

DIGITAL TRANSFORMATION AS A POLICY MECHANISM: A FRAMEWORK FOR VILLAGE HR DEVELOPMENT

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INFO ARTIKEL	ABSTRAK
<p><i>Sejarah Artikel: (Diisi Editor)</i> Diterima: 15 Maret 2026 Direvisi: 25 Maret 2026 Disetujui: 25 Mei 2026 Tersedia Daring: 06 Juni 2026</p> <hr/> <p>Kata Kunci: <i>Transformasi Digital; Pengembangan Sumber Daya Manusia Desa; Mekanisme Kebijakan.</i></p>	<p>Percepatan transformasi digital dalam tata kelola desa di Indonesia selama ini lebih sering diperlakukan sebagai alat teknis untuk efisiensi administratif, sehingga sering mengabaikan potensinya dalam membentuk pengembangan sumber daya manusia (SDM) secara sistematis. Studi konseptual-analitis ini mengatasi kesenjangan tersebut dengan memposisikan kembali transformasi digital sebagai mekanisme kebijakan aktif yang memandu perumusan, implementasi, dan evaluasi kebijakan SDM tingkat desa. Melalui tinjauan literatur sistematis, analisis dokumen kebijakan, dan sintesis teoritis kritis, penelitian ini mengembangkan kerangka konseptual yang terintegrasi. Kebaruan kerangka ini terletak pada integrasi eksplisit sistem digital ke dalam siklus kebijakan SDM, melampaui pendekatan konvensional yang memandang teknologi sekadar sebagai masukan eksternal. Model yang dihasilkan menempatkan pemerintah desa sebagai pengarah kebijakan strategis dan menghubungkan mekanisme digital seperti siklus keputusan berbasis data dan pemantauan adaptif dengan kapasitas SDM inti, meliputi kompetensi digital, adaptabilitas kebijakan, dan kepemimpinan kolaboratif. Dengan menggeser fokus dari adopsi teknologi instrumental menuju integrasi kebijakan berbasis mekanisme, kerangka ini menjembatani kesenjangan teoretis antara digitalisasi dan pembangunan kapasitas pedesaan. Secara praktis, kerangka ini memberikan arsitektur yang jelas dan aplikatif bagi pembuat kebijakan dan pemimpin desa untuk menyelaraskan agenda digital nasional dengan pengembangan SDM lokal, yang pada akhirnya mendorong tata kelola pedesaan yang berkelanjutan, adaptif, dan inklusif di era digital.</p>

ABSTRACT	
<p>Keywords: <i>Digital Transformation; Village Human Resource Development; Policy Mechanism.</i></p>	<p><i>The acceleration of digital transformation in village governance in Indonesia has often been treated as a technical tool for administrative efficiency, often overlooking its potential to systematically shape human resource (HR) development. This conceptual-analytical study addresses this gap by repositioning digital transformation as an active policy mechanism that drives the formulation, implementation, and evaluation of village-level HR policies. Through systematic literature analysis, policy documents, and critical theoretical synthesis, this study develops an integrated conceptual framework. This novelty lies in the explicit integration of digital systems into the HR policy cycle, going beyond conventional approaches that view technology solely as an external input. The resulting model positions village governments as policy strategy drivers and connects digital mechanisms such as data-driven decision cycles and adaptive monitoring with core HR capacities, including digital competency, adaptability policies, and collaborative leadership. By shifting the focus from technology implementation to mechanism-based</i></p>

instrumental integration policies, this framework aims to bridge the theoretical gap between digitalization and rural capacity building. In practice, this framework provides a clear and applicable architecture for policymakers and village leaders to align the national digital agenda with local human resource development, ultimately promoting sustainable, adaptive, and inclusive rural governance in the digital era.

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1. Introduction

The acceleration of digital transformation in public governance has become a strategic imperative for Indonesia to enhance service quality and administrative efficiency, particularly at the village level. However, this technological shift presents a fundamental challenge that cannot be overlooked: the availability and quality of human resources (HR) in rural areas. HR development in villages is not merely a technical support mechanism for digital implementation but an essential foundation that determines the success or failure of the entire digital transformation agenda (Irfan & Anirwan, 2024; Setyasih, 2022). The urgency of village HR development becomes increasingly critical given the persistent digital divide between central and local governments, as well as the complexity of adopting information and communication technologies in rural contexts (Megawati et al., 2022; Sarjito, 2023).

The Indonesian government has demonstrated strong commitment to digital transformation through various policy instruments, including Presidential Instruction No. 3 of 2003 on National E-Government Policy and Presidential Regulation No. 95 of 2018 on Electronic-Based Government Systems (SPBE) (Dayini, 2024; Irfan & Anirwan, 2024). The "Digital Village" program has emerged as a concrete initiative, with 1,904 villages benefiting from this intervention (Setyasih, 2022). Research indicates that digitalization positively correlates with public administration performance and facilitates more responsive policymaking and citizen-government interaction (Aldien et al., 2024; Irfan & Anirwan, 2024). Nevertheless, the implementation of these initiatives remains predominantly focused on technical instruments such as e-government platforms and Village Information Systems (SID), treating digitalization primarily as an administrative tool rather than an integrated policy mechanism (Nadaa & Priyanti, 2023; Permana et al., 2023).

A critical gap persists in both existing literature and policy practice: the conceptual and operational separation between digital transformation agendas and HR development policies in village governance. Internationally, studies on rural digitalization predominantly examine efficiency gains in service delivery and administrative processes (e.g., Monda et al (2023); Wang et al (2026)), while research on rural capacity building emphasizes community empowerment and bureaucratic training through conventional approaches (Dorrío et al., 2024). These two streams rarely converge, resulting in policy

frameworks that treat technology infrastructure and human capacity as parallel rather than mutually reinforcing dimensions. Consequently, investments in digital infrastructure often yield suboptimal outcomes due to insufficient attention to the institutional and human factors necessary for sustainable adoption. Explicitly, the theoretical gap lies in the absence of a conceptual model that repositions digital transformation from an external technical input to an endogenous policy mechanism that actively shapes the entire HR development cycle.

Furthermore, the limited integration of digital and HR policies manifests in several practical challenges. Low digital literacy among village officials and communities constrains the effective utilization of technological systems (Irawaty et al., 2023; Rijal et al., 2023). Fragmented coordination among stakeholders central government, local authorities, private sector, and civil society hinders the development of coherent capacity-building strategies (Kusmiyati et al., 2023; Wismayanti, 2024). Additionally, the absence of systematic HR policies integrated with digitalization programs creates dependency on individual technical champions, threatening sustainability. These challenges underscore a critical oversight: village governments are not merely administrative implementers but strategic policy actors uniquely positioned to bridge national digital mandates with local human capital realities. Their contextual knowledge, regulatory authority, and proximity to communities enable them to orchestrate adaptive learning loops, align digital tools with competency development, and foster institutional resilience. Therefore, a conceptual framework is urgently needed to reposition digital transformation as a policy mechanism that empowers village governments to drive sustainable HR development.

This study directly addresses these identified gaps by developing a conceptual policy framework that explicitly integrates the strategic role of village government, digital transformation, and HR development within a unified public policy perspective. The primary research gap addressed is the lack of a theoretically grounded model that conceptualizes digital transformation as an active policy mechanism rather than a passive technical instrument. The study's core objective is to articulate an integrated model that maps the interrelationships among policy actors, digital mechanisms, HR capacity dimensions, and governance outcomes in the village context. Theoretically, this research contributes by bridging the persistent divide between digital governance and rural capacity-building discourses, offering a novel mechanism-based perspective that redefines how technology interacts with institutional learning. Practically, it provides village leaders and policymakers with a structured architecture to align digital initiatives with localized human resource strategies, thereby transforming fragmented interventions into coherent, sustainable development pathways (Irfan & Djabbari, 2024; Yunas et al., 2023).

2. Method

This study employs a qualitative conceptual-analytical approach grounded in public policy science, focusing on developing an integrated model that repositions digital transformation as an active policy mechanism in village-level human resource development. Data were drawn from two complementary streams: a systematic literature review and a policy document analysis. Literature was sourced from peer-reviewed

journals indexed in Scopus, Web of Science, and Google Scholar (2020–2026), with inclusion criteria requiring explicit focus on digital governance in rural contexts, human resource capacity building, or policy-technology institutional linkages; purely technical studies lacking governance implications and non-policy-oriented publications were excluded. Policy documents analyzed included the Indonesian Village Law, Presidential Regulation on Electronic-Based Government Systems (SPBE), relevant ministerial directives, and village-level strategic plans (RPJMDes), selected based on their direct alignment with national digital mandates and explicit provisions for human resource development. This deliberate curation ensures that the conceptual foundation rests on empirically grounded and policy-relevant scholarship rather than isolated technical or administrative reports.

The conceptual framework was synthesized through a systematic five-stage analytical procedure designed to ensure transparency and theoretical coherence. Initially, regulatory and contextual challenges were mapped to identify structural gaps between digitalization mandates and HR realities, followed by thematic and axial coding of selected literature and policy texts to extract core constructs and relational patterns. These constructs were then integrated through iterative conceptual mapping, progressively refining the linkages between village government functions, digital feedback mechanisms, and HR capacity dimensions until theoretical saturation was reached. To maintain analytical rigor and theoretical validity, the study employed methodological triangulation across academic, regulatory, and implementation sources, maintained a detailed audit trail documenting all coding decisions and framework revisions, and conducted peer debriefing with independent scholars in public policy and digital governance to challenge assumptions and verify internal logic. These procedures collectively ensure that the resulting model is not only conceptually robust but also methodologically transparent and aligned with established standards for qualitative policy research.

3. Result and Discussion

3.1 Results

3.1.1 Conceptual Framework: Repositioning Digital Transformation as Policy Mechanism

The analysis reveals that digital transformation in village governance has been predominantly conceptualized as a technical instrument focused on administrative efficiency and service delivery automation. This instrumental perspective limits the potential of digital technologies to influence broader policy processes, including formulation, implementation, and evaluation of human resource development strategies. By contrast, the conceptual framework developed in this study repositions digital transformation as an active policy mechanism that shapes institutional arrangements, decision-making pathways, and capacity-building interventions at the village level. This repositioning enables a more systemic understanding of how digital tools interact with governance structures to produce sustainable human resource outcomes. The framework explicitly acknowledges that technology alone cannot drive transformation; rather, it is the integration of digital mechanisms within policy design that generates meaningful change.

Table 1. Comparison of Instrumental vs. Mechanism-Based Perspectives on Digital Transformation

Dimension	Instrumental Perspective	Mechanism-Based Perspective
Primary Focus	Technical efficiency and automation	Policy process integration and institutional change
Role of Technology	Tool for service delivery	Catalyst for policy innovation and adaptation
Governance Implication	Administrative support function	Strategic enabler of policy coherence
HR Development Linkage	Training on specific applications	Systemic capacity building across policy cycle
Sustainability Driver	Infrastructure maintenance	Institutional learning and adaptive governance

The table above illustrates the fundamental distinctions between conventional and proposed conceptualizations of digital transformation in village policy. The mechanism-based perspective expands the analytical scope from operational tasks to strategic policy functions, emphasizing how digital systems can embed feedback loops, data-driven decision-making, and participatory governance into human resource development processes. This shift enables village governments to move beyond reactive technology adoption toward proactive policy design that anticipates evolving community needs and digital opportunities.

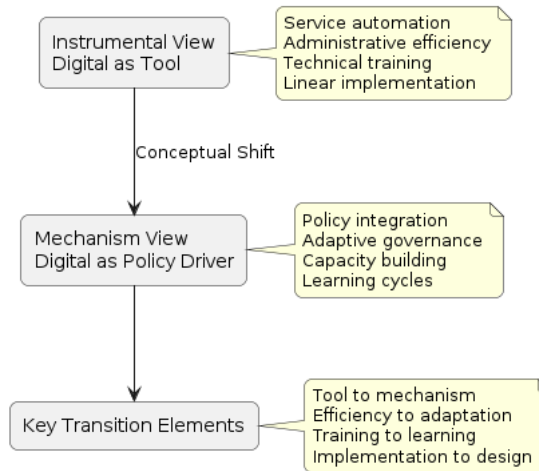


Figure 2. Conceptual Repositioning: Digital Transformation as Policy Mechanism

Figure 2 visualizes the conceptual transition that underpins the proposed framework, highlighting how repositioning digital transformation alters its functional role within village policy architecture. The diagram emphasizes that this is not merely a semantic change but a substantive shift in how technology interacts with governance processes, human capacity development, and institutional learning. By framing digital systems as policy mechanisms, village governments can leverage technology to create feedback-rich environments where data informs decision-making, citizen input shapes service design, and adaptive management becomes institutionalized rather than exceptional.

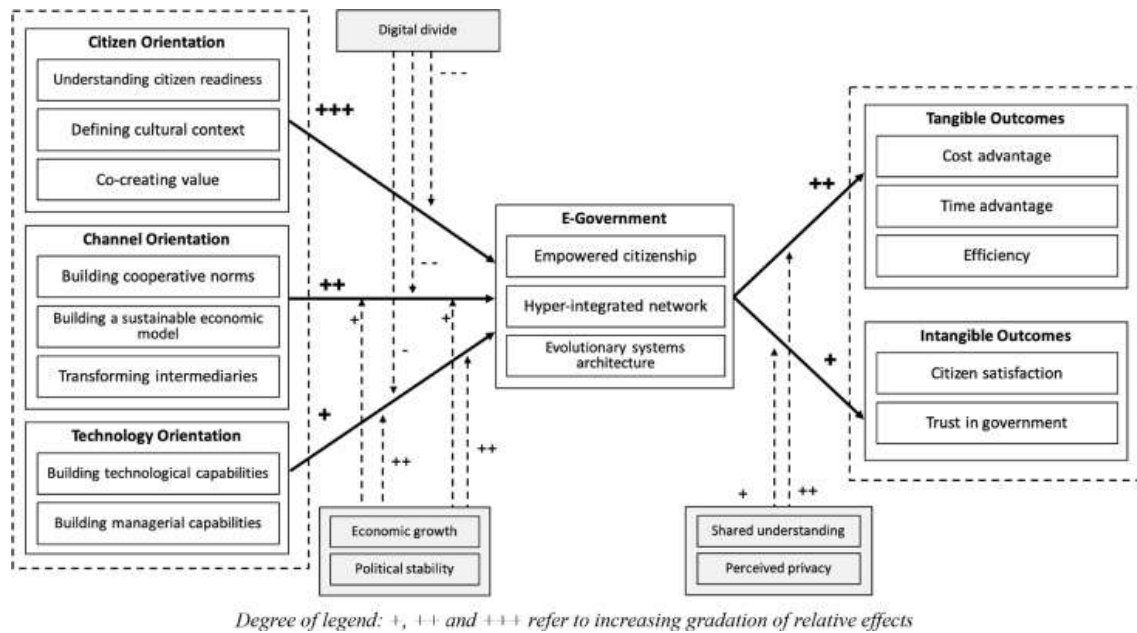


Figure 3. Integrated Conceptual Framework

Figure 3 presents an integrated e-Government framework that positions digital transformation as a multi-dimensional mechanism connecting citizen readiness, channel cooperation, and technological capabilities toward tangible and intangible governance outcomes. Unlike the instrumental perspective that treats digital technology merely as a service delivery tool, this framework illustrates how digital systems embed feedback loops, cross-boundary integration, and evolutionary adaptation within policy processes—directly supporting the repositioning of digital transformation as an active policy mechanism in village governance.

3.1.2 The Strategic Role of Village Government as Policy Actor

The framework identifies the village government as the central policy actor responsible for orchestrating the integration of digital transformation and human resource development. This role extends beyond implementation duties to encompass strategic functions including policy interpretation, contextual adaptation, stakeholder coordination, and performance monitoring. Village governments are uniquely positioned to translate national digital agendas into locally relevant interventions because they possess intimate knowledge of community capacities, cultural dynamics, and resource constraints. Consequently, their agency in policy design becomes a critical determinant of whether digital initiatives produce inclusive and sustainable human resource outcomes. The framework further specifies that effective village government action requires both formal authority and informal legitimacy to mobilize community participation and external partnerships.

Table 2. Strategic Functions of Village Government in Integrated Policy Framework

Strategic Function	Key Activities	Expected Outcomes
Policy Interpretation	Translating national regulations into local action plans	Contextually appropriate policy instruments
Stakeholder Coordination	Facilitating collaboration among agencies, private sector, and community groups	Coherent multi-actor implementation
Capacity Assessment	Mapping existing human resource competencies and digital readiness	Targeted intervention design
Adaptive Management	Monitoring implementation and adjusting strategies based on feedback	Continuous improvement and resilience
Knowledge Brokerage	Connecting local experiences with broader policy learning networks	Scalable innovations and evidence-based advocacy

The table above delineates the specific strategic functions that village governments must perform to effectively integrate digital transformation with human resource development. Each function represents a distinct contribution to policy coherence, with expected outcomes that reinforce the sustainability and adaptability of interventions. By explicitly articulating these functions, the framework provides a practical roadmap for village leaders to move beyond administrative execution toward strategic policy leadership in the digital era.

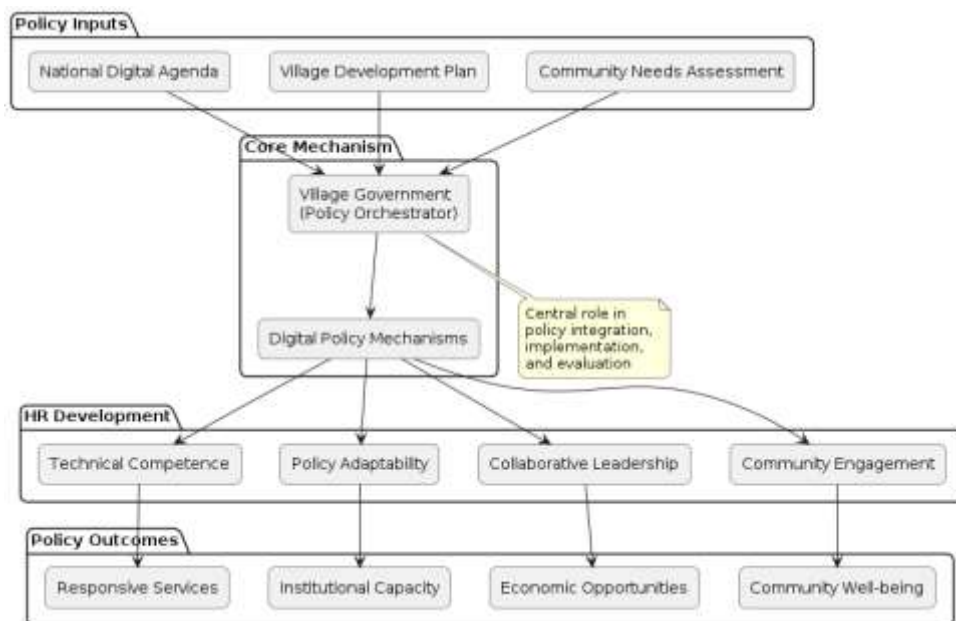


Figure 4. Integrated Policy Model: Linking Actors, Mechanisms, and Outcomes

Figure 4 presents the complete integrated policy model developed through this research, illustrating how village government functions as the orchestrating actor that connects policy inputs, digital mechanisms, human resource dimensions, and developmental outcomes. The diagram emphasizes the non-linear, iterative nature of the framework, where feedback from outcomes informs subsequent policy interpretation and

adaptation cycles. By visualizing these interconnections, the model provides both a diagnostic tool for assessing current policy configurations and a design template for developing more coherent and impactful village-level interventions that leverage digital transformation for sustainable human resource development.

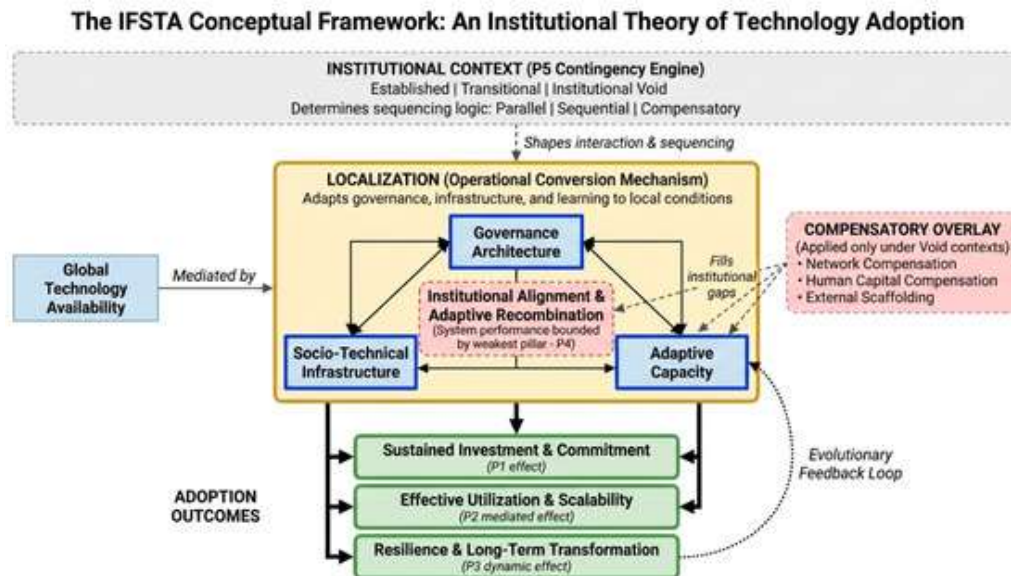


Figure 5. Institutional Theory of Technology Adoption

Figure 5 presents the IFSTA Conceptual Framework, which positions governance architecture as the central mechanism mediating between global technology availability and local adoption outcomes through three interconnected pillars: socio-technical infrastructure, institutional alignment, and adaptive capacity. The framework illustrates how institutional context—whether established, transitional, or void—shapes the sequencing logic of technology adoption, while compensatory overlays such as network scaffolding and human capital compensation fill institutional gaps where local capacity is insufficient. This mechanism-based perspective directly aligns with the study's repositioning of digital transformation, as it demonstrates that technology adoption in village governance requires not merely infrastructure deployment but systemic institutional learning, adaptive reconfiguration, and evolutionary feedback loops that continuously inform policy adaptation and human resource development cycles.

3.1 Discussion

The proposed framework advances public policy theory by repositioning digital transformation from a technical instrument to an active policy mechanism in village governance. Prior research has predominantly framed digitalization as an administrative tool aimed at improving service efficiency and transparency, such as the implementation of Village Information Systems (SID) and e-government platforms (Abby & Wiryandito, 2025; Denissova et al., 2025; Kazlauskienė & Atkočiūnienė, 2025). While these studies demonstrate operational benefits, they largely treat technology as an external input rather than an endogenous driver of policy processes. By contrast, this study conceptualizes digital transformation as a structural mechanism that reshapes policy formulation, implementation feedback, and adaptive evaluation. This theoretical shift addresses a

critical gap in rural policy literature, where digital initiatives are often evaluated through technical performance metrics rather than their capacity to transform institutional decision-making and resource allocation (Abeyasiriwardana et al., 2025; Monda et al., 2023; Wang et al., 2026).

When compared with established frameworks such as conventional Smart Village models and standardized public sector HRM approaches, the proposed mechanism-based design offers distinct analytical and operational advantages. Existing models typically treat digital infrastructure and human capacity as sequential or parallel components—first deploying technology, then delivering periodic training programs (Dorrío et al., 2024; Magnis, 2026). In contrast, this framework embeds digital systems directly into the HR policy cycle, creating continuous feedback loops where technology adoption and competency development co-evolve. Unlike traditional HRM models that rely on static needs assessments and top-down curricula, the proposed mechanism enables real-time skill mapping through digital dashboards, allowing village governments to dynamically adjust capacity-building interventions based on actual policy implementation data. This shifts the paradigm from programmatic, episodic HR development to adaptive, evidence-driven institutional learning.

A central contribution of this framework is the reconceptualization of village government from a passive policy implementer to a strategic policy orchestrator. Existing studies frequently position village authorities as operational agents responsible for executing nationally mandated digital programs, with limited autonomy in contextualizing these initiatives to local human resource needs (Aluko et al., 2026; Mukhlis et al., 2025; Permatasari et al., 2026). However, empirical evidence suggests that successful digital integration depends heavily on local leadership's capacity to interpret policy, mobilize community resources, and align technological adoption with capacity-building priorities (Aldhi et al., 2025; Asmawa et al., 2024; Danso & Opoku, 2025). This framework explicitly elevates the village government's role by mapping its functions across policy interpretation, stakeholder coordination, and adaptive management. By doing so, it provides a more nuanced understanding of how local governance structures can mediate between top-down digital mandates and bottom-up human capital realities, a dynamic often overlooked in conventional e-government analyses (Marienfeldt et al., 2025).

Despite its conceptual robustness, operationalizing this framework in rural contexts requires critical reflection on persistent implementation barriers. Many villages face infrastructure constraints, limited fiscal autonomy, high staff turnover, and fragmented inter-agency data systems, which can disrupt digital-HR integration. Resistance to change among senior officials and low baseline digital literacy further complicate adoption. For instance, in several SID pilot villages, technical platforms were underutilized because HR policies remained siloed from digital operations, leading to dependency on individual technical champions. The proposed framework addresses these challenges by advocating for phased, low-infrastructure mechanisms: starting with mobile-based competency tracking, participatory monitoring applications, and localized data feedback loops that do not require heavy capital investment. Practically, this could manifest as a village government using real-time citizen service data to identify skill gaps in frontline staff,

deploying targeted micro-training modules via community learning hubs, and then applying adaptive monitoring to measure competency transfer. This iterative approach reduces external dependency and builds endogenous policy resilience, even in resource-constrained settings.

The integration of digital transformation and human resource development within a single policy framework addresses a persistent fragmentation in village governance research. Scholarly discourse has traditionally treated digitalization and human resource development as parallel policy domains, with the former focusing on technological infrastructure and the latter emphasizing community empowerment and bureaucratic capacity building (Sharma et al., 2022). This separation has resulted in policy designs that invest heavily in digital platforms while neglecting the systematic development of human competencies required to sustain them. The proposed model bridges this divide by positioning digital mechanisms as enablers of continuous learning, data-informed skill mapping, and iterative capacity building. This approach aligns with emerging calls for holistic rural development strategies that recognize technology and human capital as mutually reinforcing pillars of sustainable governance (Dorrío et al., 2024).

Despite its theoretical and practical contributions, this study is constrained by its conceptual-analytical design, which necessitates empirical validation to confirm the model's applicability across diverse village contexts. The framework's assumptions regarding institutional readiness, leadership capacity, and stakeholder collaboration require rigorous testing through case studies, comparative analyses, or mixed-methods approaches that can capture variations in digital maturity and socio-economic conditions. Future research should operationalize the proposed model by developing measurable indicators for policy mechanism integration, digital human resource competency, and governance outcomes. Longitudinal studies could further examine how villages transition from instrumental digital adoption to mechanism-driven policy adaptation over time. Addressing these empirical gaps will strengthen the framework's robustness and enhance its utility as a scalable policy design tool for rural development in Indonesia and similar developing contexts (Sambodo et al., 2023).

4. Conclusion

This study concludes that repositioning digital transformation as a policy mechanism rather than merely a technical instrument—provides a more robust foundation for integrating human resource development within village governance. The proposed conceptual framework demonstrates that when village governments assume a strategic orchestrating role, digital systems can actively shape policy formulation, enable adaptive implementation, and foster continuous learning cycles that strengthen institutional capacity. By explicitly linking digital mechanisms to core HR competencies, the framework offers a coherent architecture for designing interventions that are both technologically enabled and human-centric. From a practical standpoint, this model provides policymakers and village leaders with actionable guidance for operationalizing digital-HR integration at the local level. Specifically, it recommends embedding data-driven decision loops into village planning processes, prioritizing targeted micro-training aligned with real-time

service delivery gaps, and establishing adaptive monitoring systems that empower local officials to iteratively refine capacity-building strategies. By adopting this mechanism-based approach, village governments can transform fragmented digital investments into sustainable, context-sensitive HR policies that directly enhance administrative responsiveness, institutional resilience, and community empowerment.

Despite its theoretical and practical contributions, this conceptual framework is subject to certain limitations that warrant acknowledgment and further investigation. First, as a conceptual-analytical study, the model has not yet been empirically validated across diverse village contexts, meaning its applicability may vary depending on local digital infrastructure, fiscal autonomy, and baseline institutional readiness. Second, the framework assumes a consistent level of political will and multi-stakeholder collaboration that may not be uniformly present in resource-constrained rural settings. Future empirical research should therefore prioritize operationalizing the proposed model through comparative case studies, longitudinal tracking of digitally active villages, and mixed-methods evaluations that measure the causal impact of mechanism-driven HR interventions on governance outcomes. Developing standardized indicators for digital policy integration, competency transfer, and adaptive governance performance will be critical for testing the framework's scalability and contextual adaptability. Addressing these empirical gaps will ultimately strengthen the model's utility as an evidence-based policy design tool and advance sustainable rural development in Indonesia and comparable developing contexts

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