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AI GOVERNANCE IN VIETNAMESE PUBLIC ADMINISTRATION: FROM INFORMAL PRACTICES TO TECHNOLOGY LOCALIZATION

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ABSTRACT

Artificial intelligence (AI) is increasingly being integrated into public administration to enhance decision-making and service delivery. Existing studies on AI governance, however, have predominantly focused on regulatory frameworks, algorithmic accountability, and technical system design, while paying limited attention to how AI is enacted in everyday administrative practice. Addressing this gap, this study examines the micro-level governance dynamics of AI DSS in Vietnam's public administration. Drawing on a qualitative case study, the study investigates how frontline civil servants interact with AI recommendations under conditions of institutional complexity, administrative discretion, and contextual uncertainty. The findings show that civil servants neither passively comply with nor routinely reject algorithmic outputs. Instead, they develop informal practices-including contextual interpretation, justified overrides, and peer learning-that gradually evolve into informal institutional routines. These practices function as a micro-governance layer that mediates between algorithmic logic and administrative realities, enabling the localization and continuous reconfiguration of AI within a hybrid institutional environment. Rather than viewing deviations from algorithmic recommendations as implementation failures, the study argues that they constitute adaptive governance mechanisms that sustain both administrative effectiveness and contextual responsiveness. Based on these findings, the study proposes a Human-in-the-Loop governance framework that formally recognizes justified human overrides within transparent accountability mechanisms. Such an approach can strengthen the

practical adaptability of AI systems while preserving administrative accountability, offering policy implications for AI governance in the digital transformation of Vietnam's public sector.

KEYWORDS: Artificial intelligence governance; public administration; administrative discretion; human-AI interaction; informal institutions; technology localization; decision support systems.

1. INTRODUCTION

1.1. Research Background

In the context of digital transformation in the public sector, AI is increasingly being deployed across public administration to support document processing and classification, administrative decision-making, and the automation of public service delivery. In particular, AI-enabled DSS are expected to enhance administrative efficiency, reduce human error, and improve the consistency of policy implementation.

However, practical implementation has revealed a notable governance paradox. Rather than simply complying with AI-generated recommendations, frontline civil servants frequently adjust, override, or combine algorithmic outputs with professional experience and contextual knowledge. While such practices may reduce the consistency and efficiency intended by algorithmic design, they also enable administrative decisions to better accommodate non-standard cases and institutional constraints encountered in practice.

This paradox suggests that AI in the public sector should not be viewed merely as an autonomous decision-making technology operating through a linear implementation logic. Instead, it should be understood as a socio-technical system whose outcomes are continuously co-produced through interactions between human actors and AI within specific institutional contexts.

1.2. Research Gap

Existing research on AI in the public sector has primarily focused on three major areas: (i) algorithmic design and system optimization; (ii) regulatory frameworks and AI governance models; and (iii) ethical issues associated with AI deployment in government (e.g., Mäntymäki et al., 2022; Wirtz et al., 2019). Although these studies have established important macro-level governance principles, they generally assume a rational and linear process of technology implementation.

When AI systems are introduced into everyday administrative practice, particularly in digitally transforming countries such as Vietnam, these perspectives reveal important

limitations. Existing literature provides only limited explanations of how frontline civil servants interpret, negotiate with, or adapt AI-generated recommendations when handling complex and non-standard administrative cases.

Accordingly, this study identifies three research gaps.

RQ1-related gap. There remains a limited micro-level understanding of human–AI interaction, particularly regarding adaptive practices, algorithm overrides, and strategic responses employed by frontline civil servants during administrative decision-making.

RQ2-related gap. Little attention has been devoted to explaining how individual adaptive actions gradually evolve into stable, informal institutional practices that diffuse within public organizations.

RQ3-related gap. Previous studies have paid insufficient attention to AI governance within hybrid administrative institutions, where formal bureaucratic rules coexist with context-dependent administrative practices and jointly shape how AI systems are implemented and adapted.

1.3. Research Questions

Building upon these research gaps, this study addresses the following research questions:

RQ1. How do frontline civil servants interact and negotiate with AI-enabled DSS during administrative decision-making?

RQ2. How do situated actions evolve into stable, informal institutional practices within public administration?

RQ3. How do these informal practices contribute to the localization and reconfiguration of AI within Vietnam's hybrid administrative institutions?

1.4. Research Contributions

This study makes three principal contributions to the literature.

First, it extends Situated Action Theory to the field of AI governance in public administration by distinguishing administrative discretion as a formal institutional mechanism from situated actions as emergent micro-level practices. It further demonstrates how the interaction between these two mechanisms shapes the practical operation of AI in administrative settings.

Second, the study develops a theoretically grounded typology of human–AI interaction in public administration, identifying four representative behavioral patterns: adaptive use, defensive override, routine hybridization, and constructive deviation. This typology provides a micro-level analytical framework for future studies of AI implementation and digital governance.

Third, the study advances a practice-based perspective on AI governance by shifting attention from system-centered governance toward governance through administrative practice. Based on this perspective, it proposes policy implications for institutionalizing justified human overrides within transparent accountability mechanisms, thereby balancing implementation flexibility with administrative accountability in the public sector.

2. THEORETICAL BACKGROUND

2.1. Situated Action in the Context of AI: From Unidirectional Adaptation to Power Negotiation

The concept of Situated Action, originally proposed by Suchman (Suchman, 1987), argues that human behavior should not be understood as the mechanical execution of predefined plans. Rather, it is continuously constructed through interactions with specific social and organizational contexts. Within socio-technical environments, human action is inherently adaptive, context-dependent, and dynamically shaped by emerging situations.

In the context of AI, Papyshev (Papyshev, 2024) extends this perspective by arguing that human-AI interaction is not merely a process of technology use but also functions as an informal governance mechanism through which everyday practices regulate and reshape the outputs of algorithmic systems.

More importantly, when considered alongside the concept of algorithmic agency, AI should no longer be understood merely as a passive technological tool. Instead, it acts as an active socio-technical actor capable of framing decision alternatives, influencing human cognition, and subtly shaping decision-making processes. Consequently, human-AI interaction extends beyond unidirectional adaptation to technology, evolving into a process of mutual co-construction and power negotiation in which both frontline civil servants and algorithmic systems actively participate in shaping administrative outcomes.

2.2. Administrative Discretion and Dual Accountability in AI-Enabled Administrative Environments

In public administration theory, administrative discretion refers to the legally recognized space within which public officials exercise judgment when laws or procedural rules do not fully prescribe appropriate courses of action. Lipsky (Lipsky, 2010) argues that frontline civil servants are not merely policy implementers but also active policy makers who continuously reconstruct public policy through situated decision-making in everyday administrative practice.

The integration of AI into administrative processes does not eliminate administrative discretion; rather, it reconfigures discretion within an algorithmically mediated decision-making environment. The adoption of AI-enabled DSS gives rise to a form of algorithmic bureaucracy, in which administrative choices are increasingly structured and constrained by data-driven models, predictive analytics, and algorithmic recommendations.

Within this institutional setting, administrative discretion becomes subject to heightened institutional tension, as frontline civil servants find themselves simultaneously accountable to two distinct sources of authority. On the one hand, they face digital accountability, which emphasizes compliance with AI-generated recommendations, algorithmic procedures, and technical requirements. On the other hand, they remain subject to political and social accountability, which requires them to justify administrative decisions in light of contextual realities, public interests, and stakeholder expectations.

The coexistence of these two accountability regimes creates a mechanism of dual accountability, generating cognitive and institutional tensions that encourage frontline officials to develop informal adaptive practices. These practices enable frontline civil servants to reconcile algorithmic consistency with contextual appropriateness, thereby balancing procedural compliance with practical administrative responsiveness.

2.3. The Dialectical Interaction Between Administrative Discretion and Situated Action: A Mechanism of AI Reconfiguration

Rather than treating administrative discretion and situated action as two separate analytical levels, this study conceptualizes their relationship as a dialectical process characterized by a dynamic feedback mechanism, as illustrated in Table 1. From this perspective, the two continuously interact with and reconfigure one another within AI-enabled administrative environments, forming an ongoing process of institutional adaptation and technological reconfiguration.

Table 1. Comparison of Administrative Discretion and Situated Action in Human–AI Interaction.

Dimension	Administrative Discretion	Situated Action
Nature	Institutionalized framework of authority	Emergent micro-level practices arising through human–AI interaction
Analytical level	Meso level (institutional/organizational)	Micro level (human–AI interaction)
Primary function	Defines the legitimate boundaries of administrative decision-making	Reconfigures how administrative decisions are

		enacted in practice
Dynamic mechanism	Enables intervention in AI-supported decision-making	Tests, expands, and reshapes those institutional boundaries

Within AI-enabled administrative environments, the relationship between administrative discretion and situated action is recursive rather than linear. Administrative discretion establishes the structural boundaries within which administrative decisions may legitimately be exercised. Conversely, through repetition, diffusion, and organizational learning, situated actions gradually generate new practical precedents that reshape how administrative discretion is interpreted and enacted in digital governance. Consequently, administrative discretion and situated action evolve through an ongoing process of mutual adaptation, jointly shaping and reconfiguring the operation of AI within public administration.

2.4. Hybrid Administrative Institutions and the Mechanism of Technological Refraction

Within the Vietnamese context, public administration operates as a hybrid administrative institution in which two contrasting institutional logics coexist.

On the one hand, the Weberian bureaucratic logic emphasizes formal authority, hierarchical governance, and compliance with standardized administrative procedures. On the other hand, a context-oriented administrative logic places greater emphasis on practical experience, relational networks, and adaptive responses to situational contingencies.

The coexistence of these two institutional logics creates a heterogeneous governance environment where AI technologies seldom follow a linear trajectory from system design to practical implementation. Instead, they undergo a process of technological refraction, whereby AI-generated outputs are interpreted, modified, and reconfigured through everyday administrative practices and informal institutional rules. In this study, technological refraction refers to the process through which AI-generated outputs are selectively interpreted, modified, and reshaped by administrative practices and informal institutional rules before being translated into administrative decisions.

Accordingly, the localization of AI should not be understood merely as a process of technological adaptation. Rather, it emerges from the continuous interaction between administrative discretion and situated action within a hybrid institutional structure. This mechanism of technological refraction explains why the same AI system may produce substantially different patterns of operation in practice from those originally envisaged at the design stage.

3. RESEARCH SCOPE AND RESEARCH DESIGN

3.1. Research Design: An Embedded Multi-Level Case Study

To examine how AI is implemented, adapted, and reconfigured in public administration, this study adopts an embedded multi-level case study design.

Unlike conventional multiple-case designs that treat individual cases as independent units of analysis, this approach conceptualizes the AI-enabled Decision Support System (DSS) as a socio-technical system operating across an embedded implementation chain, where administrative decisions and human–AI interactions are continuously shaped by dynamics across multiple institutional levels.

The study is situated within Vietnam's recent administrative reform, which reorganized the local government system into a two-tier structure (Province–Commune) following the abolition of the intermediate district level as part of the country's recent administrative restructuring. This institutional flattening has not only redistributed administrative authority but has also fundamentally restructured the flow of administrative data, placing AI-enabled DSS in a direct operational relationship between provincial-level system design and commune-level implementation.

The elimination of the district level effectively removed an institutional "buffer layer" that had previously absorbed implementation pressures by coordinating administrative procedures, correcting technical inconsistencies, and resolving atypical cases. As algorithmic directives embedded in digitally standardized operating procedures (digital SOPs) are now transmitted directly from the provincial level to commune-level administrations without intermediary mediation, tensions between the rigid standardization embedded in AI systems and the heterogeneous realities of local governance become significantly intensified. Under these conditions, situated actions and informal institutional practices emerging at the commune level should not be regarded as deviations from hierarchical authority but rather as endogenous organizational mechanisms that sustain the continuity of public service delivery.

Against this background, the research design consists of two analytically interdependent levels, as illustrated in Figure 1.

Embedded Unit 1: Provincial Level

This embedded unit represents the macro-governance layer of the two-tier administrative system, where AI-enabled DSS are designed, configured, and coordinated.

The units of analysis include:

AI system architecture and algorithmic classification logic;

Digital Standard Operating Procedures (SOPs) and decision-making rules;

Mechanisms for allocating decision-making authority between human actors and AI systems;

Coordination and transmission strategies for integrated administrative data to commune-level governments.

This level reflects the logic of centralized governance-by-design within a flattened administrative structure.

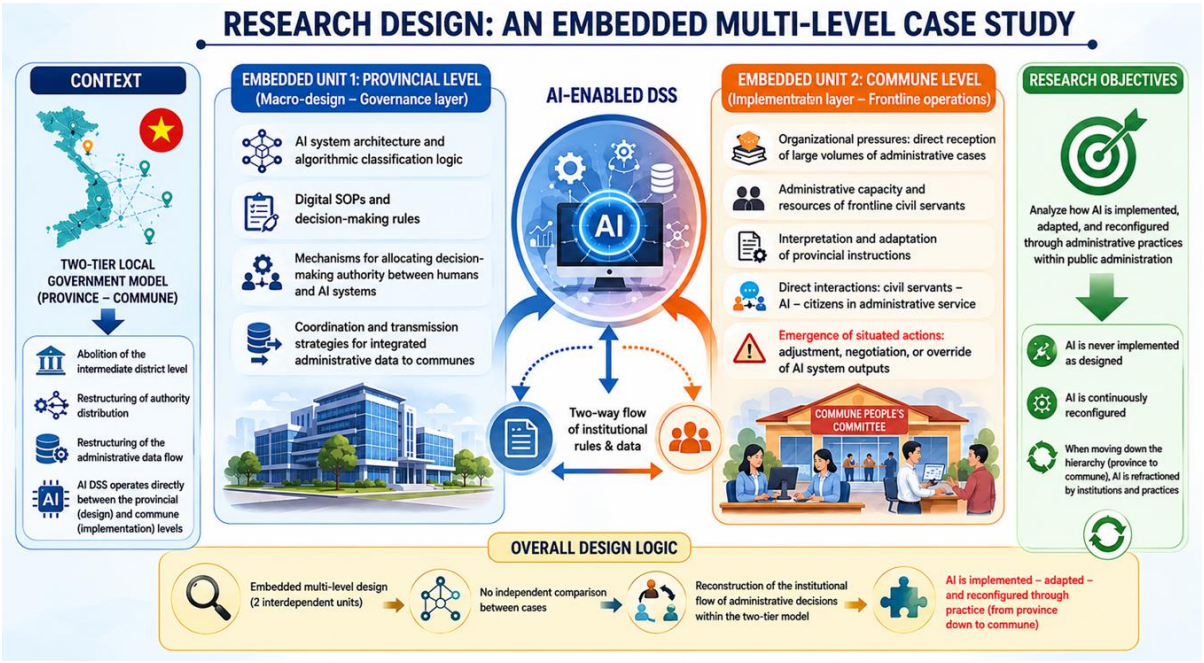

Figure 1. Embedded two-level research design illustrating the interdependent relationship between provincial-level AI system design and commune-level implementation.

Embedded Unit 2: Commune Level

This embedded unit represents the implementation layer of the two-tier administrative system, where AI systems are enacted within everyday administrative practice.

The units of analysis include:

Organizational pressures associated with substantially increased administrative workloads;

Administrative capacity and resource constraints of frontline civil servants;

Local interpretation and contextual adaptation of policy guidance issued by provincial authorities;

Direct interactions among civil servants, AI systems, and citizens during administrative service delivery.

Particular attention is given to this level because it constitutes the primary setting in which situated actions emerge, allowing frontline civil servants to adjust, negotiate with, or override AI-generated recommendations under practical implementation pressures.

Overall, these two embedded units form an integrated analytical structure. Rather than comparing them as independent cases, the research reconstructs the institutional flow of administrative decision-making within Vietnam's two-tier governance model, demonstrating how AI is continuously reconfigured as it moves from the system-design level to the implementation level.

3.2. Units of Analysis and Control of the Implementation Chain

Within Vietnam's two-tier local government system, the central methodological challenge is to identify the mechanisms underlying AI adaptation at the grassroots level. Specifically, the study seeks to determine whether situated actions and algorithm overrides performed by commune-level civil servants primarily originate from the design characteristics of provincial AI systems or from localized implementation pressures following the removal of the intermediary district level.

To address this issue, the study identifies three embedded units of analysis, corresponding to the operational structure of the administrative implementation chain, as illustrated in Figure 2.

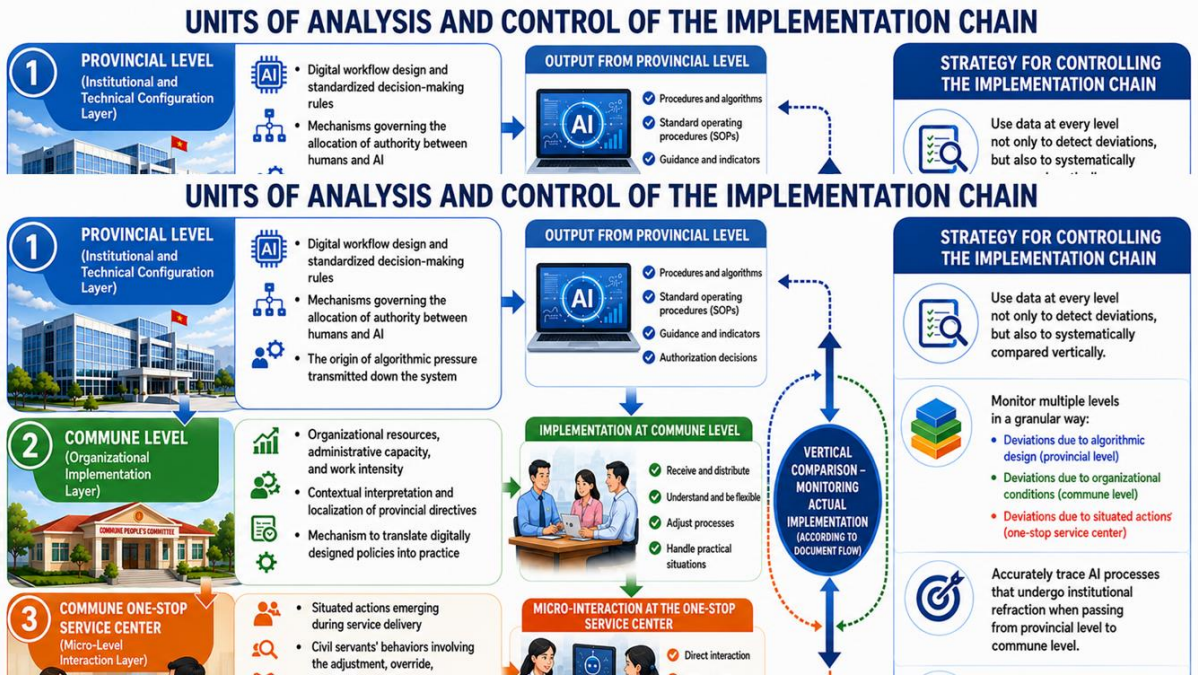

Figure 2. Three Embedded Layers of Units of Analysis within the Operational Structure of the Governance Implementation Chain

(1) Provincial Level: Institutional and Technical Configuration Layer

The units of analysis include:

- AI-enabled DSS architecture and algorithmic classification logic;
- Digital workflow design and standardized decision-making rules;
- Mechanisms governing the allocation of decision-making authority between human actors and AI systems.

This layer represents the institutional origin of the algorithmic pressures transmitted throughout the governance system.

(2) Commune Level: Organizational Implementation Layer

The units of analysis include:

- Administrative workload and implementation targets at the grassroots level;
- Organizational resources, administrative capacity, and work intensity of frontline officials;
- Local interpretation and contextual adaptation of provincial policy directives.

This layer captures the process through which digitally designed policies are translated into everyday administrative practice.

(3) Commune One-Stop Service Center: Micro-Level Interaction Layer

The units of analysis include:

- Direct interactions among frontline civil servants, AI systems, and citizens;
- Situated actions emerging during administrative service delivery;
- Civil servants' practices of adjusting, overriding, or disregarding AI-generated recommendations;
- Informal strategies for handling exceptional or non-standard administrative cases.

This layer provides the clearest empirical setting in which tensions between algorithmic logic and contextual administrative logic become visible.

Strategy for Controlling the Implementation Chain

To ensure causal traceability across the embedded governance chain, the study employs a governance chain comparison strategy.

Rather than interpreting evidence collected at each analytical level independently, empirical data are systematically compared vertically across three interconnected layers: the design of AI systems at the provincial level, organizational implementation at the commune level, and micro-level administrative practices within commune one-stop service centers.

This analytical strategy makes it possible to control for multi-layer institutional confounding, while distinguishing among deviations arising from algorithmic design, organizational conditions, and situated actions undertaken by frontline civil servants.

Consequently, the study is able to trace how AI systems undergo institutional refraction as they move from provincial-level system design to commune-level implementation within Vietnam's contemporary two-tier administrative structure.

4. RESEARCH METHODOLOGY

4.1. Overall Research Design

This study adopted a qualitative research design grounded in an interpretivist methodological perspective, in which qualitative inquiry served as the primary research approach. Rather than treating the AI-based Decision Support System (AI DSS) as a fixed technological artifact, the study conceptualized it as a socio-technical system that was continuously constructed, interpreted, and reconfigured through administrative practices.

The research was organized as an embedded multilevel case study, reflecting the institutional configuration of Vietnam's two-tier local governance system consisting of the Provincial and Commune levels. Within this framework, the two administrative levels were not regarded as isolated organizational units but rather as interconnected components of an integrated governance implementation chain, through which data, decisions, and human–AI interactions continuously flowed from the system design stage to frontline implementation.

The research design was intended to trace how algorithmic decisions configured at the Provincial level were subsequently interpreted, adapted, and reconfigured through administrative practices at the Commune level, where situated actions emerged during actual service delivery.

4.2. Field Access Strategy and Research Ethics

Field access was obtained through local digital transformation coordinators and Commune One-Stop Service Centers, enabling direct observation of the AI DSS within real-world administrative settings.

Given the sensitivity of administrative records and human interactions with AI-supported decision-making systems, the study adhered to a three-layer ethical framework.

(1) Pseudonymization

All place names, administrative units, civil servants, and administrative cases were systematically pseudonymized using a consistent coding scheme. This approach ensured

anonymity while preserving the continuity of the implementation chain required for process tracing.

(2) Neutral Interview Language

Interview questions were deliberately phrased using neutral terminology to avoid normative or judgmental expressions such as procedural violations or incorrect administrative decisions. Instead, respondents were encouraged to describe their experiences using concepts such as exception handling, adjustments to AI recommendations, and procedural negotiation.

(3) Non-disruption Principle

Data collection was conducted alongside routine administrative activities without interfering with existing workflows or affecting the processing time of administrative services.

4.3. Data Collection and Triangulation

To enhance the credibility and trustworthiness of the findings, the study employed a data triangulation strategy that combined three complementary sources of evidence.

(1) Critical Incident Technique (CIT) Interviews

Semi-structured interviews were conducted with approximately 20–30 civil servants who routinely interacted with the AI DSS at the Commune level.

Interview protocols focused on critical incidents, defined as situations in which AI-generated recommendations conflicted with practical administrative experience or case-specific circumstances.

To minimize recall bias, each incident was reconstructed according to four analytical dimensions:

- The contextual conditions in which the incident occurred;
- The indicators suggesting that the AI recommendation was inappropriate or inconsistent;
- The civil servant's response (acceptance, modification, or override); and
- The administrative outcome following the interaction.

(2) Shadowing Observation

Direct observations were conducted in Commune One-Stop Service Centers using the shadowing technique, whereby the researcher simultaneously followed interactions among civil servants, citizens, and the AI interface during routine administrative procedures.

Observations focused on three categories of behavior:

- Compliance with AI recommendations;
- Modification or override of AI outputs; and
- Avoidance or deliberate disregard of AI-generated suggestions.

(3) System Document Analysis

Documentary evidence included:

- The Provincial AI DSS architecture;
- Digitized Standard Operating Procedures (SOPs);
- Administrative guidelines; and
- Official performance evaluation criteria.

The objective of the document analysis was to identify discrepancies between the AI system as formally designed and the AI system as actually implemented in administrative practice.

The combination of shadowing and the Critical Incident Technique (CIT) was selected because both methods are particularly suitable for investigating micro-level human–AI interaction. Shadowing captured real-time situated behavior within natural administrative settings, whereas CIT enabled the detailed reconstruction of critical situations in which AI recommendations conflicted with administrative judgment. Together, these complementary methods provided empirical insights into both observable behavior and the underlying decision-making logic associated with exceptional cases.

4.4. Data Analysis

The collected data were analyzed using three complementary analytical techniques.

(1) Thematic Analysis

Qualitative data were coded following the three-stage coding procedure of open coding, axial coding, and selective coding.

The coding process aimed to identify:

- Patterns of situated actions;
- Strategies used to override AI recommendations; and
- Institutional constraints shaping human–AI interaction.

(2) Process Tracing

Process tracing was employed to reconstruct multilevel causal mechanisms spanning from the Provincial level to the Commune level, with the objective of identifying the origins of algorithmic adjustments during implementation.

To strengthen causal inference, two established process-tracing tests were applied:

- the hoop test; and
- the smoking gun test.

The reconstructed causal pathway is summarized as follows:

Provincial AI configuration→Two-tier institutional conditions→Situated actions at the Commune level

(3) Multilevel Institutional Contrastive Analysis

Rather than comparing independent cases, the study conducted comparisons across different implementation contexts within the same embedded implementation chain-for example, highly urbanized communes and rural or mountainous communes.

The purpose of this analysis was to examine both the stability and variation of situated-action patterns under different institutional conditions, thereby providing empirical evidence for the mechanism of AI institutional refraction within Vietnam's two-tier local governance system.

5. ANALYTICAL FRAMEWORK

5.1. A Typology of Human–AI Interaction

The analytical framework developed in this study conceptualizes human–AI interaction through a two-dimensional analytical matrix that captures the nature of hybrid decision-making within Vietnam's two-tier local governance system (Provincial–Commune).

Dimension 1: Motivational Orientation

The first dimension distinguishes between two underlying behavioral orientations:

- Public Value Orientation, in which civil servants prioritize administrative effectiveness, contextual appropriateness, and the quality of public service delivery.
- Risk-Avoidance Orientation, in which civil servants prioritize legal certainty, the minimization of personal accountability, and procedural compliance.

Dimension 2: Algorithmic Practice

The second dimension differentiates between two forms of interaction with AI-generated recommendations:

- Algorithmic Compliance, whereby AI outputs are accepted and directly implemented.
- Algorithm Override, whereby civil servants modify, correct, or deliberately disregard AI-generated recommendations.

The intersection of these two dimensions generates a four-quadrant analytical typology of human–AI interaction, as presented in Table 2.

Table 2. Typology of Hybrid Decision-Making Based on a Two-Dimensional Analytical Matrix.

Motivational Orientation	Algorithmic Compliance	Algorithm Override
Public Value Orientation	(1) Routine Hybrid Practice	(2) Constructive Deviation

Risk-Avoidance Orientation	(3) Passive Algorithmic Compliance	(4) Defensive Override

(1) Routine Hybrid Practice

This behavioral pattern emerges at the intersection of Algorithmic Compliance and Public Value Orientation. Civil servants routinely integrate AI-generated recommendations into administrative workflows, gradually developing stable hybrid work routines that enhance processing efficiency while reducing cognitive workload during service delivery.

(2) Constructive Deviation

Constructive deviation occurs when civil servants override AI recommendations in pursuit of public value. Such interventions typically arise when algorithmic outputs fail to adequately capture contextual conditions or exceptional administrative circumstances. Rather than representing mere non-compliance, these adjustments seek to preserve substantive administrative quality while protecting citizens' legitimate interests.

(3) Passive Algorithmic Compliance

This behavioral pattern reflects the combination of Algorithmic Compliance and Risk-Avoidance Orientation. Civil servants accept AI-generated recommendations without substantive evaluation as a strategy for minimizing personal accountability. By relying on the perceived procedural legitimacy of AI-supported decisions, they reduce disciplinary risks even when algorithmic outputs may not represent the most appropriate solution in practice.

(4) Defensive Override

Defensive override occurs at the intersection of Algorithm Override and Risk-Avoidance Orientation. Civil servants intentionally modify or reject AI-generated recommendations in situations involving heightened legal uncertainty or accountability concerns, thereby safeguarding their professional responsibilities and institutional position.

5.2. The Emergence of Informal Rules Governing AI Use

The study argues that rules governing AI use in administrative practice do not originate solely from formal system design. Instead, they gradually emerge through the accumulation of micro-level behavioral adaptations at the Commune level.

This process follows a sequential mechanism of organizational learning:

Situated Actions → Peer Learning → Informal Practice Routines

where:

- Situated Actions refer to civil servants' immediate responses to conflicts between AI recommendations and practical administrative circumstances.
- Peer Learning describes the diffusion of effective coping strategies through everyday interactions among frontline civil servants.
- Informal Practice Routines refer to the gradual stabilization of these behaviors into organizationally shared AI usage routines.

These emergent routines constitute an informal layer of micro-governance operating alongside formal institutional arrangements while remaining largely absent from official administrative regulations.

5.3. AI Localization and Reconfiguration in Public Administration

The study argues that AI localization within Vietnam's two-tier governance system should not be interpreted as evidence of implementation failure. Instead, it represents a process of institutional co-evolution between technological systems and administrative institutions.

This mechanism operates through a three-stage feedback loop, illustrated in Figure 3.

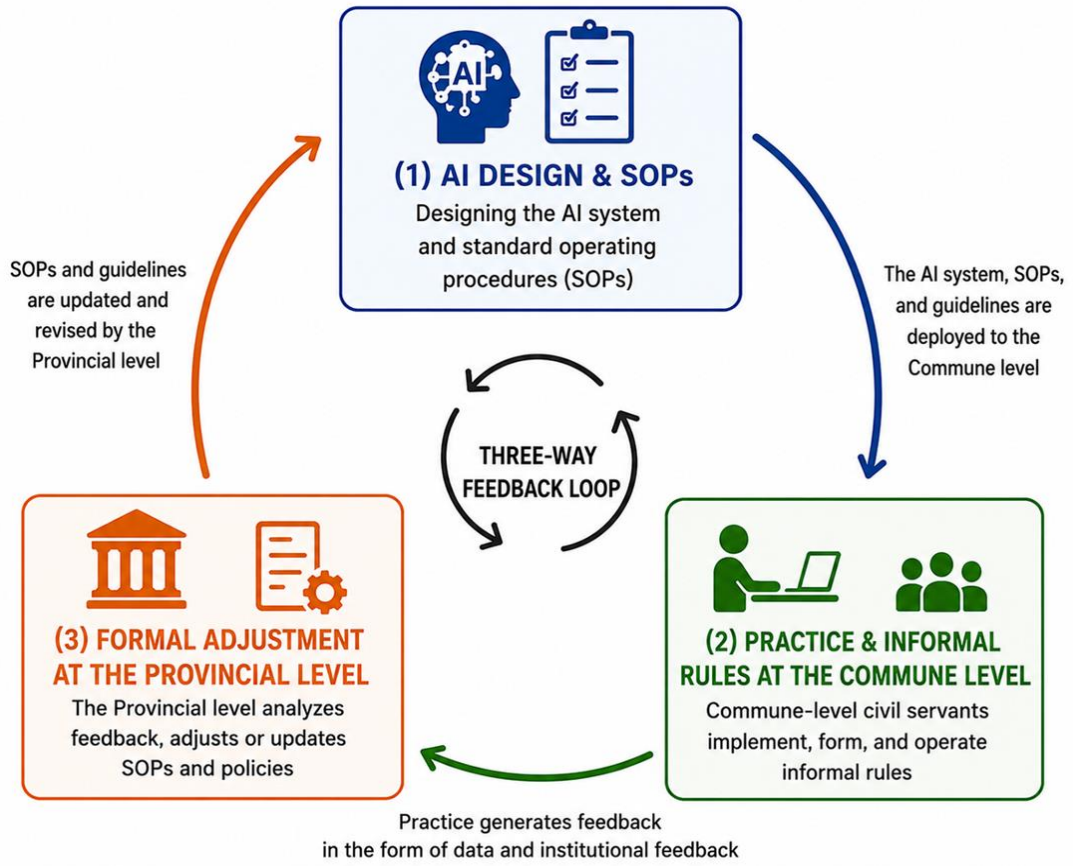

Figure 3. Three-Stage Feedback Loop of AI Localization and Reconfiguration in Public Administration

(1) Controlled Override

Civil servants at the Commune level intervene in AI-generated recommendations only within institutionally acceptable boundaries to resolve exceptional administrative situations while maintaining procedural compliance and institutional legitimacy.

(2) Institutionalization of Informal Rules

Repeated administrative practices gradually stabilize into informal organizational norms that function as an operational filtering layer through which AI-generated recommendations are interpreted before implementation.

(3) Practice-Based Feedback

Although Commune-level officials possess no formal authority to modify the AI system itself, repeated implementation practices generate two complementary forms of feedback:

- Data Feedback, whereby system logs capture recurring patterns of algorithm overrides and implementation deviations.
- Institutional Feedback, whereby Provincial authorities revise or update Standard Operating Procedures (SOPs) to incorporate practices that have demonstrated administrative effectiveness.

Consequently, AI adaptation does not occur through direct modification by frontline officials. Rather, it evolves through an indirect feedback cycle linking administrative practice, operational data, and institutional adjustment.

The proposed analytical framework demonstrates that human–AI interaction in public administration does not follow a conventional top-down implementation model. Instead, it operates through a dynamic governance structure characterized by institutional layering, continuous feedback, and socio-technical co-construction.

Within this framework, AI functions not merely as a decision-support technology but as a dynamically institutionalized socio-technical actor whose operational role is continuously reconfigured through frontline administrative practice.

6. INSTITUTIONAL CONTEXT

6.1. The Interplay Between Formal and Informal Institutions

This study is situated within the institutional context of Vietnam's public administration system, where governance operates through the coexistence of two distinct institutional logics. The formal institutional logic is grounded in legal regulations, hierarchical administrative authority, Standard Operating Procedures (SOPs), and vertically structured accountability mechanisms. In contrast, the informal institutional logic consists of tacit working rules,

experiential knowledge accumulated through administrative practice, and informal coordination networks among civil servants.

The analytical focus of this study is not merely the coexistence of these two institutional logics, but rather the asymmetrical interaction through which they shape administrative practice.

Within the implementation of AI DSS, this institutional asymmetry is further amplified by the introduction of a third layer of governance logic-algorithmic logic. Although AI systems are designed to standardize administrative decision-making, they must ultimately operate within heterogeneous institutional environments characterized by varying organizational practices and contextual constraints. AI should therefore be understood not as a neutral technological instrument, but as an institutionally embedded socio-technical actor whose operation is continuously mediated by formal and informal institutions.

6.2. Structured Cognitive Conflict and Situational Prioritization

At the frontline level of public administration, civil servants do not make decisions according to a single evaluative criterion. Instead, they simultaneously navigate four competing frames of reference:

- Algorithmic outputs: AI-generated classifications and recommendations for administrative cases.
- Legal compliance: Conformity with statutory regulations and the minimization of legal liability.
- Administrative directives from higher authorities: Implementation targets, Key Performance
- Indicators (KPIs), and political–administrative priorities established by superior administrative authorities.
- Citizen-specific circumstances: The diversity and non-standardized nature of real-world administrative situations.

The simultaneous presence of these competing considerations generates structured cognitive conflict. However, rather than resulting in administrative paralysis, civil servants develop a practical coordination mechanism referred to in this study as situational prioritization. Within this mechanism, competing institutional logics are not treated as equally significant but are dynamically activated according to contextual conditions and perceived institutional risks.

In general, administrative priorities are organized as follows:

- Highest Priority: Legal certainty and the avoidance of disciplinary sanctions.
- Intermediate Priority: Administrative directives issued by higher authorities.

- Adaptive Priority: AI-generated recommendations and citizens' situational needs.

A particularly important factor shaping this prioritization process is what this study conceptualizes as algorithmic anxiety. Because Provincial AI DSS platforms automatically record every user interaction and system override, frontline civil servants remain acutely aware that each modification of an AI recommendation leaves a permanent digital trace that may subsequently be scrutinized during official audits, regulatory inspections, or performance evaluations.

Consequently, concerns about algorithmically documented accountability frequently compete with the practical necessity of resolving citizens' administrative requests. Before overriding AI recommendations, civil servants therefore often seek tacit consensus through informal coordination networks in order to mitigate perceived institutional risks.

Accordingly, human–AI interaction should not be interpreted as the outcome of unconstrained individual choice. Rather, it represents the product of a dynamic prioritization mechanism through which competing institutional pressures are continuously negotiated. Decisions either to comply with or to override AI recommendations therefore constitute adaptive strategies that preserve both the practical feasibility and the institutional legitimacy of administrative decision-making under multilayered governance constraints.

6.3. The Dual Nature of Informal Administrative Practices

This study does not conceptualize informal administrative practices as mere deviations from the formal institutional system. Instead, they are understood as endogenous adaptive mechanisms that emerge in response to institutional imperfections. Nevertheless, these practices possess a fundamentally dual character, simultaneously contributing to organizational stability while generating new institutional risks.

(1) Functional Role: Stabilizing Administrative Operations

Because AI DSS cannot fully accommodate the diversity and complexity of real administrative situations, informal practices perform several important adaptive functions. They reduce friction between algorithmic logic and contextual realities, maintain service continuity in exceptional cases, and bridge the gap between standardized procedures and citizens' practical needs.

At this level, informal practices function as a mechanism of micro-level institutional adjustment, enabling the administrative system to sustain operational continuity despite technological and organizational constraints.

(2) Institutional Risks: Erosion of Accountability and Normative Uncertainty

At the same time, the study recognizes several potential institutional risks associated with informal administrative practices.

- Erosion of accountability: Reliance on tacit rules may undermine accountability because decisions based on informal practices often lack formal documentation, making administrative responsibility difficult to trace.
- Normative uncertainty: Identical AI systems may generate divergent implementation outcomes across local jurisdictions owing to variations in locally developed informal routines.
- Fragmentation of procedural standardization: Informal practices may weaken the consistency and predictability of digitally enabled public services by fragmenting the standardized implementation of administrative procedures.

Accordingly, informal administrative practices should not be regarded as substitutes for formal institutions. Rather, they represent an adaptive balancing mechanism through which public organizations negotiate the inherent trade-off between operational effectiveness and institutional consistency.

Taken together, the institutional context can be conceptualized as a three-layer governance structure comprising formal institutions, informal institutions, and algorithmic logic. These three institutional layers interact through three interrelated mechanisms: structured cognitive conflict, situational prioritization, and dual adaptation.

This conceptualization provides the institutional foundation for explaining why AI in public administration functions not merely as a technology for policy implementation, but as an institutionally embedded socio-technical actor whose operation is continuously shaped, constrained, and reconfigured through multilevel institutional dynamics.

7. POLICY IMPLICATIONS

7.1. A Conditional Safe-Harbor Mechanism for Algorithm Overrides

To reduce passive automation in interactions between frontline civil servants and AI DSS, this study proposes a conditional safe-harbor mechanism for algorithm overrides. The proposed mechanism is conceptually aligned with Vietnam's Decree No. 73/2023/ND-CP, which encourages and protects public officials who undertake innovative actions for the public interest.

The objective of this mechanism is not to exempt civil servants from accountability. Rather, it seeks to shift accountability from mechanical compliance with AI-generated outputs toward context-sensitive administrative judgment. Algorithm overrides should therefore qualify for

institutional protection only when all three of the following conditions are simultaneously satisfied.

(1) Contextual Condition

An override is justified only when it occurs in exceptional situations that were not anticipated by the Provincial AI DSS because of incomplete algorithmic configuration or the absence of locally specific data. In such circumstances, strict adherence to AI recommendations would unnecessarily delay administrative procedures or compromise citizens' legitimate rights and interests.

(2) Motivational Condition

Civil servants must demonstrate that the override was undertaken solely to advance public value, such as reducing unnecessary waiting times, ensuring equitable treatment for vulnerable groups, or improving service effectiveness. The override must not involve personal gain, abuse of authority, or policy manipulation, thereby remaining consistent with the principles established under Decree No. 73/2023/ND-CP.

(3) Procedural Traceability Condition

Every override must be performed transparently through a dedicated "Contextual Justification" function embedded within the AI DSS interface. Civil servants are required to record a concise explanation in the system log, thereby creating an auditable digital trace that supports subsequent review, institutional accountability, and the continuous refinement of algorithmic models, rather than encouraging undocumented adjustments.

7.2. Embedding a "Justified Override" Function into AI System Design

Rather than treating frontline interventions as system failures, Provincial technology developers should adopt an open-system architecture that explicitly accommodates context-sensitive administrative judgment.

Specifically, AI DSS interfaces should incorporate a dedicated "Justified Override" function. When activated, this function would temporarily authorize the human decision required to complete the administrative procedure while simultaneously storing the associated contextual information in a separate repository. Such a mechanism would ensure uninterrupted public service delivery at the frontline while generating high-quality empirical data that Provincial AI engineers could subsequently use to retrain and refine algorithmic models in future system updates.

Accordingly, algorithm overrides should be viewed not as implementation errors but as valuable organizational learning opportunities that strengthen the long-term adaptive capacity of AI-enabled public administration.

7.3. Reframing AI Governance: From System-Centered to Practice-Based Governance

This study proposes a fundamental shift in the philosophy of AI governance within the public sector-from system-centered governance, which prioritizes algorithm optimization and procedural standardization, to practice-based governance, which emphasizes how AI systems actually function within everyday administrative settings.

Within this perspective, AI DSS should no longer be regarded merely as an automation technology. Instead, it should be understood as an institutional interaction space in which human judgment, algorithmic reasoning, and administrative procedures continuously co-evolve.

Consequently, diverse streams of implementation data become strategic governance resources, including:

- Algorithm override logs;
- Recurring patterns of exception handling; and
- Systematic implementation deviations identified at the Commune level.

Rather than being discarded as operational anomalies, these data should be systematically aggregated, analyzed, and incorporated into iterative cycles of AI system refinement and institutional learning.

7.4. Implications for National Digital Government and AI Policy

The analytical framework developed in this study provides practical implications for three major national policy initiatives in Vietnam.

(1) National Digital Transformation Program and Project 06

The findings support the establishment of a practice-based feedback loop, whereby algorithm override logs and behavioral implementation data are automatically consolidated and incorporated into periodic updates of AI systems and administrative procedures.

(2) Public Administration Reform

Administrative reform initiatives should incorporate dual-approval mechanisms within electronic Standard Operating Procedures (e-SOPs), explicitly design structured pathways for handling exceptional cases, and move beyond the assumption that administrative processes can be fully automated under all institutional conditions.

(3) National AI Strategy

The study advocates a transition from an AI substitution paradigm, in which AI is expected to replace human decision-makers, toward an AI co-creation paradigm, in which AI and civil servants jointly shape administrative practice.

Under this perspective, AI functions primarily as a decision-support capability whose operation is continuously refined through institutional experience, organizational learning, and feedback generated from frontline administrative practice.

Overall, the policy implications presented in this study extend beyond technical recommendations for AI system design. They advocate a broader transformation in public-sector AI governance by recognizing that effective AI implementation depends not only on algorithmic performance but also on institutional adaptability, context-sensitive human judgment, and continuous organizational learning. This perspective positions AI as an evolving component of administrative governance rather than a static technological solution, thereby providing a foundation for more resilient, accountable, and human-centered digital government systems.

8. CONCLUSION

8.1. Principal Findings and Theoretical Contributions

This study examined how AI DSS are implemented, adapted, and reconfigured within Vietnam's two-tier local government system comprising the Provincial and Commune levels. The analysis focused on the relationship between algorithmic design at the macro-institutional level and administrative practice at the frontline level. The findings contribute to the literature in four principal respects.

First, the study reaffirms and extends the socio-technical understanding of AI in public administration. AI DSS are not autonomous technological systems; rather, their operation is continuously mediated by institutional arrangements and context-specific administrative practices. In Vietnam, the ongoing transition toward a streamlined two-tier local government structure, together with the rapid implementation of the National Digital Transformation Program (Project 06), has intensified the interaction-and the resulting institutional friction-between algorithmic logic and administrative reality.

Second, the study elucidates the adaptive behavioral strategies developed by frontline civil servants. Rather than simply accepting or rejecting AI-generated recommendations, civil servants employ a spectrum of adaptive behaviors to reconcile competing demands arising from legal compliance, administrative directives, citizens' practical circumstances, and

algorithmic recommendations. These adaptive responses constitute a hybrid decision-making space within which human actors function as the final regulatory layer governing AI-assisted administrative decisions.

Third, the findings reveal the emergence of an informal regulatory layer as an extension of formal administrative governance. Repeated situated actions at the Commune level do not remain isolated responses to exceptional cases; instead, they gradually evolve into informal AI usage routines that stabilize administrative practice. Within Vietnam's institutional context, these routines function as an adaptive mechanism that reduces operational friction, enabling public organizations to maintain service continuity despite imperfect data quality and increasing administrative workloads.

Fourth, the study reconceptualizes technological deviation as a process of institutional reconfiguration. The discrepancy between AI system design at the Provincial level and implementation practices at the Commune level should not be interpreted merely as a technical defect or procedural non-compliance, but rather as an institutional adaptation process through which technology is continuously reshaped to accommodate evolving administrative structures and implementation contexts.

Overall, this study advances theories of digital governance by demonstrating that the effectiveness of AI depends not solely on algorithmic performance, but more fundamentally on the dynamic interaction between formal institutions, informal administrative practices, and context-specific implementation environments.

8.2. Research Limitations

Despite its theoretical contributions, this study has several limitations.

First, the empirical evidence was primarily derived from qualitative data collected in Commune-level administrative units operating under relatively high levels of urbanization and digital transformation. Consequently, the transferability of the findings to jurisdictions with more limited institutional capacity or digital infrastructure - such as mountainous or island regions - should be approached with appropriate caution.

Second, the technological scope of the study is limited to AI DSS designed for structured administrative tasks, including case classification, decision support, and administrative workflow management. Emerging forms of AI, particularly generative AI applied to public administration, fall beyond the scope of the present analysis.

8.3. Directions for Future Research

Building upon these limitations, the study identifies two promising directions for future research.

First, future studies should undertake comparative investigations across diverse administrative contexts, including urban, rural, and mountainous jurisdictions. Such comparative analyses would provide deeper insights into how institutional conditions, digital infrastructure, and administrative capacity shape the emergence of informal AI usage routines.

Second, future research should examine the growing role of generative AI in public governance. Particular attention should be devoted to the interactions between civil servants and AI systems capable of generating policy documents, administrative reports, and decision-support content. In such contexts, the boundaries between technical assistance, administrative discretion, and legal accountability are likely to become increasingly fluid and contested, presenting new theoretical and governance challenges.

8.4. Concluding Remarks

This study has examined a micro-level yet fundamentally important dimension of Vietnam's national digital transformation: the interaction between frontline civil servants and AI within the country's evolving two-tier local government system. By conceptualizing AI DSS as operating within a dynamic space of interaction between administrative discretion and situated action, the study demonstrates that AI does not function as an autonomous technological artifact or as a one-way instrument for enforcing administrative decisions. Rather, its operation is continuously shaped through processes of institutional refraction and localization, whereby frontline administrative practices and informal organizational routines adapt algorithmic outputs to the realities of public service delivery.

Within Vietnam's hybrid administrative system, these informal practices perform a dual function. On the one hand, they act as adaptive institutional buffers that enable AI-enabled public administration to respond flexibly to complex and context-specific implementation challenges. On the other hand, they may weaken transparency and accountability if they evolve without appropriate governance mechanisms.

Accordingly, the central challenge of AI governance in the public sector is not to pursue an idealized algorithm capable of eliminating human discretion. Instead, it is to design governance arrangements that recognize, protect, and appropriately constrain constructive administrative discretion within a transparent framework of digital accountability. Such an approach enables AI and frontline civil servants to function as complementary actors in

public decision-making, thereby fostering a form of digital government that is simultaneously standardized, adaptive, accountable, and responsive to citizens' needs.

Ultimately, this study demonstrates that the long-term success of AI-enabled public administration depends not on replacing human judgment, but on establishing an institutional environment in which human expertise and algorithmic intelligence continuously co-evolve through practice-based governance. This perspective provides a foundation for developing a more resilient, trustworthy, and human-centered model of digital government in Vietnam while offering broader theoretical insights into AI governance in emerging digital states.

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