



Digital Leadership and Innovation in Indonesia's Public Administration: Insights from the Govtech INA Digital Reform

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Abstract

This study explores how digital leadership influences innovation in Indonesia's public sector amid the nationwide implementation of GovTech INA Digital and the updated Electronic Based Government System (SPBE). Using a qualitative, phenomenological design, the research draws on nine in-depth interviews with central and regional government officials, complemented by document analysis and observation. Thematic analysis revealed four key themes: visionary and communicative leadership, organizational digital capability, innovation culture and citizen co-creation, and institutional agility amid policy shocks. Visionary and communicative leadership enabled shared alignment across agencies, while empowerment-based leadership strengthened organizational capability. A culture of openness and co-creation fostered sustained innovation, although bureaucratic rigidity still limited rapid experimentation. Institutional reforms and crises particularly the 2024 PDNS ransomware incident tested leadership agility, revealing that adaptive leaders effectively transformed disruption into opportunities for systemic learning. The findings conceptualize digital leadership as an adaptive capability operating across behavioral, structural, cultural, and contextual pathways. The study contributes to digital governance theory by demonstrating how leadership behaviors and institutional contexts co-evolve to sustain innovation. Policy implications highlight the need for leadership development programs that combine strategic foresight, digital literacy, and participatory governance to enhance resilience and innovation in public administration.

Keywords: digital leadership; public sector innovation; public administration; organizational capability; innovation; adaptive governance

1. Introduction

Digital leadership has emerged as a critical enabler of innovation and transformation within public administration in the 21st century. In the context of rapid technological advancement and the global shift toward digital governance, leadership is no longer confined to bureaucratic control but must encompass strategic vision, adaptability, and the capacity to integrate technology into governance processes. The digital era has redefined the principles of public administration by promoting efficiency, transparency, and accountability through data-driven decision-making and technological innovation.¹ The Organization for Economic Co-operation and Development² have highlighted digital leadership as an essential determinant of public sector modernization, noting that leadership behavior shapes institutional readiness and innovation capacity. Countries capable of aligning visionary leadership with technological capability tend to achieve greater governance performance and citizen satisfaction.³

Indonesia provides a relevant case study within this global trend. The country's recent rise in the UN E-Government Development Index (EGDI) reflects the growing maturity of its digital transformation initiatives. Programs such as the Electronic-Based Government System (*Sistem Pemerintahan Berbasis Elektronik*, SPBE) introduced under Presidential Regulation No. 95/2018 and the subsequent launch of GovTech INA Digital in 2024 exemplify Indonesia's commitment to institutionalizing digital governance.⁴ These frameworks represent strategic efforts to integrate data systems, streamline public services, and enhance collaboration between ministries and local governments. According to the Ministry of Administrative and Bureaucratic Reform,⁵ Indonesia's national SPBE Index reached 3.12 in 2024, surpassing its target and reflecting improved inter-agency coordination. However, this progress underscores the importance of leadership as a decisive factor in sustaining innovation, especially in aligning digital transformation objectives with broader governance reforms.⁶

Despite notable achievements, several persistent challenges hinder the full realization of digital governance in Indonesia and other developing nations. Public institutions often encounter cultural resistance, inconsistent leadership visions, and a lack of digital literacy among civil servants.⁷ These limitations stem from both structural and behavioral barriers, where fragmented decision-making and inadequate risk management reduce the impact of digital initiatives.⁸ Moreover, digital

¹ Sahib Khan, "Implementation of Spbe Policy in Employment Services in Bogor City," *Action Research Literate* 9, no. 8 (2025): 2010–21, <https://doi.org/10.46799/ar.v9i8.3015>.

² OECD, *SMEs in the Era of Hybrid Retail*, 2023, <https://doi.org/10.1787/882f30b0-en>.

³ Sitti Aminah dan Herie Saksono, "Digital Transformation of the Government: A Case Study in Indonesia," *Jurnal Komunikasi Malaysian Journal of Communication* 37, no. 2 (2021): 272–88, <https://doi.org/10.17576/jkmjc-2021-3702-17>; Syarif Makmur, "Implementation of Archives Digitization Policy as a Form of Implementation of an Electronic-Based Government System," *Journal of Social Research* 2, no. 6 (2023): 1847–52, <https://doi.org/10.55324/josr.v2i6.921>.

⁴ Tasya Aulia dan Iip Permana, "Penyelenggaraan Sistem Pemerintahan Berbasis Elektronik Di Kota Payakumbuh," *Journal of Civic Education* 6, no. 4 (2024): 286–94, <https://doi.org/10.24036/jce.v6i4.1055>.

⁵ Tasya Aulia dan Iip Permana.

⁶ Elvira Elvira dan Susanto Susanto, *Archive Contribution in the Digital Era to Realize Good and Clean Governance*, 2024, 267–71, https://doi.org/10.2991/978-2-38476-218-7_44.

⁷ Rudy Fadrial dkk., "A Qualitative Study on the Influencing Factors of E-Government Adoption to Improve Public Trust in Local Government: Case Study of Rokan Hulu Municipality," *Indonesian Journal of Computer Science* 13, no. 3 (2024), <https://doi.org/10.33022/ijcs.v13i3.3931>; Hari S. Husni dkk., "Digital Twin Concept for Indonesia Digital Government Information Technology Governance," *International Journal Science and Technology* 1, no. 2 (2022): 45–52, <https://doi.org/10.56127/ijst.v1i2.146>.

⁸ Makmur, "Implementation of Archives Digitization Policy as a Form of Implementation of an Electronic-Based Government System."

transformation cannot be achieved solely through technological adoption; it demands leadership that promotes a culture of openness, learning, and collaboration. Without cohesive leadership, digital governance initiatives risk becoming disjointed projects lacking strategic coherence.⁹

Globally, scholars and policy institutions have emphasized leadership and cultural change as foundational elements in digital transformation. The OECD (2023) defines digital government as a human-centered model that leverages data and technology to deliver public value, contingent upon leadership that fosters trust, adaptability, and innovation. Empirical findings suggest that digital leadership correlates strongly with innovation capability, employee empowerment, and public trust.¹⁰ In Indonesia, leadership continuity and digital competence among top officials remain inconsistent across administrative levels, contributing to uneven implementation of SPBE and GovTech policies.¹¹

The complexity of Indonesia's bureaucratic structure amplifies these leadership challenges. Many agencies still operate in silos, with weak interdepartmental communication and redundant digital initiatives.¹² This fragmentation impedes the integration of national platforms such as *Satu Data Indonesia*, which aims to unify data management and strengthen policy coherence. The institutional design of GovTech INA Digital seeks to overcome these issues by consolidating service portals and data architecture under a unified digital governance framework. However, as studies have shown, success depends not merely on structural integration but on leaders' ability to interpret reform mandates and translate them into actionable innovation strategies.¹³ Effective digital leadership therefore requires balancing top-down directives with bottom-up empowerment, ensuring that innovation thrives across different levels of government.

Leadership in digital governance also involves navigating complex policy and ethical dimensions. As digital systems become central to public service delivery, issues such as data security, privacy, and accountability increasingly demand attention. According to the National Cyber and Encryption Agency,¹⁴ the 2024 PDNS ransomware incident revealed systemic vulnerabilities in Indonesia's public digital infrastructure. Leaders who demonstrated adaptive and transparent crisis management during this period restored institutional trust and strengthened cybersecurity awareness. This incident underscores that effective digital leadership not only drives innovation but also safeguards institutional resilience in times of disruption. Similar lessons have been drawn globally, where digital leaders are expected to balance innovation with risk governance and ethical stewardship.¹⁵

This study therefore aims to examine how digital leadership influences public service innovation in Indonesia's public sector, emphasizing the mediating roles of organizational digital capability and innovation culture, as well as the moderating effects of institutional reforms. By integrating leadership theory, organizational capability perspectives, and contextual policy analysis, this research contributes to a more comprehensive understanding of digital governance. The novelty of this study lies in its contextualization of digital leadership as an adaptive capability one that not only drives innovation but also ensures institutional resilience and inclusivity within Indonesia's

⁹ Mubasyier Fatah, "Transformasi GovTech Indonesia Dan Paradoks Ambisi Digital," *Altsiq* 10, no. 2 (2025): 1–21, <https://doi.org/10.31538/altsiq.v10i2.7882>.

¹⁰ Ines Mergel, Noella Edelmann, dan Nils Haug, "Defining Digital Transformation," *Government Information Quarterly* 36, no. 4 (2019): 101385.

¹¹ Fatah, "Transformasi GovTech Indonesia Dan Paradoks Ambisi Digital."

¹² Husni dkk., "Digital Twin Concept for Indonesia Digital Government Information Technology Governance."

¹³ Mergel, Edelmann, dan Haug, "Defining Digital Transformation."

¹⁴ Kominfo & BSSN, *Undang-Undang No. 27/2022 tentang Pelindungan Data Pribadi* (2022), <https://peraturan.bpk.go.id/Details/229798/uu-no-27-tahun-2022>.

¹⁵ T Christensen dan P Lægreid, *The Ashgate Research Companion to New Public Management* (Ashgate Publishing, 2011).

evolving digital governance ecosystem. The scope of the study encompasses both central and local government institutions, capturing the dynamic interplay between leadership, culture, and technology in shaping the future of digital public administration.

2. Literature Review

The literature on digital leadership and public sector innovation has evolved alongside the global transition toward digital governance, positioning leadership as a behavioral, structural, and institutional driver of transformation. The convergence of theories on transformational leadership, digital capability, and adaptive governance provides a conceptual lens to understand how leaders enable innovation in complex bureaucratic systems such as Indonesia's. This review synthesizes key works on digital leadership, organizational capability, innovation culture, and institutional agility, situated within the framework of GovTech INA Digital and the Electronic-Based Government System (SPBE).

Digital Leadership and Transformational Change

Digital leadership is increasingly viewed as the ability to integrate technological vision with human-centered management to achieve systemic reform. Mergel, Edelman, and Haug conceptualize digital transformation as a process of institutional redesign driven by technology-mediated collaboration and organizational learning. Within this paradigm, leadership transcends managerial control, embodying strategic foresight, empowerment, and continuous adaptation.¹⁶

In the public sector, these dimensions translate into leaders' capacity to articulate a collective vision and align innovation goals across agencies. Kettunen and Kallio show that leadership communication enhances innovation by fostering trust and coherence across bureaucratic hierarchies.¹⁷ The OECD further identifies transparent communication as a key determinant of institutional maturity in digital governance. In Indonesia, the implementation of GovTech INA Digital has underscored this relationship, with Fatah emphasizing the importance of leadership as a bridge between presidential mandates and operational execution.¹⁸

Organizational Digital Capability as a Structural Enabler

Leadership effectiveness in digital transformation depends on the organization's digital capability its technical, structural, and cognitive ability to harness technology for innovation. Vial defines digital capability as a dynamic process of sensing opportunities, seizing innovations, and reconfiguring institutional resources.¹⁹ Similarly, Warner and Wäger argue that capability building constitutes the foundation of digital transformation, linking leadership intent to tangible performance outcomes.²⁰ Within the public administration context, Luna-Reyes et al. find that dynamic capabilities underpin effective IT governance and innovation performance.²¹

¹⁶ Mergel, Edelman, dan Haug, "Defining Digital Transformation."

¹⁷ Pekka Kettunen dan Jari Kallio, "Can leadership communication foster public sector innovation? Evidence from Finnish local government," *Public Management Review* 23, no. 12 (2021): 1813–32, <https://doi.org/10.1080/14719037.2020.1729327>.

¹⁸ Fatah, "Transformasi GovTech Indonesia Dan Paradoks Ambisi Digital."

¹⁹ Georges Vial, "Understanding digital transformation: A review and a research agenda," *The Journal of Strategic Information Systems* 28, no. 2 (2021): 118–44, <https://doi.org/10.1016/j.jsis.2019.01.003>.

²⁰ Karl Warner dan Maximilian Wäger, "Building Dynamic Capabilities for Digital Transformation: An Ongoing Process of Strategic Renewal," *Long Range Planning* 52, no. 3 (2019): 326–49, <https://doi.org/10.1016/j.lrp.2018.12.001>.

²¹ Luis F. Luna-Reyes dkk., "Exploring the Relationships Between Dynamic Capabilities and IT Governance," *Transforming Government People Process and Policy* 14, no. 2 (2020): 149–69, <https://doi.org/10.1108/tg-09-2019-0092>.

In Southeast Asia, Tan et al. demonstrate that cohesive policy frameworks and leadership support accelerate institutional digital maturity. Indonesia's SPBE architecture embodies this principle by standardizing interoperability, data integration, and digital literacy across government levels.²² Empirical studies by Aulia and Permana show that leadership commitment to infrastructure readiness directly influences digital adoption and service innovation.²³ Thus, digital capability functions as a mediating mechanism transforming leadership vision into measurable innovation outcomes through structural preparedness, resource allocation, and human capital development.

Innovation Culture and Citizen Co-Creation

Beyond technical capacity, innovation in the public sector depends on the cultivation of a supportive organizational culture. Mergel argues that digital transformation succeeds not through technology alone but through cultural shifts toward experimentation, openness, and collaboration.²⁴ Criste, Bovary, and Lobont similarly link innovation maturity to participatory and co-creative practices within public institutions.²⁵ The OECD defines this orientation as "citizen-centered digital government," emphasizing inclusivity, feedback loops, and continuous learning.

In Indonesia, empirical evidence suggests that such cultural transformation is emerging. Ainia et al. identify the "hybrid bureaucracy" model where hierarchical coordination coexists with participatory innovation as a key enabler of digital reform in both urban and rural settings. Local governments like Surabaya demonstrate this approach by institutionalizing bottom-up innovation and citizen co-design of services under the SPBE framework.²⁶

Institutional Agility and Adaptive Governance

Institutional agility the ability to respond rapidly to external shocks has become central to the discourse on digital leadership. Janssen and van der Voort conceptualize adaptive governance as a system that balances stability with flexibility through decentralized decision-making and iterative feedback.²⁷ Christensen and Lægreid similarly argue that adaptive leadership enables governments to learn from crises and reform institutional routines.²⁸

Indonesia's experience offers a vivid case study. The 2024 PDNS ransomware incident, as documented by BSSN and Kominfo, exposed systemic vulnerabilities in digital infrastructure but also catalyzed institutional learning. Leaders who demonstrated transparency, coordination, and proactive communication were able to restore trust and strengthen cybersecurity awareness. El-Taliawi and van der Wal reinforce this view, noting that ethical agility balancing innovation with

²² Binh Tan dkk., "Government Policy, IT Capabilities, Digital Transformation, and Innovativeness in Post-Covid Context: Case of Vietnamese SMEs," *International Journal of Organizational Analysis* 32, no. 2 (2023): 333–56, <https://doi.org/10.1108/ijoa-11-2022-3480>.

²³ Aulia dan Permana, "Penyelenggaraan Sistem Pemerintahan Berbasis Elektronik Di Kota Payakumbuh."

²⁴ Mergel, Edelmann, dan Haug, "Defining Digital Transformation."

²⁵ Cristina Criste, Ciel Bovary, dan Oana Ramona Lobon, *Portraying the Level of Digital Performance and Innovation of the European Public Sector: Contextualising the Relationship Between E-Government and Digital Innovation*, 2024, https://doi.org/10.46541/978-86-7233-428-9_396.

²⁶ Bunga Ainia dkk., "Model Hybrid Bureaucracy Dalam Transformasi Digital Pelayanan Publik: Studi Komparatif Urban-Rural Di Indonesia Pasca-Pandemi (2020–2025)," *Katalis* 2, no. 3 (2025): 76–83, <https://doi.org/10.62383/katalis.v2i3.1986>.

²⁷ Marijn Janssen dan Haiko van der Voort, "Adaptive Governance: Towards a Stable, Accountable and Responsive Government," *Government Information Quarterly* 33, no. 1 (2016): 1–5.

²⁸ Christensen dan Lægreid, *The Ashgate Research Companion to New Public Management*.

data protection and accountability is integral to sustaining legitimacy in digital governance.²⁹ Such examples underscore that adaptive leadership transforms crises into opportunities for systemic improvement.

Synthesis of Theoretical Perspectives

Across these perspectives, digital leadership emerges as a multidimensional and adaptive capability encompassing behavioral, structural, cultural, and contextual pathways. Ding et al. (2025) contend that government digitalization fosters innovation only when leadership behavior, institutional design, and citizen participation co-evolve.³⁰ Within Indonesia's SPBE and GovTech INA Digital ecosystems, these interdependencies are evident: visionary and communicative leadership ensures strategic alignment; empowerment-based leadership enhances capability and learning; participatory leadership cultivates innovation culture; and adaptive leadership sustains resilience amid uncertainty.

Collectively, the literature suggests that digital leadership in developing democracies functions as both an enabler and safeguard of innovation. It bridges the gap between technology and human values, aligning strategic foresight with ethical stewardship.

3. Method

Research Design and Approach

This study adopted a qualitative research approach to explore how digital leadership shapes public sector innovation within Indonesia's evolving digital governance ecosystem. Qualitative inquiry was considered the most appropriate design because it enables the researcher to capture the depth and complexity of human experiences and institutional processes underlying leadership and innovation.³¹

A phenomenological research design was selected to uncover the lived experiences of digital leaders and key officials directly involved in Indonesia's digital governance reform. Phenomenology seeks to reveal the essence of phenomena through participants' perceptions, emphasizing subjective understanding over numerical representation.³² This combination was chosen to ensure both interpretive richness and analytical rigor, generating empirically grounded insights from the participants' narratives.

Research Setting

The research was conducted within Indonesia's public sector institutions between Desember 2024 and April 2025. The selection of Indonesia as the research setting was justified by the country's remarkable progress in digital transformation, as evidenced by its advancement to the Very High category in the 2024 UN E-Government Development Index (EGDI score 0.7991) and the national SPBE

²⁹ Omar G. El-Taliawi dan Zeger van der Wal, "Digital transformation and bureaucratic values: The ethics of public sector digitalization," *Government Information Quarterly* 39, no. 4 (2022): 101716, <https://doi.org/10.1016/j.giq.2022.101716>.

³⁰ Yemin Ding dkk., "Government Digitalization: A Catalyst for Innovation Across Economies," *Review of Development Economics*, advance online publication, 2025, <https://doi.org/10.1111/rode.13262>.

³¹ John W. Creswell, *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*, 5th ed. (Los Angeles: SAGE Publications, 2018).

³² Clark Moustakas, *Phenomenological Research Methods* (Thousand Oaks, CA: SAGE Publications, 1994).

Index of 3.12 categorized as “Good”.³³ These achievements demonstrate Indonesia’s commitment to digital governance reform, yet also expose the challenges in leadership consistency and innovation culture that this study sought to explore. The institutional environment during this period was marked by major reforms, such as the implementation of Presidential Regulation No. 82/2023 on GovTech INA Digital and the strengthening of interoperability frameworks under Satu Data Indonesia (Presidential Regulation No. 39/2019), providing a unique empirical context to investigate leadership behaviors amid structural change.

Participants and Sampling

The research involved six government institutions representing varying degrees of digital maturity and administrative complexity. These included three central government ministries The Ministry of Administrative and Bureaucratic Reform (KemenPAN-RB), The Ministry of Communication and Informatics (Kominfo), and The Ministry of Health (Kemenkes) alongside the GovTech INA Digital Secretariat, the National Cyber and Encryption Agency (BSSN), and selected regional governments (Purwakarta District, Surabaya City, and the Provincial Government of South Sulawesi). These institutions were purposefully chosen because they actively participate in implementing national digital transformation strategies and exhibit distinct organizational responses to digital reform mandates.

Participants were recruited through purposive sampling to ensure that only individuals directly involved in digital transformation policy or implementation were included³⁴. A total of nine informants participated in the study, representing both strategic and operational perspectives on digital governance. All participants held managerial or supervisory positions, ensuring that their insights reflected practical experience in managing digital reform, cross-agency coordination, and innovation processes. The sample size was sufficient to reach data saturation, as no new themes emerged after the ninth interview.

Data Collection

Data collection employed three complementary methods semi-structured interviews, document analysis, and non-participant observation to ensure triangulation and depth of understanding.³⁵ Semi-structured interviews formed the core of the data collection process, designed to elicit participants’ interpretations of leadership behavior, organizational digital capability, and innovation practices. The interview protocol was informed by constructs derived from the OECD Digital Government Index (OECD, 2023), which emphasizes openness, proactivity, and citizen-centered innovation, as well as insights from recent literature on digital leadership (Khan, 2025). Each interview lasted between 60 and 90 minutes and was conducted in either face-to-face sessions or secure online meetings, depending on logistical feasibility.

Document analysis supplemented the interviews by providing institutional and policy context for the findings. Key documents included the 2024 SPBE Evaluation Report (KepmenPANRB No.

³³ KemenPAN-RB, *Arsitektur Sistem Pemerintahan Berbasis Elektronik (SPBE)* (2022).

³⁴ Greg Guest, Emily Namey, dan Marilyn Chen, “A simple method to assess and report thematic saturation in qualitative research,” *PLOS ONE* 15, no. 5 (2020): e0232076, <https://doi.org/10.1371/journal.pone.0232076>.

³⁵ Robert K. Yin, *Case Study Research and Applications: Design and Methods*, 6 ed. (Thousand Oaks, CA: SAGE Publications, 2018).

663/2024), Presidential Regulation No. 82/2023 on GovTech INA Digital, and the *Satu Data Indonesia* policy framework (Presidential Regulation No. 39/2019).

Data Analysis

Data were analyzed using thematic analysis, following the six-step framework developed by.³⁶ First, the researcher immersed in the data through repeated readings of transcripts and field notes to achieve familiarization. Open coding was then performed to identify preliminary categories related to leadership vision, empowerment, organizational readiness, innovation processes, and institutional change. Next, codes were grouped into broader themes reflecting conceptual relationships between digital leadership, capability, culture, and innovation. The researcher iteratively refined these themes by comparing patterns across informants and verifying consistency with document and observation data. NVivo 12 software was employed to facilitate data organization, coding, and retrieval. Thematic saturation was achieved when no new insights emerged, indicating that the main dimensions of the phenomena had been fully explored.

Trustworthiness and Ethical Considerations

Trustworthiness and ethical rigor were ensured through multiple validation techniques. Credibility was established via member checking, where participants reviewed and confirmed the accuracy of interview summaries. Dependability was enhanced by maintaining a comprehensive audit trail documenting methodological decisions, while confirmability was strengthened through reflexive journaling to mitigate researcher bias. Transferability was achieved by providing detailed contextual descriptions of institutional environments, allowing readers to assess the applicability of findings to other settings.³⁷ Ethical approval for the study was obtained from the researcher's affiliated ethics review board. All participants were provided with informed consent forms, and pseudonyms were used to preserve anonymity.

4. Result and Discussion

Results

This section presents the findings of the qualitative study exploring how digital leadership practices influence public sector innovation in Indonesia following the implementation of GovTech INA Digital and the updated SPBE framework. Thematic analysis of nine semi-structured interviews, complemented by document analysis and observations, revealed four interconnected themes: (1) visionary digital leadership and shared strategic alignment, (2) organizational digital capability as a mediating mechanism, (3) innovation culture and co-creation with citizens, and (4) institutional and policy shifts as moderators of leadership effectiveness.

Visionary Digital Leadership and Shared Strategic Alignment

The analysis demonstrated that visionary and communicative leadership is central to driving digital transformation. Informants consistently emphasized that leadership effectiveness is rooted

³⁶ Virginia Braun dan Victoria Clarke, "Using thematic analysis in psychology," *Qualitative Research in Psychology* 3, no. 2 (2006): 77–101, <https://doi.org/10.1191/1478088706qp0630a>.

³⁷ Yvonna S. Lincoln dan Egon G. Guba, *Naturalistic Inquiry* (Beverly Hills, CA: Sage Publications, 1985).

in the ability to communicate a clear, collective vision that motivates inter-agency collaboration. As noted by a senior policymaker from the Ministry of Administrative and Bureaucratic Reform (Informant 1), “Digital transformation must begin with leadership. Technology is only the instrument what makes the difference is how leaders communicate a clear and collective vision for governance reform.” This reflection aligns with the OECD’s assertion that visionary leadership fosters inter-agency cooperation and strategic coherence in digital transformation.

A coordinator from the INA Digital Secretariat (Informant 2) elaborated on how the presidential mandate under Perpres No. 82/2023 provided a unifying direction: “After the President launched INA Digital, we worked to translate that vision into measurable roadmaps. The role of leadership is to ensure that every institution feels part of the same digital ecosystem.” Document analysis of coordination meeting minutes corroborated this claim, showing that agencies with consistent leadership communication achieved greater integration and collaboration in digital project planning.

However, several participants noted discontinuity in leadership commitment across regional governments. A digital service manager from South Sulawesi Province (Informant 5) remarked: “When leadership changes, priorities often shift. Some new leaders are not familiar with digital governance, so programs lose momentum.” This challenge reflects,³⁸ who argue that sustaining shared vision in bureaucratic settings requires adaptive communication strategies and transparent engagement frameworks to mitigate resistance.

Organizational Digital Capability as a Mediating Mechanism

Findings indicated that organizational digital capability mediates the relationship between leadership intent and innovation outcomes. Leaders who prioritized infrastructure readiness, interoperability, and cybersecurity were more successful in producing tangible innovations. As the ICT Director from the Ministry of Health (Informant 3) explained, “Leadership here means ensuring readiness. We must have interoperable systems and trained teams before expecting innovation. Our digital health integration through SATUSEHAT depends on that readiness.”

Similarly, a digital transformation coordinator at the Ministry of Communication and Informatics (Informant 4) emphasized the empowering dimension of leadership: “The most effective leaders are those who empower mid-level managers. They don’t micromanage but trust their teams to propose digital solutions.” The 2024 SPBE Evaluation Report (KepmenPANRB No. 663/2024) supports this finding, showing that institutions with strong leadership and high SPBE component scores (data management, infrastructure, and service integration) exhibited measurable innovation outcomes, including faster service delivery and enhanced system interoperability.

However, regional disparities persisted. An ICT officer from Purwakarta District (Informant 6) noted, “We already have good infrastructure, but integration with national platforms is still limited. Leadership helps us find creative ways to adapt using local systems.” This reflects that digital leadership not only strengthens organizational capability but also mediates innovation through creative problem-solving and adaptation.

³⁸ Criste, Bovary, dan Lobont, *Portraying the Level of Digital Performance and Innovation of the European Public Sector: Contextualising the Relationship Between E-Government and Digital Innovation*.

Innovation Culture and Citizen Co-Creation

Innovation culture emerged as another dominant theme, where leaders played a key role in fostering collaboration, openness, and citizen engagement. Participants described how leadership initiatives encouraged co-creation and experimentation, transforming bureaucratic culture into more participatory and responsive environments. A senior official from the Ministry of Transportation (Informant 7) reflected: “We used to treat citizen complaints as routine administrative burdens. Now, leadership encourages us to see them as inputs for co-creation. Each week, we analyze citizen reports and turn them into design ideas.”

The Surabaya City Government exemplified this participatory model. A local transformation coordinator (Informant 8) shared: “Our mayor always says that innovation doesn’t need to wait for formal approval if you have the data and the insight, propose the solution. That’s why many of our innovations start from the ground level.” This leadership-driven openness fosters what describe as a culture of psychological safety encouraging employees to take risks, share ideas, and learn from failure.³⁹

Nonetheless, institutional rigidity remains a challenge. A project officer at the INA Digital Secretariat (Informant 9) observed, “Even when leadership is supportive, our regulations for procurement or data sharing are often too rigid. That limits how fast we can innovate.” This reflects,⁴⁰ who emphasize that while innovation culture can be cultivated through trust and empowerment, structural constraints often inhibit the speed and scalability of digital experimentation.

Institutional and Policy Shifts as Moderators of Leadership Effectiveness

The study also found that policy reforms and institutional shocks significantly moderated leadership effectiveness. The launch of GovTech INA Digital and the 2024 PDNS cybersecurity incident served as pivotal moments that tested leadership agility and institutional adaptability. According to a digital governance manager from Kominfo (Informant 4), “The Perpres created a structural push. Leaders who were proactive saw it as a chance to reform workflows and integrate systems, while others struggled to adapt to new compliance requirements.”

A cybersecurity strategist at BSSN (Informant 9) offered a parallel insight: “That event was the real test of leadership. Some agencies reacted defensively, but good leaders turned it into an opportunity to strengthen cybersecurity protocols and awareness.” Document analysis supported these accounts agencies that responded proactively after Perpres No. 82/2023 showed faster recovery from digital disruptions, higher integration rates, and greater employee confidence in digital governance procedures.

These findings align with,⁴¹ who argue that policy shocks can accelerate innovation when leaders possess adaptive foresight and institutional flexibility. Leaders in Indonesia who demonstrated such adaptability effectively used crises as opportunities for reform, reinforcing trust and strengthening resilience. Similarly, ⁴² observe that synchronized policy frameworks and leadership alignment are vital for sustaining innovation outcomes under volatile governance conditions.

³⁹ Hussam A. Halbusi dkk., “Does Social Media Influence E-Entrepreneurial Innovation: Exploring the Role of AI Adoption and Government Involvement,” *International Journal of Innovation and Technology Management* 22, no. 01 (2025), <https://doi.org/10.1142/s0219877025500026>.

⁴⁰ Ding dkk., “Government Digitalization: A Catalyst for Innovation Across Economies.”

⁴¹ Luna-Reyes dkk., “Exploring the Relationships Between Dynamic Capabilities and IT Governance.”

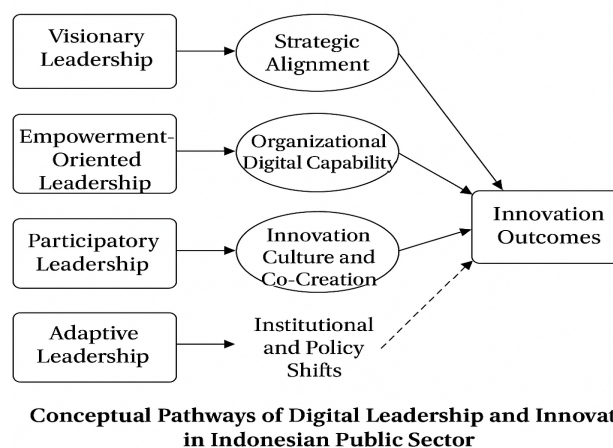
⁴² Tan dkk., “Government Policy, IT Capabilities, Digital Transformation, and Innovativeness in Post-Covid Context: Case of Vietnamese SMEs.”

Integrative Summary of Findings

The four thematic findings collectively illustrate that digital leadership in Indonesia's public sector operates as a multi-dimensional and adaptive capability rather than a fixed managerial role. Visionary leadership ensures strategic alignment and coherence across agencies; empowerment-oriented leadership enhances organizational digital capability and human resource readiness; participatory leadership fosters innovation culture and citizen co-creation; and adaptive leadership ensures institutional resilience amid policy and technological disruptions.

The relationships among these themes are illustrated in Figure 1, which summarizes the pathways of influence between leadership, organizational mechanisms, and innovation outcomes.

Figure 1. Conceptual Pathways of Digital Leadership and Innovation in Indonesian Public Sector



The figure illustrates how visionary, empowerment-oriented, participatory, and adaptive leadership intersect with digital capability, innovation culture, and institutional context to drive innovation outcomes. Together, these insights reveal that digital leadership in Indonesia's public sector is a dynamic process of alignment, empowerment, co-creation, and adaptation. Leaders who combine visionary communication with participatory governance and strategic foresight are most capable of sustaining innovation and public trust in the face of rapid technological and institutional change.

Discussion

Visionary and Communicative Leadership in Digital Transformation

The study confirms that visionary and communicative leadership is fundamental to driving digital transformation in the public sector. Leaders who are able to articulate a clear, shared vision of change can align strategic priorities across agencies and sustain collective motivation during complex digital transitions. This observation reinforces Mergel et al., who assert that strategic clarity in leadership vision determines innovation sustainability in bureaucratic organizations. In the context of Indonesia, initiatives like GovTech INA Digital and SPBE act as institutional platforms where leadership vision is operationalized into cross-sectoral collaboration and integrated data governance.

The findings also corroborate,⁴³ who argue that effective digital leadership merges moral and technological goals linking public service values with technological advancement. Interview data revealed that leaders who framed digital transformation as governance reform, rather than a purely technical initiative, were more successful in fostering institutional commitment and public trust. Similarly,⁴⁴ highlight that leadership communication mitigates bureaucratic inertia and hierarchical rigidity, enabling collaboration across institutional boundaries. The OECD's Digital Government Index further supports this, identifying transparency, inclusiveness, and communication as indicators of digital maturity.

Organizational Digital Capability as a Mediating Mechanism

The second major discussion point concerns the mediating function of organizational digital capability. The results demonstrated that leadership alone cannot generate innovation without sufficient institutional capacity in data infrastructure, interoperability, and cybersecurity. This finding echoes Vial, who identifies digital capability as the structural backbone that enables public sector transformation. In this study, leaders who invested in data literacy, technical infrastructure, and interdepartmental collaboration demonstrated stronger innovation outcomes.

This relationship highlights the structural pathway through which leadership translates into innovation. According to the OECD, leadership should prioritize long-term capacity building rather than focusing solely on project outputs. Empowerment-based leadership models observed in the study correspond with the findings of Hua et al., who underscore that empowerment, trust, and team cohesion enhance absorptive capacity for technology adoption. By decentralizing decisions and nurturing mid-level managers as "digital champions," leaders fostered innovation resilience within their institutions.

Nevertheless, disparities in infrastructure and technical readiness particularly at subnational levels remain barriers to effective transformation. The UN E-Government Survey identifies similar asymmetries across developing economies, noting that limited interoperability and funding gaps hinder progress. These findings suggest that leadership must not only advocate for capability development but also coordinate multi-level investments to reduce digital divides.

Innovation Culture and Citizen Co-Creation as Catalysts of Change

The study emphasizes that digital innovation is inseparable from organizational culture. Leaders who foster openness, collaboration, and risk-tolerant environments cultivate innovation-oriented mindsets among public officials. This finding supports Mergel, who contends that the success of digital government hinges less on technology and more on cultivating experimental and collaborative cultures.⁴⁵ In Indonesia, leadership behaviors that encouraged participatory engagement such as those observed in Surabaya's local government enabled co-creation mechanisms where citizens actively contributed to service design.

The participatory model described by OECD and Halbusi et al. is particularly relevant here, framing citizens as co-designers rather than passive users of public services. Through platforms like

⁴³ El-Taliawi dan van der Wal, "Digital transformation and bureaucratic values: The ethics of public sector digitalization."

⁴⁴ Kettunen dan Kallio, "Can leadership communication foster public sector innovation? Evidence from Finnish local government."

⁴⁵ Mergel, Edelman, dan Haug, "Defining Digital Transformation."

SP4N-LAPOR, Indonesian agencies integrated public feedback into service redesign, embodying the co-creation ethos of adaptive governance.

Despite these advancements, structural rigidity and bureaucratic constraints persist as impediments to innovation scalability. Informants noted that regulations governing procurement and data sharing remain inflexible, limiting experimentation. This observation parallels,⁴⁶ who emphasize the tension between accountability and agility in public innovation. Therefore, the interplay between leadership-driven cultural change and institutional reform becomes crucial. As Criste et al. assert, innovation thrives when leaders institutionalize trust-based collaboration, aligning formal structures with informal learning processes.

Institutional Agility and Policy Shocks as Moderating Contexts

A distinctive contribution of this study is its demonstration of how institutional reforms and policy shocks moderate the effects of digital leadership. The launch of GovTech INA Digital (Perpres No. 82/2023) and the 2024 PDNS ransomware incident exemplified moments where leadership agility was tested. Leaders who demonstrated proactive responses realigning workflows, reinforcing cybersecurity, and maintaining transparent communication enhanced institutional resilience and employee confidence. These findings support Christensen and Lægreid (2020), who view crises as opportunities for adaptive learning and leadership innovation.⁴⁷

In contrast, leaders who responded reactively or defensively often exacerbated confusion, echoing Heifetz et al., who emphasize the importance of adaptive leadership in turbulent environments.⁴⁸ The study extends these theories by situating them within Indonesia's digital governance framework, revealing that adaptive leadership amplifies institutional capacity for recovery and reform. This dynamic reflects complex adaptive systems theory,⁴⁹ wherein public institutions evolve through feedback loops between stability and disruption. The INA Digital reform catalyzed both top-down mandates and bottom-up innovation, compelling leaders to reinterpret compliance requirements as opportunities for transformation.

Theoretical and Practical Implications

The interplay of behavioral, structural, cultural, and contextual pathways observed in this study reinforces the conceptualization of digital leadership as an adaptive capability rather than a fixed managerial trait. Behavioral pathways visionary and communicative actions align organizations around shared missions; structural pathways capacity building and empowerment enable execution; cultural pathways trust and openness nurture innovation; and contextual pathways agility amid reform ensure resilience. This holistic framework extends⁵⁰ digital transformation theory and complements the OECD's digital government model by embedding cultural and institutional contingencies from developing democracies.⁵¹

⁴⁶ Janssen dan van der Voort, "Adaptive Governance: Towards a Stable, Accountable and Responsive Government."

⁴⁷ Christensen dan Lægreid, *The Ashgate Research Companion to New Public Management*.

⁴⁸ Ronald A. Heifetz, Alexander Grashow, dan Marty Linsky, *The Practice of Adaptive Leadership: Tools and Tactics for Changing Your Organization and the World* (Boston, MA: Harvard Business Press, 2009).

⁴⁹ Leonardo Teixeira, Amanda Gregory, dan Lucy Austin, "Public governance as a complex adaptive system: Implications for leadership and organizational learning," *Public Management Review* 24, no. 12 (2022): 1897–916, <https://doi.org/10.1080/14719037.2021.1937349>.

⁵⁰ Vial, "Understanding digital transformation: A review and a research agenda."

⁵¹ OECD, *SMEs in the Era of Hybrid Retail*.

From a practical standpoint, the findings have significant implications for leadership development and policy design. Initiatives like Kominform's Digital Talent Scholarship should be expanded to include executive-level digital literacy programs, aligning technical training with strategic foresight.⁵² Empowerment-based management models, as highlighted by Bainade et al., should be institutionalized through leadership development frameworks that reward experimentation and collaborative problem-solving. Furthermore, embedding innovation and citizen co-creation indicators within SPBE evaluations could formalize the measurement of leadership effectiveness, bridging policy aspirations with implementation realities.

The integration of adaptive leadership theory,⁵³ further underscores the need for continuous learning ecosystems within public institutions. Rather than perceiving digital leadership as an individual competence, the study suggests it as a distributed and evolving organizational capability. This perspective aligns with,⁵⁴ who advocate for collective and networked leadership approaches in collaborative governance settings.

5. Conclusion

This study demonstrates that digital leadership is a critical driver of public sector innovation in Indonesia's evolving digital governance landscape. The research highlights how visionary, empowerment-oriented, participatory, and adaptive leadership collectively foster transformation through behavioral, structural, cultural, and contextual mechanisms. Leaders who articulate a compelling digital vision, empower mid-level managers, and encourage participatory co-creation are more successful in sustaining innovation and institutional agility. Organizational digital capability through enhanced interoperability, data management, and cybersecurity serves as a mediating mechanism, while institutional reforms and policy shocks, such as the implementation of GovTech INA Digital and the PDNS cybersecurity incident, moderate leadership effectiveness.

These findings contribute to the theoretical understanding of digital leadership as an adaptive capability rather than a static managerial trait, emphasizing its dynamic interplay with institutional structures and cultural conditions. The study extends the discourse on digital governance by embedding leadership within the contextual realities of developing democracies. Practically, it suggests that leadership capacity-building should accompany technological investments to ensure sustainable transformation. Future research could expand this inquiry through comparative or longitudinal designs to examine how leadership adaptation evolves across national contexts and policy cycles. By integrating behavioral insight with organizational learning, this study provides a comprehensive framework for enhancing innovation and resilience in public administration.

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⁵² Weizi Li dkk., "E-Leadership Through Strategic Alignment: An Empirical Study of Small- And Medium-Sized Enterprises in the Digital Age," *Journal of Information Technology* 31, no. 2 (2016): 185–206, <https://doi.org/10.1057/jit.2016.10>.

⁵³ Warner dan Wäger, "Building Dynamic Capabilities for Digital Transformation: An Ongoing Process of Strategic Renewal."

⁵⁴ David Sjödin dkk., "Value Creation and Value Capture Alignment in Business Model Innovation: A Process View on Outcome-Based Business Models," *Journal of Product Innovation Management* 37, no. 2 (2020): 158–83, <https://doi.org/10.1111/jpim.12516>.

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