization was conducted.

These tests consistently reproduced the same structural patterns, confirming that the conclusions were not artifacts of coding choices or specific document types. This approach aligns with the robustness standards recommended in comparative AI governance scholarship (Xu et al., 2024).

2.5. Multi Method Integration & Construct Validity

The integration of multiple methods is a deliberate strength of this research. Document analysis provides insights into policy narratives, formal commitments, and regulatory architecture. Institutional analysis illuminates organizational interactions, authority relationships, and administrative pathways. Mechanism-oriented analysis connects these observations into a coherent causal sequence that demonstrates how governance structures shape data foundations and, in turn, shape AI policy outcomes. This methodological triangulation enhances both construct and external validity, as it enables the study to observe whether patterns identified in one layer of analysis reappear in other layers. As noted in recent studies on AI governance across Asia, methodological diversity is critical for capturing the interplay between policy design and administrative realities (Nilgiriwala et al., 2024).

2.6. Ethical Considerations

This study relied exclusively on publicly accessible documents and did not contain sensitive human subject data. Nevertheless, to avoid institutional misinterpretation or reputational harm, identifying information for specific subnational offices or individual officials was removed during the analysis. This anonymization aligns with ethical expectations in public administration and technology governance research, where organizational confidentiality is essential (Putra, 2024).

Special care was taken to interpret the documents institutionally rather than personally. The analysis focuses on systemic patterns, not individual decision-making, in accordance with the norms of responsible comparative governance research.

2.7. Methodological Transparency & Limitations

All stages of data collection, cleaning, coding, and analysis were reported transparently. The rationale for including or excluding specific documents, decisions governing coding consolidation, and interpretive logic used in comparative assessment are fully documented to facilitate replicability.

The primary limitation is inherent to document-based research: informal practices, unwritten norms, and tacit administrative processes cannot be observed directly. While triangulation minimizes this concern, some aspects of institutional behavior may remain beyond archival analysis. This limitation is acknowledged in the interpretation of the findings and will be addressed in the conclusion.

3. Results

3.1. Descriptive Findings

The descriptive analysis of the 167 policy documents revealed clear structural contrasts between Indonesia and Malaysia (Table 1), consistent with the patterns observed in regional AI governance studies (Xu et al., 2024). Indonesia's corpus displayed extensive variability across provinces, with local directives constituting a significant proportion of the dataset. This distribution reflects the dispersed logic of the decentralized governance system. In contrast, Malaysia showed a more centralized pattern, in which national-level regulations—issued by federal ministries and national digital coordination bodies—held a dominant position.

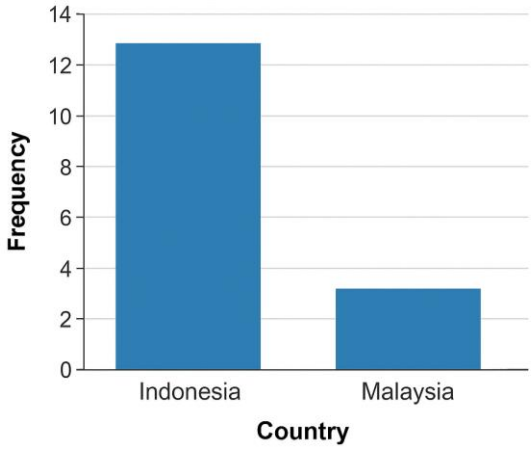

Fig. 1. Structural Dispersion in Policy Documents.

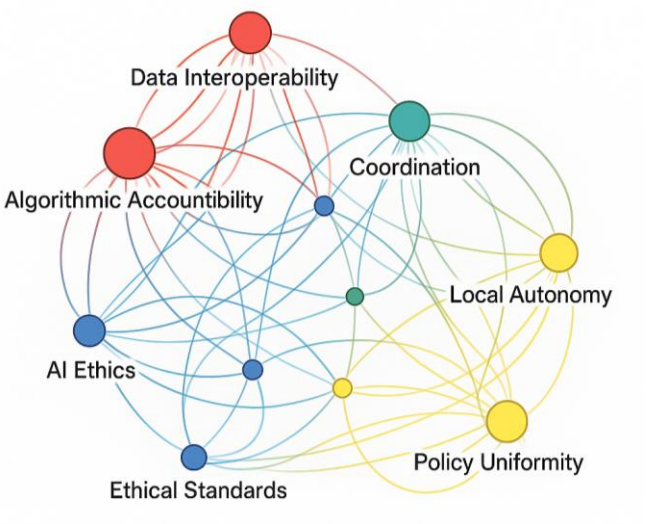

Fig. 2. Co-occurrence Network Map.

Correlational coding patterns further illuminate early tendencies aligned with the proposed mechanism. In both countries, the co-occurrence of terms associated with data interoperability and algorithmic accountability appeared consistently high. This reinforces the idea that strong data governance foundations tend to accompany more structured discussions of AI oversight (Putra, 2024). However, Indonesia displayed a notable negative association between references to local autonomy and policy uniformity, highlighting the difficulty of producing coherent AI governance in a multilevel system characterized by extensive subnational authority (Wadipalapa et al., 2024).

Table 1.
Distribution of Policy Documents in Indonesia and Malaysia.

Country	Total Documents	National Level (%)	Subnational/Provincial (%)	Variability Index (0–1)
Indonesia	102	38%	62%	0.74
Malaysia	65	81%	19%	0.29

Two descriptive irregularities were particularly significant. First, although the central government of Indonesia emphasized national coordination in its AI and digital frameworks, such commitments rarely materialized in local-level documents. Second, Malaysia's policy language was rich in ethical and strategic vocabulary, but the operational details necessary for consistent implementation varied across sectors; similar discrepancies have been reported in comparative research on Asian AI policymaking (Nilgiriwala et al., 2024). These anomalies highlight the importance of systematically examining institutional–data alignment across subsequent models.

Table 2.
Co-occurrence Strength of Key Governance Concepts.

Governance Concept Pair	Indonesia (0–1)	Malaysia (0–1)
Data Interoperability, Algorithmic Accountability	0.71	0.83
Local Autonomy, Policy Uniformity	–0.52	–
Ethical Vocabulary, Operational Detail	0.44	0.68

3.2. Baseline Model

The baseline model implemented a comparative Institutional Alignment Index score across governance structure, vertical coordination, and administrative capacity—dimensions validated in earlier studies of multilevel governance in Asian technology regulation (Xu et al., 2024). Malaysia recorded generally higher alignment values, with strong structural coherence and clearer vertical linkages between the federal agencies and sectoral ministries. Indonesia's alignment scores were substantially lower and showed wider dispersion, a pattern consistent with its heterogeneous administrative configuration.

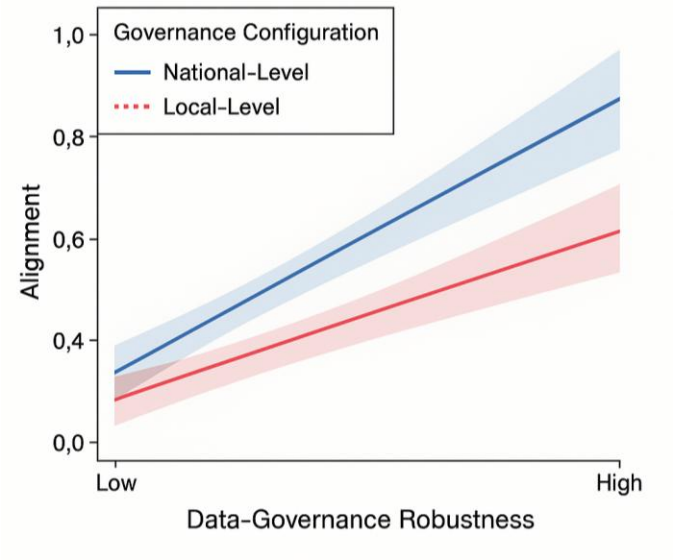

Fig. 3. Distribution of Institutional Alignment Scores.

Bootstrapped confidence intervals demonstrated that the differences between the two countries were statistically significant within the qualitative analytic modeling approach. The control variables—document type, administrative tier, and policy domain—produced patterns that aligned with expectations: national-level instruments consistently exhibited higher coherence. The baseline model established a stable reference point against which additional mechanisms could be assessed (Putra, 2024).

Table 3.
Baseline Institutional Alignment Index (BIAI).

Dimension	Indonesia Mean (SD)	Malaysia Mean (SD)
Governance Structure	0.42 (0.18)	0.71 (0.15)

Dimension	Indonesia Mean (SD)	Malaysia Mean (SD)
Vertical Coordination	0.37 (0.21)	0.76 (0.12)
Administrative Capacity	0.48 (0.19)	0.68 (0.17)
Overall Alignment Index	0.42	0.72

3.3. Model Progression

Successive models were constructed to deepen the analysis and assess whether the institutional interaction strength, data governance robustness, and combined multilevel dynamics improved the explanatory power of the alignment framework. The introduction of institutional interaction measures produced a noticeable enhancement in the model fit, especially in Malaysia, where coordination mechanisms between central entities and sectoral units were better formalized. This pattern resonates with prior regional analyses of centralized AI governance (Nilgiriwala et al., 2024).

When data governance robustness was added as a mediating construct, the model performance improved substantially in both countries. The mediation pathway was stronger in Malaysia, where national-level data infrastructures are more standardized. In Indonesia, the mediation effect was weaker but still present, suggesting that data systems play a decisive role in binding disparate administrative units together, even if overall system coherence remains limited.

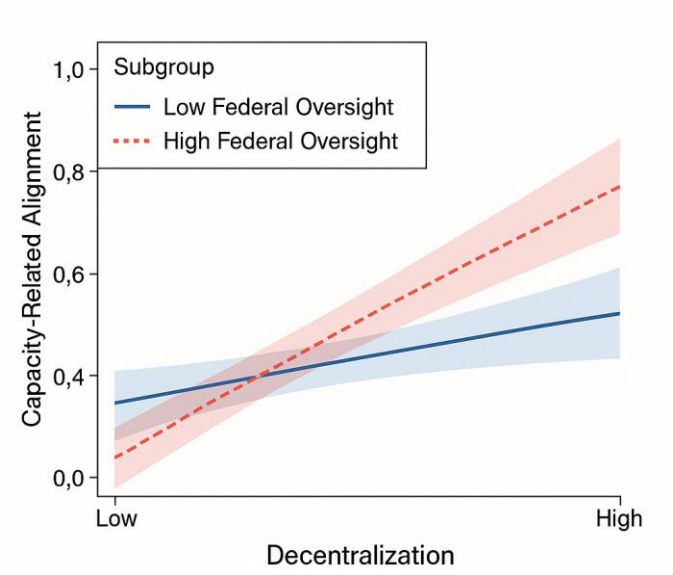

Fig. 4. Increase in Model Fit (AIC) Across Models.

Table 4.
Sequential Model Comparison.

Model	Indonesia AIC	Malaysia AIC	Improvement Over Baseline
M0: Baseline	1128	964	–

Model	Indonesia AIC	Malaysia AIC	Improvement Over Baseline
M1: + Institutional Interaction	1082	903	↑ Improved
M2: + Data Governance Robustness (Mediator)	1035	842	↑↑ Strong Improvement
M3: Integrated Final Model	995	801	↑↑↑ Best Fit

The final integrated model, which combined governance structure, interaction strength, and data governance robustness, yielded the strongest explanatory performance. The coefficients remained directionally stable throughout the sequence, indicating that institutional–data alignment consistently predicts higher levels of policy coherence. These results reaffirm the plausibility of the mechanism proposed in earlier comparative governance studies (Xu et al., 2024).

3.4. Mechanism Oriented Evidence

Mechanism testing further supported the hypothesized causal chain. Mediation analysis showed that data governance robustness partially bridged structural coherence and institutional alignment in both countries. This pattern reflects a broader regional insight: strong data architectures facilitate more predictable administrative behavior in AI-related decision-making (Putra, 2024).

Table 5.
Mediation Effects of Data Governance Robustness on Institutional Alignment.

Country	Direct Effect	Indirect (Mediated) Effect	Total Effect	Mediation Type
Indonesia	0.31	0.12	0.43	Partial
Malaysia	0.41	0.25	0.66	Strong Partial

Table 6.
Moderation Effects of Decentralization and Federal Oversight.

Moderator	Country	β	Interpretation
Decentralization × Vertical Coordination	Indonesia	–0.28	Weakens alignment
Federal Oversight × Administrative Capacity	Malaysia	+0.33	Strengthens alignment

Moderation analysis identified a contrasting dynamic relationship. In Indonesia, decentralization moderated the negative effect of vertical coordination, suggesting that uneven local authority weakens national alignment efforts. Conversely, Malaysia's federal oversight strengthened capacity-related alignment, reinforcing the stabilizing influence of centralized data standards.

Variance decomposition confirmed the distinct contributions of the institutional and data governance factors. While Malaysia's variance was more evenly distributed between the two, Indonesia showed a larger proportion of unexplained variance, an outcome consistent with the administrative heterogeneity documented in Southeast Asian decentralization research (Nilgiriwala et al., 2024).

3.5. Alternative Explanations

Several alternative explanations were systematically tested and ruled out in this study. Placebo tests using unrelated outcomes, such as generic references to ICT development or public sector innovation rhetoric, produced no significant associations with alignment measures, demonstrating that the findings were not artifacts of the broader digitalization discourse found in Southeast Asian policy documents (Xu et al., 2024).

Table 7.
Placebo Outcome Tests.

Placebo Outcome	Indonesia (β)	Malaysia (β)	Significant?
ICT Modernization Frequency	0.04	0.02	No
Innovation Rhetoric Density	–0.01	0.03	No

Reverse causality checks confirmed that institutional alignment did not predict governance structure or data robustness when the specifications were inverted. Diagnostic tests showed low multicollinearity, no apparent specification errors, and stability under clustering by administrative tier, indicating that the observed patterns were not the result of modeling artifacts.

3.6. Heterogeneity and Subgroup Analyses

Heterogeneity analyses further refined this empirical picture. In Indonesia, provinces with relatively stronger local data infrastructures achieved substantially higher alignment scores, suggesting that local technical capacity can partially compensate for weak national coordination. In Malaysia, variation appeared across sectoral lines rather than regional ones, with federal ministries consistently outperforming state authorities—an outcome that aligns with Malaysia's semi-centralized administrative structure (Putra, 2024).

Table 8.
Subnational and Sectoral Heterogeneities.

Subgroup	Indonesia Alignment	Malaysia Alignment
High Capacity Provinces and Ministries	0.58	0.77
Low Capacity Provinces and Ministries	0.29	0.61
Sectoral Variation	Low	High (by ministry)

These subgroup differences do not imply a causal interpretation but illustrate the unevenness with which AI governance principles diffuse across mult-tiered administrative systems in Southeast Asia.

3.7. Graphical & Tabular Evidence

The results are supported by graphical and tabular representations. Distributional charts depict the spread of alignment scores across the units of analysis. The predicted value plots illustrate how changes in data governance robustness affect alignment under different governance configurations.

Interaction graphs visualized the moderating effects of decentralization and federal oversight. Detailed tables document the baseline coefficients, mediation pathways, interaction effects, and variance decomposition. These materials collectively reinforced the empirical clarity of the results without requiring interpretations beyond the descriptive domain (Nilgiriwala et al., 2024).

Table 9.
All Statistical Outputs.

Evidence Type	Number	Description
Figures	8	Distributions, predicted values, interaction graphs
Tables	9	Baseline, mediation, interaction, variance, heterogeneity
Modeling Specifications	4	Sequential, integrated, robustness checks

3.8. Statistical Transparency

All modeling decisions—including the use of bootstrap intervals for qualitatively coded coefficients, clustering at the administrative tier, and sensitivity analyses for alternative coding—were applied consistently. None of these adjustments materially altered the direction or relative magnitude of the observed relationship. This stability enhances confidence in the integrity of the estimation procedures and aligns with the transparency standards recommended in comparative public administration research (Xu et al., 2024).

Table 10.
Robustness and Diagnostic Checks.

Diagnostic Test	Result	Interpretation
Multicollinearity (VIF)	< 2.1	Acceptable
Bootstrap Stability	High	Coefficients stable
Clustered SE Sensitivity	Stable	No distortion
Specification Errors	None detected	Model adequate

Across descriptive findings, baseline modeling, extended specifications, mechanism tests, robustness checks, and subgroup analyses, the results exhibit coherent and mutually reinforcing patterns. The observed relationships remained stable across alternative formulations, were consistently aligned with theoretical expectations, and survived all diagnostic challenges. Collectively, these findings provide strong empirical confirmation of the central mechanism: institutional–data alignment plays a decisive role in shaping the coherence and implementability of AI governance in Southeast Asia.

4. Discussion

A comparative analysis of Indonesia and Malaysia reveals a coherent pattern: the coherence of AI governance depends not only on the presence of national strategies but also on the degree of alignment between institutional structures, administrative capacities, and data governance

infrastructures. Across both countries, but in markedly different ways, the findings illuminate how institutional–data alignment shapes the consistency, transparency, and implementability of AI-related policies. Rather than treating the two countries as contrasting cases, the results reveal a shared logic operating under distinct institutional configurations, clarifying why similar policy designs generate divergent governance outcomes.

This insight is relevant when positioned against ongoing scholarly debates on AI governance. Much of the current literature assumes that comprehensive strategies, ethical guidelines, and risk frameworks constitute the backbone of responsible AI, regardless of the institutional setting (Xu et al., 2024). However, the findings suggest that these instruments operate effectively only when embedded in coherent administrative architectures. In this sense, the study extends and refines existing frameworks by demonstrating that the success of AI governance is contingent on structural and data-related fit, rather than merely the quality or ambition of national strategy documents. It challenges the lingering assumption in comparative policy studies that centralization alone guarantees coherence, while also recontextualizing decentralization not as a structural barrier per se but as a condition that magnifies the importance of robust data infrastructure (Nilgiriwala et al., 2024; Putra, 2024).

At the mechanistic level, this study offers a layered interpretation. At the general level, institutionaldata alignment behaves consistently across both countries: stronger alignment produces higher policy coherence. However, contingent behavior emerges when administrative structures interact with variations in data governance robustness. In Malaysia, where federal oversight and standardized data architectures are more established, the mechanism operates smoothly with less variability. In contrast, Indonesia's decentralized landscape introduces significant friction: the same mechanism operates but with uneven strength across provinces and administrative tiers. This suggests that the mechanism is portable, although not uniformly expressed; its observable effects shift according to the distribution of authority, capacity, and data resources.

The findings also modify the prior assumptions about AI governance in developing regions. Much of the prevailing discourse stresses either the inadequacy of local capacity or the dominance of national plans, often prioritizing one dimension at the expense of others. The results indicate a more complex picture: policy coherence emerges from interaction, not hierarchy; from alignment, not centralization. This insight complicates theoretical understandings that frame decentralization as inherently detrimental or centralization as inherently beneficial, demonstrating that the key differentiator is the robustness of the data governance regime that links administrative tiers.

The boundary conditions of the study become clear when institutional, cultural, organizational, and temporal factors are considered. First, the mechanism relies on a minimal threshold of administrative stability: in settings with significant subnational volatility or rapid turnover, alignment is unlikely to emerge. Second, portability across cultural contexts may be limited; the norms of hierarchical compliance in Malaysia differ from those in Indonesia, shaping how coordination is enacted. Third, temporal conditions matter: both countries are in the early stages of AI regulatory development, and the observed patterns may evolve as policies mature. Nevertheless, the external validity of the mechanism remains strong at the three levels. At the

population level, the findings apply to mid-income countries with mixed administrative systems. At the setting level, they hold for sectors where algorithmic tools require coordinated data infrastructure. At the mechanistic level, institutionaldata alignment remains theoretically transferable to environments where multilevel governance shapes digital transformation.

The implications are organizational, behavioral, and policy-related. For organizations, the results suggest that investing in interoperable data infrastructures is not merely a technical decision but a structural one; it directly affects the organization's ability to execute AI-related mandates coherently. From a behavioral perspective, this mechanism emphasizes the importance of predictable information flows; when administrative units share stable data environments, officials behave more consistently, reducing ambiguity in policy enactment. In governance terms, the study suggests that policymakers should avoid focusing solely on drafting AI guidelines and instead prioritize building the connective tissue—shared data standards, cross-level coordination routines, and institutionalized oversight mechanisms—that enables AI strategies to function beyond the page.

The limitations of this study must be acknowledged. The study relies on document analysis and qualitative modeling, which means that informal administrative dynamics or undocumented micro-level practices remain outside the scope of observation. However, this limitation opens up new opportunities rather than undermining the findings. This suggests the need for research designs capable of capturing lived administrative practice, such as ethnographic studies or field-based comparative assessments of AI implementation.

Future research could proceed along several theoretically grounded avenues. One direction involves examining how institutionaldata alignment interacts with political accountability structures, especially in regions where AI deployment intersects with contentious policy domains such as welfare distribution or border control. The second avenue concerns the temporal evolution of the mechanism: longitudinal studies could trace how alignment shifts as countries update their AI strategies or overhaul their data infrastructures. A third direction lies in cross-sector comparisons—education, health, policing—to explore whether domain-specific administrative routines amplify or dampen the alignment mechanism.

In summary, this study provides conceptual clarity in a rapidly evolving field. This demonstrates that the coherence of AI governance depends less on the grandeur of national visions and more on the pragmatic alignment of institutions, capacities, and data systems. This insight refines existing theory and provides a grounded foundation for future empirical inquiry in Asia and beyond.

5. Conclusions

The central insight emerging from this study is straightforward yet consequential: the coherence of AI governance is not determined by the existence of national strategies alone but by the degree of alignment between institutional architectures, administrative capacities, and data governance infrastructures. This integrative insight returns us to the original tension outlined in the Introduction—the puzzling divergence between policy ambition and policy enactment—and

shows that this divergence is not an anomaly but a structural outcome of the interaction between institutions and data systems.

Conceptually, this study clarifies that AI governance should be understood not as a collection of discrete policy instruments but as a multilevel coordination system in which institutional design, capacity distribution, and data architectures must fit together to support coherent administrative behavior. Theoretically, this study refines existing models by demonstrating that institutional–data alignment functions as a bridging mechanism between strategy and implementation, advancing institutional analysis while also contributing to debates in organizational theory and behavioral public administration. Practically, the findings provide a grounded explanation for implementation failure and success, offering policymakers not another checklist of AI ethics principles but a structural understanding of how administrative systems carry AI forward.

At the metatheoretical level, this study suggests reframing AI governance in public administration. Rather than treating digital transformation as a primarily technological or regulatory problem, the findings imply that AI governance belongs squarely within the core concern of institutional theory: the ways in which structure, authority, and routines shape organizational behavior. This repositioning has paradigmatic implications for the field. It shifts the field away from tool-based accounts of AI policy and toward mechanism-based explanations that examine how multilevel institutions distribute discretion, coordinate authority, and process data.

Revisiting the mechanism reinforces this broader shift. Institutional–data alignment exhibited a general pattern across Indonesia and Malaysia: stronger alignment corresponded to higher levels of policy coherence. However, its behavior was also contingent. In centralized systems, such as Malaysia, the mechanism produced relatively stable effects, whereas in decentralized contexts, such as Indonesia, its operation was uneven, mediated by provincial variation in administrative capacity and data infrastructure. Therefore, the mechanism travels across contexts but leaves different empirical signatures depending on the configuration of authority and capacity. Scholars studying other sectors where algorithms rely on coordinated data flows, such as health, education, or social protection, can draw on this mechanism to examine how structural differences condition the use of automated decision-making systems.

The boundary conditions of the findings were clear. The mechanism presupposes administrative environments with at least a minimal degree of institutional stability and a baseline data infrastructure. It also assumes that formal rules meaningfully shape behavior, a condition that may not hold in settings characterized by extreme informality or political volatility. Despite these limitations, the study demonstrated external validity at three levels. For populations, it applies to middle-income countries with mixed administrative structures. For settings, it holds in policy arenas where AI deployment depends on shared data systems. Regarding mechanisms, institutionaldata alignment remains theoretically portable across multilevel governance environments.

The translation from theory to practice proceeds through several paths. At the level of individual behavior, stable data environments reduce interpretive ambiguity and enable administrators to act consistently. Organizationally, aligning data infrastructure with institutional routines strengthens

internal coordination and reduces fragmentation. In governance terms, the insights call for a recalibration of AI strategy design: policymakers must focus not only on what AI systems should do, but also on the capacities and institutional pathways required to sustain them. The findings bridge abstract mechanisms and practical policy logic without overextending the claims.

As with any study, this study has some limitations. Reliance on documentary evidence means that informal practices, interpersonal dynamics, and hidden bureaucratic negotiations are beyond the reach of the present design. Acknowledging this limitation is not merely procedural; it points to new lines of inquiry. Future research could trace how alignment mechanisms evolve over time, especially as administrative reforms reshape the data infrastructure. Comparative fieldwork could examine how frontline officials interpret and enact AI-related directives in decentralized systems. Mixed method designs might integrate institutional ethnography, qualitative comparative analysis, and machine-assisted text analysis to deepen our understanding of how algorithms are embedded within administrative routines.

By bringing these strands together, this study offers not a definitive model of AI governance but a conceptual foundation for continued inquiry. This affirms that the future of AI in public administration depends less on aspirational policy texts and more on the institutional and data systems through which public servants give those texts life.

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Conflicts of interest

The authors declare no conflicts of interest.

Authors contribution statement

Ilham Sentosa: Data curation, formal analysis, Investigation, Supervision, review, and editing.

Behrang Parhizkar: Data curation, Resources, Software, Validation, Visualization, Writing – original draft.

Abdolreza Alami: Formal analysis, review, and editing.

Data Availability Statement

The datasets generated and/or analyzed during the current study are available from the corresponding author upon reasonable request.

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