



Operational Management Model in Garut Village, West Java

Mia Kusmiati *

Sekolah Tinggi Ilmu Ekonomi Yasa Anggana, Indonesia; miakusmiati@yahoo.com

* Corresponding Author : miakusmiati@yahoo.com

Abstract: This article examines the operational management model of villages in Garut Regency, West Java, by emphasizing four key dimensions: governance, digital innovation, community participation, and the optimization of local resources. The study explores how the integration of participatory governance, technological innovation, and local potential can strengthen the effectiveness of village development and build an adaptive, sustainable governance system in the era of digital transformation. Using a Systematic Literature Review (SLR) approach, the research analyzes scientific publications and policy documents sourced from international databases such as Scopus and Web of Science, as well as national references including the 2025–2030 Garut Regency Medium-Term Development Plan (RPJMD) and reports from the Ministry of Villages, Disadvantaged Regions, and Transmigration. From an initial pool of 126 publications, 32 primary sources were examined through thematic coding to identify patterns, relationships, and key insights related to village governance, multi-actor collaboration, and public service digitalization. The findings reveal that good governance enhances transparency and accountability, digital innovation improves efficiency and data-driven decision-making, community participation strengthens social legitimacy, and the optimization of local resources supports sustainable economic value creation. These elements form the “Integrative Operational Management Model for Garut Villages,” which emphasizes adaptive collaboration and data-based management. The study also proposes practical strategies related to digital capacity-building, participatory planning, and applied research.

Keywords: Collaborative Management; Digital Transformation; Smart Village; Sustainable Development.; Village Governance.

1. Introduction

Village development in Garut Regency, West Java, is an integral part of national efforts to realize community welfare based on local potential and effective governance. Geographically, Garut is dominated by hilly and mountainous topography, resulting in uneven accessibility and connectivity between regions, particularly in the southern region, which is far from the district government center. This condition creates gaps in public services, access to technology, and efficiency in village resource management. Key challenges to regional development include increasing the capacity of village officials, structuring village-owned enterprise (BUMDes) institutions, and integrating village information systems to support data-driven decision-making.[5]. Socially, the Garut community is characterized by agrarian and religious characteristics with strong social ties, but still faces limitations in digital literacy and administrative capacity. This aligns with findings (2023) that emphasize the importance of incentive and accountability mechanisms within rural institutions to align with the global dimensions of the Sustainable Development Goals (SDGs).[1]. The implementation of good governance at the village level must be accompanied by a monitoring system, community participation and administrative transparency to create a balance between efficiency and social justice.[11], [8].

Received: September 21, 2025

Revised: October 17, 2025

Accepted: November 23, 2025

Published: November 25, 2025

Curr. Ver.: November 25, 2025



Copyright: © 2025 by the authors.

Submitted for possible open

access publication under the

terms and conditions of the

Creative Commons Attribution

(CC BY SA) license

([https://creativecommons.org/li](https://creativecommons.org/licenses/by-sa/4.0/)

[censes/by-sa/4.0/](https://creativecommons.org/licenses/by-sa/4.0/))

The issue of village operational effectiveness is closely related to the village government's ability to manage public services and local resources productively. The importance of applying operational and production management principles in the context of small organizations such as village governments is crucial to improving efficiency, productivity, and the quality of public services.[2].In Operational Management Services 4.0, it is emphasized that the digitalization era demands the integration of information systems, technology and data analytics to support responsive and community-oriented public services.[18], [19].In line with this, the collaborative governance approach can strengthen synergy between government stakeholders, communities, academics and the private sector in village management.[3].This collaborative model is crucial, given that sustainable rural development is inseparable from active citizen participation and cross-institutional involvement. The success of smart villages in Indonesia depends heavily on the integration of technological innovation and social empowerment.[7].

Digital transformation in village governance is also a key factor in improving operational management. The development of a rural digital governance platform can create an integrated information system that improves coordination and efficiency of public services.[4].A similar approach explains that digital transformation in rural areas requires government policy support, economic incentives, and increased human resource capacity to adapt to innovation.[8].Meanwhile, the development of digital villages has a direct impact on improving the quality of life of the community, especially in terms of access to basic services and social inclusion.[6].The context of Garut, with its vast natural and social resource potential, demands an operational management model that is adaptive to global change while remaining grounded in local values. In this regard, the integration of information technology, data-driven service systems, and a participatory approach can be key to achieving efficient and sustainable village governance. The smart village concept serves as inspiration for building intelligent villages capable of utilizing digital innovation to improve community welfare without abandoning the principle of social inclusivity.[26].Thus, this study aims to formulate a Garut Village Operational Management Model based on process efficiency, multi-stakeholder collaboration, and the utilization of data and digital technology. This model is expected to address the challenges of rural development in the era of digital transformation and serve as a reference for local governments and other village institutions in realizing sustainable development in rural areas.

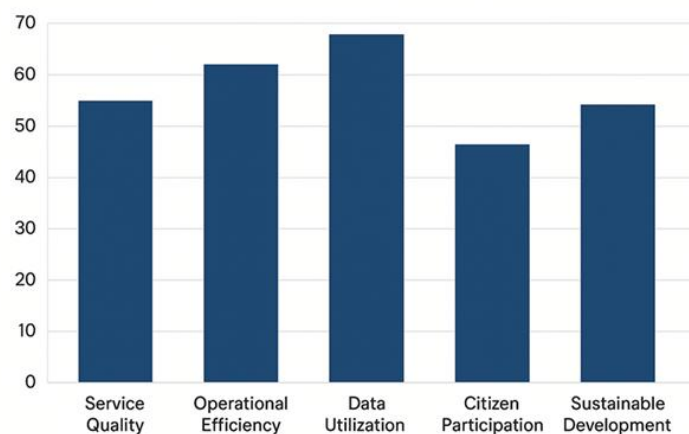


Figure 1: Operational Management Effectiveness in Garut Villages

Figure 1 above illustrates the level of operational management effectiveness in villages in Garut Regency, as measured by five main indicators: Service Quality, Operational Efficiency, Data Utilization, Citizen Participation, and Sustainable Development. Based on the visualization results, it can be seen that data utilization ranks highest compared to

other indicators, indicating an increase in village government awareness of the importance of data-driven decision-making. This is in line with the village digitalization policy and the implementation of the Village Information System (SID) initiated by the local government and the Ministry of Villages. Meanwhile, operational efficiency also shows quite good results, indicating improvements in the administration process and governance of village resources. However, the Citizen Participation indicator still shows a relatively low value compared to other indicators. This indicates the need to increase community involvement in the planning and implementation of village development programs so that the principles of good governance can be fully achieved. Meanwhile, the Service Quality and Sustainable Development dimensions show moderate results, indicating that public services in Garut villages still need to be strengthened through apparatus capacity development and digital service system integration. Overall, this graph emphasizes the importance of synergy between managerial efficiency, technology utilization, and community participation to encourage the realization of inclusive, adaptive and sustainable village development in Garut Regency.

2. Research methodology

This study uses a Systematic Literature Review (SRB) approach to examine scientific publications and policy documents discussing village operational management, digital governance, and community participation-based development practices in Garut Regency, West Java. The SRB approach was chosen because it provides a comprehensive synthesis of various empirical and conceptual literature, while ensuring transparency, repeatability, and methodological validity in the development of the conceptual model. In this context, village operational management is viewed as a multidimensional construct involving aspects of governance, digital information systems, community participation, and the optimization of local potential. Several literatures provide an important theoretical basis for this research: [1] highlighting incentive and accountability mechanisms in rural institutions that align with the SDGs, [2] emphasizes the principle of efficiency in operations and production management at the small organizational level, whereas [3] discusses the role of collaborative governance in increasing synergy between stakeholders. On the other hand, [4] And [6] highlights how digital transformation and the development of a rural digital governance platform can strengthen the coordination and efficiency of village public services. In line with this, [7], [8] And [26] emphasizes the importance of the smart village concept in bridging technological transformation and social empowerment of rural communities.

2.1. Research Questions

- a) How is the village operational management model in Garut developed to improve the efficiency and accountability of village government?
- b) What is the role of digitalization in strengthening village management and public service systems?
- c) What factors inhibit and encourage the implementation of a village operational model based on community participation?

2.2. Search Strategy

The literature search strategy was carried out systematically through reputable international and national databases, including Scopus, Web of Science, SpringerLink, Taylor & Francis Online, ScienceDirect, JSTOR, IEEE Xplore, and Garuda and SINTA DIKTI. The keywords used were a combination of the terms: “village operational management”, “digital governance”, “smart village”, “collaborative rural management”, “community participation in local governance”, and “data-driven rural development”. The search process used Boolean operators (AND/OR) to broaden or narrow the results, adjusting the research focus. Data sources were also strengthened by official documents such as the RPJMD of Garut Regency 2025–2030 [5], the report of the Ministry of Villages, Disadvantaged Regions and Transmigration (2023) [15], and local case studies in Sukrame, Pangauban, and Ciburial Villages that have implemented village information systems and collaborative governance approaches.

2.3. Inclusion/Exclusion Criteria

a) Inclusion Criteria:

- Scientific publications from 2020–2025 that have gone through a peer review process.
- English or Indonesian articles relevant to the topics of village operational management, digitalization of governance, or community participation.
- Official policy documents (Bappeda, BPS, Ministry of Villages, PDTT) that support the empirical context of the Garut region.

b) Exclusion Criteria:

- The article is opinion-based or not based on empirical data.
- Publications that focus on urban contexts or have no relevance to rural areas.
- Sources that lack methodological clarity or cannot be verified.

2.4. Data Analysis

The literature search identified 126 publications and official documents from international and national databases. After screening based on inclusion and exclusion criteria, and through a process of reading titles, abstracts, and brief contents, 32 primary sources were identified as most relevant to the themes of village operational management and the digital transformation of local government. These articles and documents were then analyzed using a thematic coding approach to identify patterns, interrelationships, and key contributions in the literature related to village governance, digitalization of public services, collaboration between actors, and optimization of local potential. This analysis process was carried out systematically by grouping the data into four broad themes: governance, digitalization, collaboration, and local potential optimization.

3. Thematic Findings and Synthesis

3.1. Village Governance and Operational Management

The village governance structure in Garut Regency is built through a multi-layered institutional system involving village governments, community organizations, and village-owned enterprises (BUMDes). Based on regional planning documents,[5],The village management system is aimed at strengthening data-based planning, fiscal transparency,

and public accountability in line with the Sustainable Development Goals (SDGs) framework.[1].The application of the principles of good governance is the basis for increasing the efficiency and credibility of public services at the village level.[11].Village leadership plays a key role in driving cross-agency coordination in planning, implementing and monitoring development programs.[8].The effectiveness of operational management is determined by the extent to which oversight systems, budget transparency, and public participation can be integrated into village governance. This model demonstrates that good governance emphasizes not only administrative control but also social collaboration and public accountability for sustainable development.[3], [5].

3.2 Digital Transformation and Service Innovation

Digital transformation in villages in Garut Regency serves as a catalyst for strengthening management efficiency and the quality of public services. The development of a rural digital governance platform is a crucial instrument for improving coordination between village officials and supporting data-driven decision-making.[4].The implementation of the Village Information System (SID) encourages accelerated access to public services and strengthens transparency in local government.[6], [10].Digital innovation not only improves administrative performance, but also strengthens public trust in government institutions.[8], [18].Integration between information technology, digital policies, and technological literacy of civil servants is a key element in achieving efficient governance.[15], [19].Thus, digital transformation in villages in Garut can be seen as the main foundation for strengthening data-based public service systems and citizen participation.[26], [27].

3.3 Multi-Stakeholder Collaboration

Sustainable village development requires cross-sector collaboration between government, academics, communities and the private sector.[3].This collaboration produces a social innovation ecosystem that supports increasing institutional capacity and the quality of human resources at the local level.[7].Collaboration between stakeholders functions as a mechanism for coordination and sharing resources to support the effectiveness of the implementation of development programs.[11], [20].The partnership between these actors strengthens the synergy between technological innovation and social empowerment of the community.[24], [26].Strengthening inter-village collaboration networks also expands access to external resources and accelerates inter-regional learning. Well-structured multi-stakeholder collaboration contributes to increased public accountability and creates participatory governance that adapts to digital change.[7], [20], [28].

3.4 Optimizing Local Potential

Garut Regency has superior potential in the fields of organic agriculture, natural tourism, and micro and medium enterprises which are the main basis for village economic development.[5], [23].Optimizing this potential requires an efficient supply chain management model, information system integration, and digital technology-based marketing strategies [18], [19]. The local potential-based development approach emphasizes productive and sustainable resource management, in accordance with the spirit of SDGs points 8 and 9 regarding inclusive economic growth and local industrial innovation.[1], [14], [26].The implementation of the smart village concept strengthens the relationship between local values and digital innovation, resulting in an inclusive and

globally competitive economic governance model.[6], [26], [27].Thus, optimizing local potential based on data and technology becomes a strategic element in creating village economic independence and strengthening social resilience in the Garut region.

4. Conceptual Model: “Integrative Operational Management Model for Garut Villages”

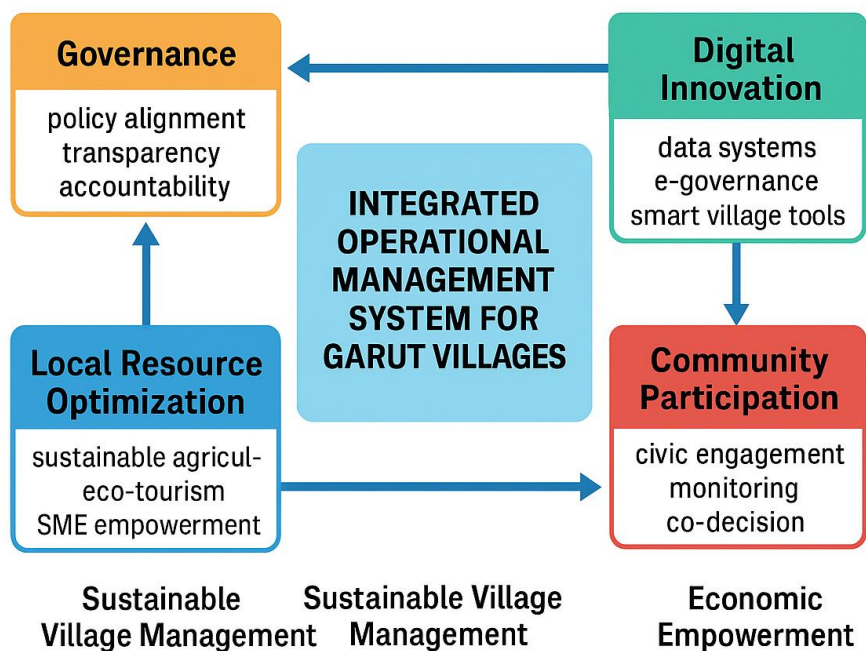


Figure 2: Integrative Operational Management Model for Garut Villages

Figure 2 displays the conceptual model of the “Integrative Operational Management Model for Garut Villages,” which represents a village operational management system that adapts to social, economic, and technological changes in the Garut region. This model is built on four main dimensions: governance, digital innovation, community participation, and local resource optimization, which interact within the framework of sustainable village development. The governance dimension serves as a control center that ensures transparency, accountability, and efficiency in resource management. Meanwhile, digital innovation plays a key role in the implementation of information technology, the village digital system (SID), and the smart village platform to support data-driven decision-making and accelerate public services. Furthermore, community participation acts as a reinforcement of social legitimacy and a means of establishing participatory governance, while local resource optimization serves as a pillar of the productive economy that integrates local potential such as agriculture, tourism, and MSMEs into the sustainable development system. These four elements operate synergistically in a mutually reinforcing cycle: governance guides policy, digital innovation increases efficiency, community participation ensures social acceptance, and local resource optimization generates sustainable economic value. Overall, this model emphasizes the importance of a data-driven and adaptive collaboration approach to creating resilient, inclusive, and future-oriented village governance in Garut Regency.

5. Strategic Implications

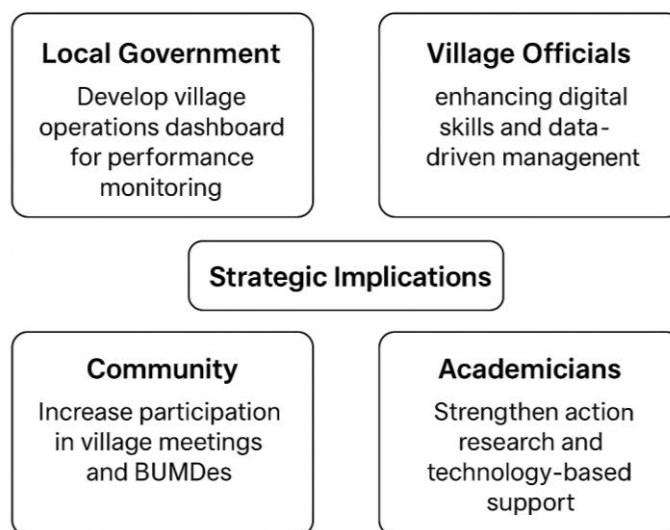


Figure 3: *Strategic Implications*

Figure 3 displays the strategic implications of the “Integrative Operational Management Model for Garut Villages” conceptual model, which illustrates the interconnectedness of the four main actors in the village governance system: local government, village officials, communities, and academics. These four components form a mutually reinforcing collaborative network in the implementation of data-driven and participatory operational management. The local government acts as a policy director by developing a village operations dashboard to monitor village performance in an integrated and transparent manner. Village officials are the primary implementers, requiring enhanced digital competency and data analysis capabilities to ensure more efficient and accountable administration, finance, and public service management. On the other hand, communities play a strategic role in strengthening social legitimacy through increased participation in village deliberations and the management of Village-Owned Enterprises (BUMDes), ensuring more targeted and sustainable development programs. Academics play a role in supporting this system through action research and technology-based mentoring to assist villages in implementing innovations and evaluating policies. This inter-actor synergy underscores the importance of a collaborative and evidence-based governance approach as the primary foundation for smart, inclusive, and sustainable village development in Garut Regency.

6. Conclusions and Future Directions

Biomaterials hold significant potential as a strategic opportunity to strengthen defense capabilities while simultaneously opening up business opportunities in the military industry. Biomaterial applications, ranging from personnel protection and biological sensor development to bio-based energy innovation, demonstrate that the defense sector can achieve significant operational advantages while generating economic impact through dual-use business models. This potential underscores the role of biomaterials not only as

technical solutions but also as strategic instruments in supporting the development of a modern, innovative, and competitive defense system.

However, various operational challenges such as the limited durability of biomaterials in extreme environments, mass production standards, and ethical and biological data security issues demand serious anticipatory measures. These efforts require the support of multidisciplinary research, adaptive regulations, and ongoing international collaboration to ensure biomaterials can be integrated into defense systems without compromising security or humanitarian values. Going forward, the focus of development needs to be directed toward adaptive, environmentally friendly, and sustainable biomaterials, so as not only to strengthen national resilience but also to align with the global agenda regarding green innovation and sustainability. Thus, biomaterials have the potential to become a key pillar in a modern national defense strategy based on technological innovation and global collaboration.

6. Conclusions and Future Directions

This research confirms that implementing a village operational management model in Garut Regency requires a foundation of participatory governance, adaptive digitalization of public services, and sustainable cross-actor collaboration. Through an integrative approach involving governance, digital innovation, community participation, and local resource optimization, village operational systems can be managed more efficiently, transparently, and accountably. The developed conceptual model illustrates that the success of village development depends not only on administrative effectiveness but also on social synergy, technological innovation, and strengthening institutional capacity at the local level.

The future development direction of this research focuses on the development of the Village Performance Index (VPI) as a quantitative instrument to comprehensively measure village performance. This index is proposed to assess operational efficiency, socio-economic resilience, and the level of community participation in village governance. The integration of big data analytics and real-time monitoring through the village operations dashboard can strengthen the evidence-based assessment system and serve as a basis for the formulation of more adaptive regional development policies. Thus, the future of village operational management in Garut is directed towards a smart governance system oriented towards efficiency, sustainability and the well-being of village communities.

References

- [1] A. C. Furqan, A. Kahar, R. Masdar, C. Andriana, F. Rahmadiyah, dan R. Risma, "Mechanism of incentives and accountability in rural institutions: Regional context in global dimensions of SDGS," *Cogent Economics & Finance*, vol. 11, no. 2, art. no. 2259274, 2023.
- [2] A. Pawar, M. Kusmiati dan A. Suryaningprang, *Manajemen Operasi dan Produksi*. Garut: CV. Aksara Global Akademia, 2022.
- [3] A. Winarna, *Collaborative Governance: Teori & Praktik dalam Perspektif Kebijakan Pertahanan*, ed. S. Sundari. Garut: CV. Aksara Global Akademia, 2023.
- [4] B. Zhang, W. Xiong, J. Yin, P. Zhang, dan B. Liu, "How to Form the Rural Digital Governance Platform—Under the Framework of Mixed-Scanning—Multiple Streams—Based on an Empirical Investigation of the Platform of 'JuHaoban' in Julu County, Hebei Province," *Sustainability*, vol. 17, no. 6, art. no. 2517, 2025.
- [5] Bappeda Kabupaten Garut, *Rencana Pembangunan Jangka Menengah Daerah (RPJMD) Kabupaten Garut 2025–2030*, Garut, Indonesia, 2025.

- [6] C. Bai, W. Guan, D. Wang, dan X. Chen, "Digital village construction and the quality of life of rural residents," *International Review of Economics & Finance*, vol. 96, art. no. 103729, 2024.
- [7] E. A. Muhtar, A. Abdillah, I. Widianingsih, dan Q. M. Adikancana, "Smart villages, rural development and community vulnerability in Indonesia: A bibliometric analysis," *Cogent Social Sciences*, vol. 9, art. no. 2219118, 2023.
- [8] E. Aspinall, "Analysing and explaining variation in village governance regimes across Indonesia," *Journal of Peasant Studies / Contemporary Southeast Asia* (Taylor & Francis), 2025.
- [9] F. Sidik, "Village Funds' and Class Dynamics in Rural Indonesia," *Contemporary Southeast Asia* (Taylor & Francis), 2024.
- [10] H. Chen, G. Wang, C. Mei, Y. Yang, dan L. Xu, "Application of Digital Governance Technology under the Rural Revitalization Strategy," *Mobile Information Systems*, vol. 2022, art. no. 4046010, 2022.
- [11] Handayani, E., Garad, A., Suyadi, A., & Tubastuvi, N., "Increasing the performance of village services with good governance and participation," *World Development Sustainability*, vol. 3, art. no. 100089, 2023.
- [12] I. N. Subanda dan N. L. Y. Dewi, "Smart Village Development Efforts Based on Communication Strategy Formulation and Policy Advocacy," *Springer Professional*, 2024.
- [13] J. M. Williams, "Commoning for Rural Revitalisation in the Peri-Urban Setting," *Journal Name*, 2024.
- [14] J. Ren, X. Chen, L. Shi, P. Liu, dan Z. Tan, "Digital Village Construction: A Multi-Level Governance Approach to Enhance Agroecological Efficiency," *Agriculture*, vol. 14, no. 3, art. no. 478, 2024.
- [15] Kementerian Desa, Pembangunan Daerah Tertinggal, dan Transmigrasi Republik Indonesia, *Laporan Kinerja Pembangunan Desa Digital*, Jakarta, Indonesia, 2023.
- [16] L. Wotshela, "Overlying and muddled power: the Ciskei Bantustan's disputed rural governance in the twilight decade of apartheid, c. 1985–95," *Review of African Political Economy*, vol. 51, no. 180, 2024.
- [17] Liu, Z., "Cooptating the New Elites: Targeted Poverty Alleviation and Policy Implementation in Rural China," *China Review*, vol. 22, no. 3, 2022.
- [18] M. Kusmiati, *Manajemen Operasional Jasa 4.0: Strategi Digital untuk Manajemen Jasa Meningkatkan Kinerja dan Kepuasan Pelanggan*. Garut: CV. Aksara Global Akademia, 2024. ISBN: 978-623-8704-14-9.
- [19] M. Kusmiati, *Manajemen Operasional: Revolusi Digital dalam Manajemen Operasional dari Teori ke Praktik*. Garut: CV. Aksara Global Akademia, 2024. ISBN: 978-623-8704-10-1.
- [20] N. Mugabi, "Livelihood outcomes of social innovations for mobile-enabled rural services," *Regional Studies, Regional Science / Rural Studies* (Taylor & Francis), 2024.
- [21] R. Huang dan W. Liu, "Construction of rural governance digital driven by artificial intelligence and big data," *Mathematical Problems in Engineering*, vol. 2022, art. no. 8145913, 2022.
- [22] R. Li, "Revisiting Deliberative Governance: The Case of Land Transactions in Rural China," *China Perspectives*, 2023.
- [23] T. M. Mazya, "Finding a Neue Gemeinschaft in rural Indonesia," *Land Use Policy*, vol. 132, art. no. 106480, 2023.
- [24] T. R. Santanu, D. Rustandi, dan M. Kusmiati, *Membangun SDM Unggul Era Society 5.0: Pengukuran dan Evaluasi Kinerja Berbasis Teknologi*, ed. S. Rusdian dan D. Nurhayati. Garut: CV. Aksara Global Akademia, 2024.
- [25] T. Wu, "How digital villages can contribute to the level of common wealth based on the dual empowerment perspectives of industrial development and digital finance," in *Proceedings of the DEAI 2025: The 2nd Guangdong-Hong Kong-Macao Greater Bay Area International Conference on Digital Economy, Artificial Intelligence, and Inclusive Innovation*, 2025.
- [26] V. I. Lakshmanan (Ed.), *Smart Villages: Bridging the Global Urban–Rural Divide*. Singapore: Springer, 2023.
- [27] X. Chen, Y. Li, dan Q. Zhao, "Digital technology-driven smart society governance: modernization and practice," *Asia-Pacific Journal of Regional Science*, vol. 7, no. 2, pp. 215–234, 2023.
- [28] Young, S. L., & Tanner, J., "Citizen participation matters. Bureaucratic discretion matters more," *Public Administration*, 2023.
- [29] Z. Liu, P. Gao, dan W. Li, "Research on Big Data-Driven Rural Revitalization Sharing Cogovernance Mechanism Based on Cloud Computing Technology," *Wireless Communications and Mobile Computing*, vol. 2022.
- [30] Z. Yang, "Informatization Construction of Rural Governance Based on Data-Driven Approaches," *Proceedings of ICCMT 2024*, 2024.