

Exploration of Governance, Institutional and Technology Adaptation Models of Village-Owned Enterprises (Bumdes) in Encouraging Village Independence

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ABSTRACT:

This study develops an integrative adaptive governance model for Village-Owned Enterprises (BUMDes) by combining governance reform, institutional strengthening, and technological adaptation to support rural economic self-reliance. The research addresses the persistent challenges faced by BUMDes in Kolaka Regency, Indonesia, where only 38 of 100 enterprises remain active and only 8 possess legal status. Weak managerial capacity, unclear remuneration systems, and the absence of standardized operating procedures have contributed to low organizational performance, declining motivation, and reduced community trust. Using a qualitative case study approach with Participatory Action Research (PAR), data were collected through observation, focus group discussions, in-depth interviews, and document analysis. Participatory Rural Appraisal (PRA) was employed to identify root causes of institutional problems, while stakeholder analysis using Empathy Mapping and the Power-Interest Grid examined actor dynamics. Dynamic System Modeling (DSM) supported by Causal Loop Diagrams (CLD) was applied to analyze systemic relationships among governance variables. Data were analyzed using Creswell's spiral model. The findings reveal that weak institutional legitimacy, inadequate legal foundations, and limited human resource capacity are the primary barriers to BUMDes sustainability. Stakeholder mapping identifies village heads, BUMDes managers, and facilitators as key actors in institutional reform, while youth and women remain underutilized resources for participatory innovation. System dynamics analysis shows that reinforcing feedback loops sustain organizational decline, whereas balancing loops emerge through adaptive interventions, including capacity-building programs, transparent operating procedures, and participatory governance forums. The study contributes a novel adaptive governance framework that integrates governance, institutional design, and technological adaptation, offering practical guidance for strengthening BUMDes sustainability and rural development.

Keywords: Policy Capacity, Analytical, Operational, Political, Policy Governance

Introduction. Villages are the smallest government entities that play a strategic role in economic development and community welfare. Law Number 6 of 2014 encourages the establishment of Village-Owned Enterprises (BUMDes) as the primary instrument for managing local potential independently and sustainably. As a manifestation of decentralization and community empowerment, BUMDes are expected to be able to drive the local

economy and increase village independence. The government has allocated Rp 400.1 trillion in village funds since 2015 to 82,395 villages as an effort to accelerate development. However, of the 83,843 villages in Indonesia, only 2,906 villages (3.47%) have successfully achieved Independent Village status. A comparison of the number of villages and independent villages by province can be seen in the data below.



Figure 1. Comparison chart of the number of villages and independent villages in Indonesia

condition indicates that the implementation of village fund policies and the establishment of BUMDes are still not optimal. The main challenges include weak governance, an underdeveloped institutional structure, and a lack of adaptation to village social and economic dynamics. BUMDes have a crucial role in realizing sustainable development goals, particularly in the context of the 2025–2029 RPJMN through Asta Cita 6, namely village-based development for economic growth, equity, and poverty alleviation. Village fund policies and the establishment of BUMDes in supporting development and community empowerment are

good, but at the implementation stage, they have not been able to significantly realize independent villages. One area that reflects this challenge is Kolaka Regency, Southeast Sulawesi Province. Reported from the site <https://bumdes.kemendes.go.id/> 2023 Southeast Sulawesi, including Kolaka, is an area that does not yet have an independent village. Meanwhile, this area has enormous economic potential in the mining, agriculture, plantations, tourism, and trade sectors (Badan Pusat Statistik Kabupaten Kolaka. (2024).

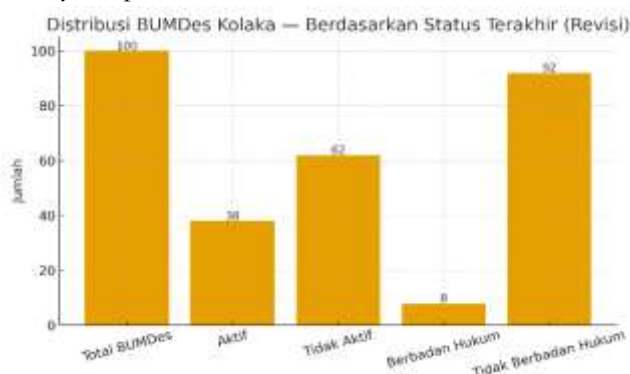


Figure 2. Number of Kolaka BUMDes

According to the latest data, the number of BUMDes in Kolaka Regency has reached 100 units, but only 38 BUMDes are active, while the other 62 are inactive. This condition indicates that more than half of BUMDes are not yet able to optimally fulfill their role as instruments of local economic development. From an institutional perspective, only 8 BUMDes have legal status, while the other 92 BUMDes do not have an adequate legal basis. The lack of institutional legality is a serious problem because legal status is a crucial requirement for strengthening BUMDes' capacity to establish partnerships, access financing, and expand businesses.

This situation reflects the gap between the quantity and quality of village-owned enterprise (BUMDes) institutions. Formally, a large number of BUMDes is often used as an indicator of the success of village development policies. However, if more than half are inactive, this achievement is illusory and raises critical questions about the effectiveness of village policies in strengthening community economic independence (Grindle, 1980; Uphoff, 1992). This aligns with the findings of Nugraha & Bahari (2019), who emphasized that the main weaknesses of BUMDes in many regions lie in governance, managerial capacity, and low community participation.

Furthermore, the low level of sustainability of village-owned enterprise (BUMDes) businesses in Kolaka also indicates problems in governance. North's (1990) institutional theory emphasizes that the success of local economic organizations is largely determined by the existence of formal and informal rules that create stability and certainty in interactions between actors. In this context, the lack of legal entities in most BUMDes demonstrates a weak institutional foundation, impacting BUMDes' inability to adapt, innovate, and withstand market pressures and local political intervention.

Thus, Kolaka's BUMDes data not only illustrates administrative issues but also reflects an institutional crisis in the implementation of village development policies. This situation demands serious efforts to restructure the governance model and strengthen the institutional capacity of

BUMDes so that they can truly serve as instruments for realizing village independence.

Studies and research related to the sustainable development model (Said et al., 2016), policy implementation model (Said, 2013), effectiveness of BUMDes governance (Hidayat et al., 2024), increasing BUMDes capacity (Hidayat, 2024), and increasing village participation in development (Hidayat et al., 2023) have been conducted by the author but have not systematically identified the core problems regarding weak BUMDes governance and institutions, low capacity of BUMDes members and supervision. This is different from previous studies that have systematically identified problems in aspects of BUMDes governance (Hamid & Maulindra, 2019; Ghofar et al., 2015; Aji et al., 2025), the role of BUMDes in sustainable economic development (Harinurdin et al., 2025), community-based village economic transformation through BUMDes (Tarlan et al., 2022), and rural development (Arifin et al., 2020; Hilmawan et al., 2023).

Studies on village governance and BUMDes (Satoto et al., 2024), BUMDes institutions (Rivai et al., 2024), entrepreneurial knowledge capital in improving BUMDes performance (Shara & Narsa, 2025), and the utilization of technology in village development and BUMDes (Wulandari & Lestari, 2024; Khan et al., 2024; Fox & Griffy-Brown, 2024) have experienced rapid development along with increasing attention to the importance of village independence as a basis for national development. Academic attention to BUMDes as a village economic instrument has also become more intense, both in the context of institutions, governance, and the role of technology in accelerating village socio-economic transformation. Zeybek and Erdoğan (2025) examine how the application of the Community Sustainability Assessment (CSA) approach in traditional villages in Turkey can identify potential and challenges in transformation efforts towards sustainable villages. This study emphasizes the importance of a multi-dimensional approach and local indicators in assessing village capacity and highlights the need for institutional and infrastructure strengthening for villages in hilly areas. On the other hand, Khan et al.

(2024) develop a decentralized governance framework to support the concept of smart villages in various developing countries. The results of the study show that an adaptive and participatory governance model is key in providing relevant and sustainable technological solutions for villages. The digitalization trend is a major focus in modern village-owned enterprise (BUMDes) governance. The use of financial applications and village information systems improves operational efficiency (Wulandari & Lestari, 2024; Fox & Griffy-Brown, 2024). BUMDes that are able to adapt to technology demonstrate better performance and attract greater participation from the younger generation. Successful BUMDes, such as Ponggok Village, emphasize the importance of community empowerment based on local potential (Sidik et al., 2019).

Overall, these studies provide a deep understanding of the importance of integrating governance, local institutions, and technology adaptation in strengthening village development. However, there are three main *research gaps*: (1) there is no integrated model that fully combines participatory governance, contextual institutions, and technology adaptation; (2) the lack of longitudinal and cross-socio-cultural studies in assessing the success of BUMDes; and (3) the dominance of descriptive approaches without producing innovative, replicable models. This research aims to fill these gaps with a holistic approach through *Participatory Action Research*, *Empathy & Stakeholder Mapping methods*, and the design of a dynamic model based on adaptive governance. Focusing on Kolaka Regency as a local context allows for the trial of a relevant and applicable model. The results of this research are expected to provide theoretical and practical contributions in encouraging the transformation of BUMDes towards sustainable village independence.

Methods

This research uses a qualitative case study approach divided into several stages, namely (1) Problem Discovery, finding the root of the problem that focuses on why BUMDes failed, identifying leadership, identifying weak regulations and unclear organizational structures using the Participatory

Rural Appraisal (PRA) method. The output of this stage is to produce a problem map of BUMDes institutions. (2) Empathy & Stakeholder Mapping, in this stage involving all stakeholders, village government, BUMDes community managers, women, youth and local partners to understand the needs, fears, and hopes of each party towards BUMDes. The results at this stage are a map of power relations & influence in BUMDes Governance. (3) Adaptive Governance and Dynamic Model Design, building a BUMDes Governance model based on adaptive governance, namely flexible in organizational structure, responsive to village dynamics, and inclusive in decision making. The method used is Dynamic System Modeling. The data needed in this study were collected using techniques in the form of participatory observation, FGD, in-depth interviews and documentation studies with the determination of informants using the Snowball method. The data analysis process in this study will use the Spiral Model data analysis technique. This model offers several significant advantages when applied to case study research methods. One of the main advantages is the flexibility and repetition that allow me to return to the collected data, make revisions, and deepen my understanding as the research progresses.

Results

Empirical Problems of Village-Owned Enterprises in Kolaka

The results of the FGD and field observations revealed several root causes hampering the effectiveness of village-owned enterprise (BUMDes) institutions in Kolaka Regency. The relationship between root causes, core issues, and impacts is depicted in a problem tree diagram (Figure 1). This diagram shows that weak governance leads to low social legitimacy, internal conflict, and limited BUMDes contributions to Village Original Income (PAD).

The results of the FGD and consolidated field data indicate that the main problems in BUMDes governance in Kolaka are rooted in institutional and managerial weaknesses. Prominent root causes include: minimal management and entrepreneurship

training, the absence of standard operating procedures (SOPs) regarding salaries and profit sharing, articles of association (AD/ART) that do not regulate terms of office and are vulnerable to political interference, the absence of feasibility studies, and weak human resource capacity due to a lack of training. A new identified problem is the low and unclear payroll system for BUMDes administrators, which further worsens work motivation and reduces management professionalism.



Figure 3. Problem Tree Diagram

Source: Problem Mapping FGD

From these root causes, the main symptoms/problems that are visible in the BUMDes operations emerge, such as: the absence of regular reports, non-transparent and non-standard salaries, administrators working without clear rules of rights and obligations, high frequency of changes in administrators, assets/capital not being utilized optimally, and work programs that are not running. The low and unclear salary system also creates *moral hazard* in management, increases the

risk of internal conflict, and triggers low long-term commitment of administrators.

The accumulation of these problems has had an impact at both the institutional and social levels. Visible impacts include declining public trust in BUMDes, reduced work motivation among administrators, the emergence of internal conflicts due to differing perceptions, the loss of work program continuity, potential financial losses, and open conflict and shifting blame. If left unaddressed, these impacts will hamper BUMDes' role as a key instrument in supporting village independence.

Thus, this problem tree analysis confirms that BUMDes institutional reform must begin at the root of the problem, specifically improving human resource capacity, standard operating procedures (SOPs), and establishing a proper and transparent payroll system. These root improvements will mitigate the underlying problem and prevent broader systemic impacts.

Identification of Key Actors & Intervention Strategy

Power interest grid analysis is used to map the actors involved in village-owned enterprise (BUMDes) governance. This mapping helps understand the positions, interests, and power of these actors, allowing for contextually tailored intervention strategies. According to Bryson (2004), actor mapping is a crucial part of collaborative strategies because it helps identify who needs to be actively involved and who needs to be managed more strategically. This way, BUMDes governance can be directed in an inclusive and participatory manner.

Table 1. Identification of Actors & Intervention Strategies

No	Actor Category (Power-Interest)	Intervention Strategy
1	High Power - High Interest (Village Head, BUMDes Chair, Village Assistant)	Form a BUMDes governance team in the village to prepare SOPs for payroll, financial reports, and work mechanisms.

		Hold monthly coordination meetings. Encourage their involvement as the main person responsible for the work program.
2	<i>High Power - Low Interest</i> (PMD Service, Local Political Figures)	Initiate MoU between PMD Service and village government. Create a simple online monitoring dashboard. Organize village-district consultation forums at least twice a year.
3	<i>Low Power - High Interest</i> (Village Youth, Women's Groups)	Organizing micro business management training. Forming small business groups under BUMDes. Provide participation incentives based on business results.
4	<i>Low Power-Low Interest</i> (Community Leaders, RT/RW Heads)	Involving community leaders in village deliberations. Appoint them as informal mediators. Invite them to a forum to socialize the results of BUMDes performance.

The table above shows that each actor has a different position in *the power-interest grid*. The Village Head, the Head of the Village-Owned Enterprise (BUMDes), and the Village Facilitator, who fall into the *high-power-high-interest category*, need to be fully involved in policy formulation. Meanwhile, the Village Development Agency (PMD), which falls into the *high-power-low-interest category*, needs to be provided with a monitoring mechanism to stay connected to the dynamics of the BUMDes without always having to be directly involved. Village youth and women, who fall into the *low-power-high-interest category*, can be empowered through training and the establishment of small business units. Community leaders, who fall into the *low-power-low-interest category*, are crucial for involvement as guardians of social legitimacy.

According to Quick and Bryson (2016), the success of collaborative governance depends on the extent to which actors with varying levels of *power* and *interest* can be integrated into the decision-making process. Thus, *the power-interest grid* is not only an analytical tool, but also a practical instrument for designing interventions.

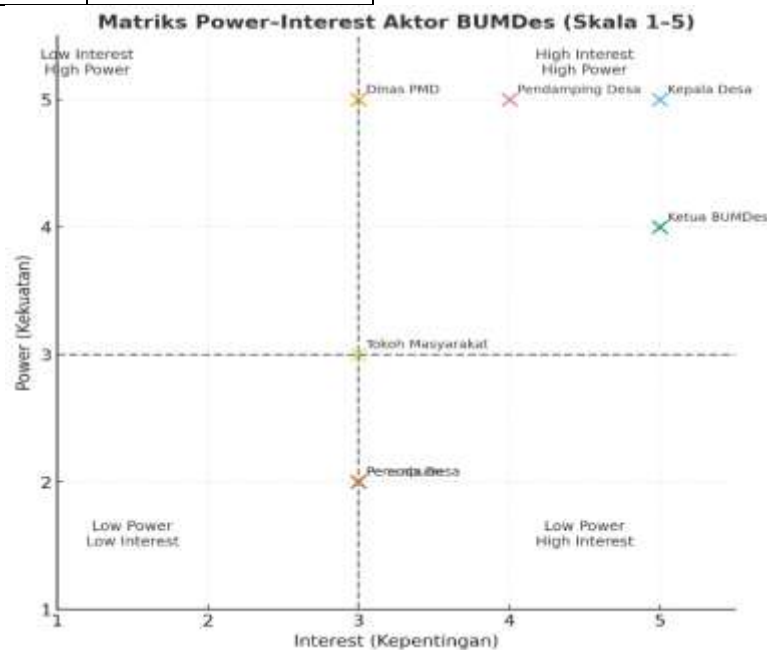


Figure 4. Power Interest Grid Mapping of BUMDes Actors

By referring to power-interest analysis, the governance strategy for BUMDes in Kolaka can be designed to be more technical and applicable. This is expected to address root problems such as the lack of payroll SOPs, minimal management training, and low management motivation.

System Dynamics Model (DSM) in BUMDes Governance

Dynamic System Modeling (DSM) is an approach that emphasizes the interrelationships between variables within a system through feedback loops. According to Sweeney & Sterman (2000), DSM is used to understand how certain policies can have long-term, often non-linear consequences. In the context of BUMDes in Kolaka, DSM is relevant because various problems such as weak human resources, the absence of payroll SOPs, and low administrator salaries are interrelated and give rise to systemic

impacts such as decreased motivation, loss of public trust, and disruption to institutional sustainability.

Relationship between Root Causes, Main Problems, and Impacts

From the problem tree structure that has been created, It can be understood that the root of the problem is human resource capacity, minimal training, and the absence of SOPs causing major problems such as weak management performance, work programs that do not run smoothly, and high frequency of management turnover. These main problems then give rise to systemic impacts such as decreased management motivation, reduced public trust, and disrupted the sustainability of BUMDes. According to Forrester (1961), system dynamics always move through *reinforcing loops* (problem reinforcement) and *balancing loops* (balancers), which in the case of BUMDes in Kolaka can be seen from the negative and positive feedback loops.

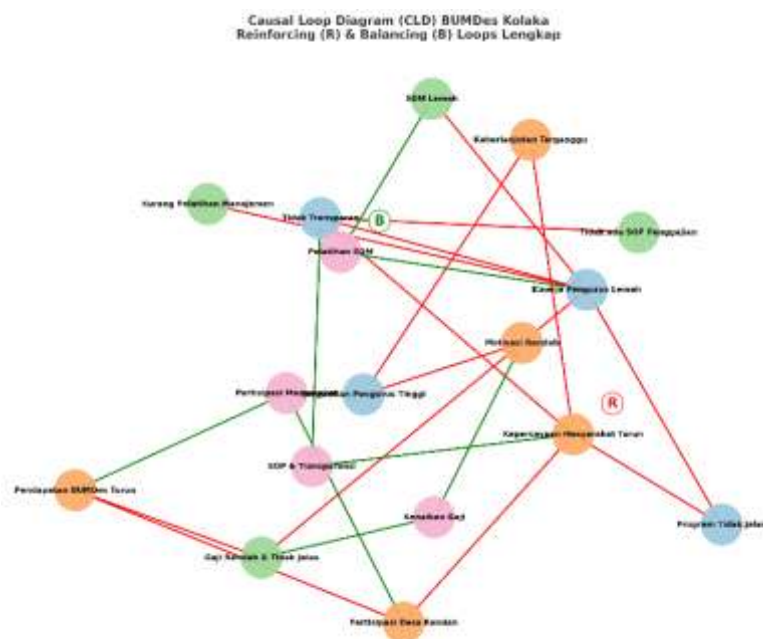


Figure 5. Causal Loop Diagram (CLD) of Kolaka BUMDes

The image above shows the Kolaka BUMDes Causal Loop Diagram (CLD), which maps the cause-and-effect relationships between institutional variables. The red line indicates the reinforcing loop (R), a negative feedback loop that worsens conditions, for example, low salaries reduce motivation, weaken management performance, and

ultimately lead to a decline in public trust and BUMDes revenue. Conversely, the green line depicts the balancing loop (B), or positive feedback loop, where interventions such as HR training, transparent SOPs, salary increases, and increased community participation can break the cycle of problems and strengthen institutional performance.

Thus, this CLD emphasizes that the sustainability of BUMDes is largely determined by the ability to shift dynamics from a negative loop to a positive loop through adaptive and collaborative interventions.

The analysis of DSM and CLD in the governance of BUMDes in Kolaka shows that seemingly simple issues are actually complexly interconnected. In line with Sterman's (2000) view, understanding the feedback loop is crucial for designing effective policies. Quick and Bryson (2016) add that the success of collaborative governance depends not

only on powerful actors but also on how all parties with different interests can be integrated. Thus, CLD is not only an analytical tool but also a strategic map for understanding the most effective interventions to strengthen BUMDes performance.

Model Adaptive Governance in BUMDes Governance in Kolaka

Adaptive governance values approach as proposed by Folke et al. (2005), Ostrom (2005), and Bryson & Crosby (2014).

Table 2. Adaptive Governance Model of Kolaka Village-Owned Enterprises

No	Adaptive Governance Pillars	BUMDes Improvement Solutions in Kolaka
1	Learning & Reflexivity	Regular training programs (financial management, digital marketing, entrepreneurship) in collaboration with universities/NGOs; comparative studies with advanced BUMDes.
2	Polycentric Institutions + Institutional Fit	Developing SOPs for payroll and profit-sharing systems based on local potential; independent oversight ensuring transparency; and performance-based pay and business contribution.
3	Institutional Fit	Revise the Village-Owned Enterprises' Articles of Association (AD/ART) with clauses on term of office and participatory recruitment mechanisms; monitoring by the Village-Owned Enterprises Agency (PMD) to reduce political intervention.
4	Learning & Reflexivity + Collaboration & Trust	Conduct a participatory feasibility study involving the community and business partners before opening a new business unit.
5	Collaboration & Trust	Partnerships with the private sector/cooperatives to optimize assets; publication of annual BUMDes reports openly in the village.
6	Participatory Engagement	Regular discussion forum between administrators, the community, and the village government to monitor achievements and decide on improvements.

The table above shows that the fundamental weaknesses of BUMDes in Kolaka stem from the lack of standard regulations, weak human resources, and minimal transparency. *Adaptive governance-based solutions* provide a more contextual direction for interventions. *Participatory Engagement* builds legitimacy and increases public trust. *Polycentric Institutions* ensure transparency and accountability, including improving payroll. *Learning & Reflectivity* strengthens human resource capacity and provides space for reflection on best practices. *Collaboration & Trust* opens opportunities for partnerships and access to capital, while *Institutional Fit* ensures that BUMDes policies are aligned with local conditions. By implementing these principles, BUMDes in Kolaka can become more adaptive, professional, and independent institutions.

The findings of this study demonstrate that the success of Village-Owned Enterprises (BUMDes) is not solely determined by the availability of economic resources, but also by the quality of governance, institutional capacity, and the ability of local actors to manage policies adaptively. This finding is consistent with the argument of Pettarani et al. (2024), who emphasize that public policy functions as a strategic instrument for directing social change through coordinated decision-making, implementation, and evaluation processes involving multiple actors. In the context of BUMDes in Kolaka Regency, the absence of standard operating procedures, limited human resource capacity, and weak coordination among stakeholders indicate that the effectiveness of rural development policies is strongly influenced by the quality of the underlying institutional governance. Therefore, strengthening governance mechanisms becomes a prerequisite for improving organizational performance and ensuring the sustainability of village economic institutions.

The results reinforce the view that sustainable rural development requires the integration of economic, social, and institutional dimensions. Ramadhan et al. (2024) argue that public policies aimed at sustainable development must balance economic growth with community participation and institutional strengthening. In addition, the adaptive governance model developed in this study aligns with the perspective of Said and Mustafa (2024),

who highlight the importance of actor analysis, power relations, and stakeholder collaboration in determining policy outcomes. The integration of governance reform, institutional strengthening, and technological adaptation proposed in this research therefore provides a more comprehensive framework for addressing the structural weaknesses of BUMDes while simultaneously promoting long-term village self-reliance and sustainable local development.

The findings reveal that the fundamental challenges facing BUMDes in Kolaka are not merely related to limited financial resources or economic potential, but rather to weaknesses in governance capacity that prevent available resources from being transformed into sustainable institutional performance. The Problem Tree Analysis, Power-Interest Grid Mapping, Dynamic System Modeling (DSM), and Causal Loop Diagram (CLD) collectively demonstrate that inadequate managerial competence, the absence of clear operational standards, weak institutional legitimacy, and limited participatory mechanisms create a reinforcing cycle of poor performance and declining public trust. These findings suggest that the success of BUMDes cannot be achieved through an administrative approach focused solely on establishing organizations; instead, it requires a transformative governance framework capable of fostering legitimacy, accountability, adaptive capacity, and collaborative engagement among stakeholders. Consequently, the Adaptive Governance Model proposed in this study contributes both theoretically and practically by demonstrating that village self-reliance emerges not from the mere existence of BUMDes as formal institutions, but from their capacity to learn, adapt, build trust, and integrate diverse stakeholder interests in responding to ongoing social, economic, and technological changes.

5. Conclusion

This study shows that weaknesses in the governance and institutional structure of Village-Owned Enterprises (BUMDes) in Kolaka Regency significantly limit their role in promoting village independence. Empirical findings reveal three main

interrelated challenges: the lack of standard governance mechanisms (e.g., a transparent payroll system and clear standard operating procedures), weak institutional legitimacy due to a lack of legal basis, and low human resource capacity. Using the Dynamic System Modeling (DSM) and Causal Loop Diagram (CLD) approaches, it is clear that these issues form a negative feedback loop that weakens performance, motivation, and community trust. However, adaptive interventions such as training, strengthening legality, and participatory engagement can shift the dynamics toward a positive loop that strengthens institutional resilience.

Theoretically, this research enriches the literature on village governance and rural development by integrating the principles of adaptive governance and a systemic modeling approach. Different from previous descriptive studies, this research offers an integrated model that combines institutional fit, reflective learning, collaboration, and polycentric governance tailored to the socio-political context of BUMDes. The power-interest grid analysis also provides a novel contribution by demonstrating how actor mapping can be operationalized in collaborative governance practices, allowing actors with varying levels of power and interests to be strategically managed.

From a practical perspective, this research has direct implications for village governments, village-owned enterprise (BUMDes) managers, and stakeholders. Strengthening legal status, establishing transparent governance procedures, and institutionalizing participatory mechanisms are key steps to increasing accountability and social legitimacy. At the same time, developing strategic partnerships with the private sector, cooperatives, and universities plays a crucial role in accelerating knowledge transfer and technology adaptation, enabling BUMDes to respond to market dynamics and village socio-economic transformations.

For further research, longitudinal and comparative studies across regions are needed to assess the sustainability of adaptive governance models across diverse contexts. Quantitative validation of the proposed model, as well as cross-country analysis of the practices of community-based economic

institutions, can strengthen the generalizability and robustness of the findings. Therefore, future studies are expected to broaden the theoretical and empirical foundations for understanding the interrelationships between governance, institutions, and technological adaptation in achieving village independence and sustainable development.

Declarations

Author Contributions

All authors contributed equally to all stages of this research, including the formulation of ideas and concepts, data collection and analysis, as well as the writing and revision of the manuscript. Each author actively participated in discussions, reviews, and refinements to ensure the completion of this draft.

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Conflicts of Interest

The author declares that there is no conflict of interests regarding the publication of this manuscript. In addition, the ethical issues, including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, and redundancies have been completely observed by the authors

References

- Aji, J. S., Mina, F. L. P., & Pahlevi, R. W. (2025). The effectiveness of the role of village-owned enterprises (BUMDes) as an instrument for improving community economic empowerment. *IOP Conference Series: Earth and Environmental Science*, 1475(1).
- Arifin, B., Wicaksono, E., Tenrini, R. H., Wardhana, I. W., Setiawan, H., Damayanty, S. A., et al. (2020). Village fund, village-owned enterprises, and employment: Evidence from Indonesia. *Journal of Rural Studies*, 79, 382–394. <https://doi.org/10.1016/j.jrurstud.2020.08.052>
- Badan Pusat Statistik Kabupaten Kolaka. (2024). *Kabupaten Kolaka dalam angka 2024* (Vol. 16). Badan Pusat Statistik Kabupaten Kolaka. <https://kolakakab.bps.go.id/>
- Bryson, C. (2004). The consequences for women in the academic profession of the widespread use of fixed term contracts. *Gender, Work & Organization*, 11(2), 187-206.
- Bryson, J. M., & Crosby, B. C. (2014). Failing into cross-sector collaboration successfully. In *Big ideas in collaborative public management* (pp. 65-88). Routledge.
- Folke, C., Hahn, T., Olsson, P., & Norberg, J. (2005). Adaptive governance of social-ecological systems. *Annu. Rev. Environ. Resour.*, 30, 441-473.
- Forrester, A. T. (1961). Photoelectric mixing as a spectroscopic tool. *Journal of the optical society of America*, 51(3), 253-259.
- Fox, S., & Griffy-Brown, C. (2024). Sustainable technology in society: Technology in Society briefing. *Technology in Society*, 77, 102486. <https://doi.org/10.1016/j.techsoc.2024.102486>
- Ghofar, A., Pangestuti, E., Wulandari, P. P., HS, & AWK. (2015). Strengthening the governance of village-owned business entity (BUMDes) for sociopreneurship encouragement. *International Journal of Accounting, Business and Society*, 29(3), 6.
- Hamid, A. M., & Maulindra, M. B. S. A. (2019). Penerapan good corporate governance dalam tata kelola BUMDes Sumber Jaya. *ADILLA: Jurnal Ekonomi Syariah*, 2(2), 3–4.
- Harinurdin, E., Laksmo, B. S., Kusumastuti, R., & Safitri, K. A. (2025). Community empowerment utilizing open innovation as a sustainable village-owned enterprise strategy in Indonesia: A systematic literature review. *Sustainability*, 17(8), 1–30.
- Hidayat, R., & D. (2024). Peningkatan kapasitas BUMDes dalam pemberdayaan ekonomi masyarakat menuju desa mandiri, 6(1), 653–658.

- Hidayat, R., Amalia, D. R., & DF. (2024). The effectiveness of village-owned enterprise management in enhancing community economy: A case study of Puuroda Village, 5(1), 50–64.
- Hidayat, R., Said, A. L., & Murniati, P. (2023). Bersama membangun: Kisah sukses partisipasi desa dalam pembangunan infrastruktur di Watubangga. *Jurnal Publicuho*, 6(4), 1411–1422.
- Hilmawan, R., Aprianti, Y., Vo, D. T. H., Yударuddin, R., Bintoro, R. F. A., Fitrianto, Y., et al. (2023). Rural development from village funds, village-owned enterprises, and village original income. *Journal of Open Innovation: Technology, Market, and Complexity*, 9(4), 100159. <https://doi.org/10.1016/j.joitmc.2023.100159>
- Khan, N., Arif, M., Rahman, N. S. A., et al. (2024). A decentralized framework for the sustainable governance of rural smart villages. *Technology in Society*, 82, 102497.
- Ostrom, E. (2005). Self-governance and forest resources. *Terracotta reader: A market approach to the environment*, 12.
- Pettarani, A., Wijaya, M., Widyastuti, T. V., & Said, A. L. (2024). *Pengantar kebijakan publik: Teori dan praktek*. PT Media Penerbit Indonesia
- Quick, K. S., & Bryson, J. M. (2016). Public participation. *Handbook on theories of governance*, 158-169.
- Ramadhan, S., Fitri, H., Suganda, D. A., & Said, A. L. (2024). *Kebijakan publik dan pembangunan berkelanjutan*. PT Media Penerbit Indonesia
- Rivai, A., Christin, V., & Haryono, D. (2024). Institutional capacity development (capacity building) of village-owned business enterprises in Tambayoli Village, Soyo Jaya Sub District, North Morowali District, Indonesia. 4(3), 364–372.
- Said, A. L. (2013). *Model penerapan corporate social responsibility di Kabupaten Kolaka dalam perspektif governance* [Master's thesis, Universitas Hasanuddin]. Program Pascasarjana Universitas Hasanuddin.
- Said, A. L., Ramadhan, S., & Fitri, H. D. A. (2016). *Kebijakan publik dan pembangunan berkelanjutan* (1st ed.). PT Media Penerbit Indonesia. <https://mediapenerbitindonesia.com/>
- Satoto, S., Nuriyatman, E., Mushawirya, R., Mujib, M. M., Haq, M. I., et al. (2024). Revitalization of village-owned enterprises to strengthen the community economy in Indonesia: Between policy and prosperity. 7(2), 509–537.
- Shara, Y., & Narsa, I. M. (2025). Intellectual capital readiness and the performance of village-owned enterprises in Indonesia: Mediation through entrepreneurial knowledge. *Revista Brasileira de Gestão de Negócios*, 27(1), 1–21.
- Sidik, F., Nasution, F. G. A., & Herawati, H. (2019). Pemberdayaan masyarakat desa menggunakan badan usaha milik desa: Desa Ponggok dan kritik terhadap prestasi “Terbaik Nasional.” *Jurnal Pemikiran Sosiologi*, 5(2), 80.
- Sweeney, L. B., & Sterman, J. D. (2000). Bathtub dynamics: initial results of a systems thinking inventory. *System Dynamics Review: The Journal of the System Dynamics Society*, 16(4), 249-286.
- Tarlani, T., Dariah, A. R., & Rani, A. M. (2022). Transforming rural economy through community-based tourism with village-owned enterprise (BUMDES, Badan Usaha Milik Desa): A case study of Cibiru Wetan, Pagerwangi and Cipamekar Villages, Indonesia. *International Journal of Sustainable Development and Planning*, 17(5), 1535–1542.
- Wulandari, G. P. M., & Lestari, N. P. N. E. (2024). Transformasi tata kelola badan usaha milik desa (BUMDes) pada era digital. *Ganaya: Jurnal Ilmu Sosial dan Humaniora*, 7(3), 263–281.
- Zeybek, O., & Erdoğan, E. (2025). Transforming traditional villages into sustainable communities: Evaluating ecovillage potential in Bursa, Turkey. *Sustainability*, 17(5), 1–18.
- Zhu, F., Ying, B., & Xiang, C. (2025). Advancements in rural resilience research over the past two decades and its significance for sustainable development. *Discover Sustainability*, 6(1). <https://doi.org/10.1007/s43621-025-00901-x>