

Reconstructing Village-Owned Enterprise Governance: A Service-Learning Model for Digital Financial Accountability and Community Trust in Rural Indonesia

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Abstract

This study aims to reconstruct the governance of Village-Owned Enterprises (BUMDes) through the development of a service-learning-based model integrated with simple digital technologies to enhance financial accountability and community trust in rural Indonesia. The research addresses a persistent paradox between the strategic role of BUMDes as drivers of local economic development and the empirical reality of weak financial governance, low digital and accounting literacy, and limited transparency, which undermine public trust. A mixed-methods participatory design was employed, beginning with qualitative inquiry through observations, in-depth interviews, and focus group discussions to identify local needs, followed by the development and implementation of a service-learning intervention involving academics and community members. The model's effectiveness was evaluated quantitatively using pre- and post-tests and community trust surveys, with data analyzed through triangulation. The findings indicate that the proposed model significantly improves financial governance, evidenced by enhanced accuracy in record-keeping, more systematic reporting, and improved accessibility of digital financial information. It also strengthens the digital and accounting literacy of BUMDes managers, fostering more professional and data-driven practices. Increased transparency contributes to higher levels of community trust and participation in local economic activities. The study introduces a Service-Learning-Based Digital Financial Governance Model that integrates experiential learning, appropriate digital technologies, and participatory mechanisms into a replicable framework. This model offers both theoretical and practical contributions to sustainable rural governance and community empowerment.

Keywords: Community Engagement, Community Trust, Digital Governance, Financial Management, Rural Development



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INTRODUCTION

The growing emphasis on village-driven development in Indonesia has positioned Village-Owned Enterprises (*Badan Usaha Milik Desa*, BUMDes) as strategic instruments for fostering local economic resilience and community empowerment (Li & Chen, 2025; Zhang et al., 2023). Since their formal institutionalization, BUMDes have been expected to function not only as economic entities but also as vehicles for redistributing resources, strengthening

social cohesion, and enhancing participatory governance at the village level. However, despite their normative promise, empirical realities reveal a persistent paradox: many BUMDes struggle with weak financial governance, limited managerial capacity, and low levels of public trust (Faxon et al., 2022; Poerting, 2023). Reports and field-based observations indicate that financial records are often incomplete or manually maintained, accountability mechanisms remain procedural rather than substantive, and community members frequently perceive BUMDes as opaque institutions (Ekow Kelly, 2025; Mercado-Jiménez et al., 2025). This condition is particularly evident in peripheral and island regions such as Maluku, where infrastructural limitations and human resource constraints exacerbate existing governance challenges.

The issue becomes more pressing when viewed through the lens of trust. Trust is a foundational element in community-based economic institutions, shaping participation, compliance, and collective ownership (Abdullah et al., 2025; Miller et al., 2022). In many rural contexts, declining trust toward village institutions has been linked to perceived mismanagement of funds, lack of transparency, and limited avenues for community engagement (Egana-delSol et al., 2022; Sariffuddin et al., 2024a). In the case of BUMDes, this erosion of trust undermines their legitimacy and hampers their ability to mobilize local resources effectively. At the same time, efforts to strengthen governance have often relied on top-down capacity-building programs that prioritize administrative compliance over meaningful learning and contextual adaptation (Chinprateep, 2025; Monteith & Escobar, 2025). Such approaches tend to overlook the importance of experiential and participatory learning processes that can bridge the gap between formal regulations and lived practices at the village level.

In response to these challenges, the integration of digital technology into village financial management has emerged as a promising avenue. Digital tools, even in their simplest forms such as spreadsheet-based systems or cloud-based applications, can enhance accuracy, efficiency, and transparency in financial reporting (Fisu et al., 2024; Kara et al., 2024). Yet, digitalization alone is insufficient if not accompanied by adequate human capacity and social acceptance. In many cases, the introduction of digital systems fails due to low digital literacy, resistance to change, or lack of contextual relevance (Anser et al., 2023; Padfield et al., 2023). This suggests that technological interventions must be embedded within broader social and educational processes that enable local actors to appropriate and sustain these innovations.

This is where the concept of service-learning becomes particularly relevant. Service-learning, as an experiential pedagogical approach that integrates academic learning with community engagement, has been widely recognized for its potential to generate mutual benefits for both students and communities (Ahmad Tajuddin et al., 2025; Elfarra et al., 2025; Raby et al., 2025). In the context of rural development, service-learning can function as a transformative space where knowledge is co-produced through interaction, reflection, and practice. It allows academic institutions to move beyond knowledge transfer toward collaborative problem-solving, while empowering communities to actively participate in

shaping solutions that are responsive to their needs (Guo & Wang, 2024; Moutsouka, 2025). When applied to the governance of BUMDes, this approach offers a pathway to simultaneously address technical capacity gaps and relational deficits between institutions and citizens.

A growing body of literature has examined various dimensions of village governance, digital transformation, and community engagement. Studies on rural governance have highlighted the importance of transparency, accountability, and participation as key pillars of effective local institutions (Correa & Esquivias, 2025; Fekete et al., 2021; Marfu et al., 2025). In the Indonesian context, research on BUMDes has explored their role in local economic development, identifying both opportunities and structural constraints, including limited managerial skills and weak institutional design (Cabeza-Ramírez et al., 2024; Jayalath et al., 2025). Meanwhile, scholarship on digital governance has emphasized the potential of information and communication technologies to improve public service delivery and institutional performance, particularly through enhanced data management and citizen access to information (Afandi et al., 2025; Ebhuoma et al., 2024). However, these studies also caution against overly technocratic approaches that neglect social and cultural dynamics.

Parallel to this, research on service-learning and community-based education has demonstrated its effectiveness in fostering civic engagement, critical thinking, and social responsibility among participants (Bargain et al., 2025; Leggett et al., 2025; Richey et al., 2021). More recent studies have extended this perspective to development contexts, showing how service-learning can contribute to capacity building and social innovation in marginalized communities (Ali & Abdalla, 2025; Putritamara et al., 2025; Xu & Hu, 2024). In addition, the concept of appropriate technology has gained traction as a framework for designing context-sensitive technological interventions that align with local capacities and needs (Haq et al., 2025; Wadghane et al., 2025). This approach underscores the importance of simplicity, affordability, and adaptability in ensuring the sustainability of technological adoption in resource-constrained settings.

Despite these advances, existing studies tend to address these dimensions in isolation. Research on BUMDes governance often focuses on financial accountability without considering the role of learning processes or technological mediation. Conversely, studies on digitalization emphasize technical efficiency while paying limited attention to issues of trust and community participation. Similarly, service-learning literature rarely engages explicitly with questions of financial governance or institutional accountability in village contexts. As a result, there remains a fragmented understanding of how these elements can be integrated into a coherent framework that addresses both the technical and social dimensions of rural institutional development.

It is within this fragmented landscape that the present study situates itself, seeking to weave together strands that have long existed but rarely intersected in meaningful ways. By bringing into conversation the logics of governance, the possibilities of digital technology, and the transformative potential of experiential learning, this study offers a more holistic

approach to understanding and improving BUMDes management. Rather than treating financial accountability as a purely administrative task, it is approached here as a socially embedded process that is shaped by interactions, perceptions, and shared practices. In doing so, the study implicitly advances a perspective that sees technological tools not merely as instruments, but as mediators of social relations, and service-learning not merely as pedagogy, but as a mode of institutional intervention.

Building on this perspective, the study develops and examines a model that integrates service-learning with simple digital financial systems and participatory mechanisms. This model is designed not only to enhance technical competencies in financial management but also to foster transparency, strengthen community engagement, and rebuild trust between BUMDes and the communities they serve. By grounding the model in local contexts and involving multiple stakeholders in its implementation, the study aims to demonstrate how small-scale, contextually appropriate innovations can generate meaningful institutional change.

Ultimately, the purpose of this research is to explore how an integrated approach combining service-learning and digital technology can reconstruct financial governance practices in BUMDes, improve accountability, and enhance community trust in rural Indonesia. In doing so, it seeks to contribute to broader discussions on sustainable rural development by offering insights that are theoretically informed, methodologically robust, and practically relevant for both research and community engagement initiatives.

RESEARCH METHOD

This study adopts a qualitative research approach with a participatory orientation, as it seeks to understand not only the technical dimensions of financial governance in Village-Owned Enterprises (BUMDes) but also the social processes, meanings, and interactions that shape accountability and community trust. A qualitative design is particularly appropriate in this context because the research problem is deeply embedded in local practices, cultural norms, and relational dynamics that cannot be adequately captured through purely quantitative measures (Rohaeni et al., 2025; Sariffuddin et al., 2024b; Ullah et al., 2025). Furthermore, the study integrates elements of service-learning as both a methodological and intervention framework, allowing the research process to unfold as a collaborative and reflective engagement between academics and the community. This approach enables the co-production of knowledge while simultaneously generating practical solutions grounded in lived experiences.

The research was conducted in selected rural villages in Maluku, Indonesia, a region characterized by its archipelagic geography, limited infrastructure, and relatively low levels of digital literacy. The choice of this location is not incidental but rather grounded in its relevance to the research problem. Maluku represents a context where the challenges of BUMDes governance are particularly pronounced, including manual financial practices, limited access to technological resources, and fragile institutional trust. At the same time, these conditions

provide a fertile ground for testing context-sensitive and appropriate technology-based interventions, making it an analytically and practically significant site for this study.

The informants in this research were selected using purposive sampling, based on their direct involvement in and knowledge of BUMDes operations and village governance. A total of 18 informants participated in the study, consisting of BUMDes managers, village government officials, community representatives, and members of local supervisory bodies. These individuals were chosen because they occupy strategic positions within the institutional and social structure of the village, allowing them to provide diverse yet complementary perspectives on financial management practices, challenges, and community perceptions. Including multiple stakeholder groups also ensures that the analysis captures both institutional viewpoints and grassroots experiences, which is essential for understanding the interplay between governance and trust.

Data collection was carried out through a combination of in-depth interviews, participant observation, and focus group discussions. In-depth interviews were used to explore individual experiences, perceptions, and interpretations related to financial governance and digital adoption. This method allows for flexibility and depth, enabling participants to articulate their views in their own terms (Aditya, Santosa, et al., 2021; Arévalo et al., 2025). Participant observation was conducted during service-learning activities and routine BUMDes operations, providing firsthand insights into actual practices, interactions, and behavioral changes over time. Meanwhile, focus group discussions were organized to facilitate collective reflection and dialogue among stakeholders, particularly in evaluating the implementation of the digital financial system and its perceived impact on transparency and trust. The combination of these methods was intentionally designed to capture both individual and collective dimensions of the phenomenon.

To ensure the credibility and validity of the findings, the study employed data triangulation by comparing information obtained from different sources, methods, and timeframes (Nandan et al., 2025; Tay et al., 2024). For instance, statements from interviews were cross-checked with observational data and documented financial records, while insights from focus group discussions were used to validate and enrich individual narratives. In addition, methodological triangulation was complemented by researcher reflexivity, where continuous reflection was maintained throughout the research process to minimize bias and enhance interpretive rigor.

RESULTS AND DISCUSSION

Reframing the Governance Problem: Structural and Cultural Constraints in BUMDes Financial Management

The initial phase of this study reveals that the governance challenges faced by Village-Owned Enterprises (BUMDes) are not merely technical deficiencies, but rather deeply embedded structural and cultural issues that shape everyday financial practices. Prior to the intervention, financial management within the observed BUMDes was largely characterized

by manual record-keeping systems, fragmented documentation, and the absence of standardized reporting procedures. Financial transactions were typically recorded in notebooks or loosely structured spreadsheets, often without clear categorization or reconciliation mechanisms. As noted by one BUMDes manager (informant AR), “we record income and expenses, but not in a fixed format, so sometimes it is difficult to trace where the money goes.” This condition reflects a broader pattern of administrative informality, where compliance exists in form but lacks substantive rigor. Such findings resonate with previous studies highlighting the persistence of weak financial accountability in rural institutions due to limited technical capacity and institutional support (Aditya, Sucaya, et al., 2021; Castro & Delina, 2025; Velásquez-Espinoza & Alcántara-Ayala, 2025).

Beyond the technical dimension, the study uncovers a significant gap in digital and accounting literacy among BUMDes administrators. Many informants expressed limited familiarity with basic financial principles such as cash flow tracking, profit and loss calculation, or the use of digital tools for financial reporting. This was not due to a lack of willingness to learn, but rather the absence of accessible and contextually relevant training. As informant ML explained, “we were never really taught how to manage finances properly; we just follow what previous managers did.” This intergenerational transmission of practices, often uncritically adopted, contributes to the reproduction of inefficient systems. The issue is further compounded by the perception that financial management is a routine administrative obligation rather than a strategic function essential for organizational sustainability. In this sense, the problem extends beyond skills to include a limited understanding of the role of financial governance in achieving broader development goals.

Equally important is the cultural dimension that shapes how accountability and transparency are perceived and enacted. The findings suggest that many BUMDes operate within a normative environment where administrative reporting is treated as a symbolic act aimed at fulfilling external requirements, rather than as a meaningful tool for internal reflection or public communication. Reports are often prepared only when requested by higher authorities, and rarely shared proactively with the community. One village official (informant DS) noted, “as long as we submit reports to the district, we consider it done; there is no habit of sharing it with villagers.” This indicates a compliance-oriented mindset that prioritizes upward accountability over horizontal accountability to the community. Such practices contribute to a lack of transparency, which in turn undermines public trust and limits community participation in BUMDes activities.

These structural and cultural constraints are closely interconnected and mutually reinforcing. Weak technical systems limit the ability to produce reliable financial information, while cultural norms that de-emphasize transparency reduce the demand for such information. As a result, BUMDes operate in a cycle of low accountability and low trust, where neither institutional capacity nor community engagement is sufficiently developed to drive improvement. This dynamic is evident in the low level of community awareness regarding BUMDes financial performance, as well as the limited involvement of villagers in decision-

making processes. Focus group discussions revealed that many community members were unaware of how BUMDes funds were managed, leading to skepticism and disengagement.

To illustrate these findings more systematically, the following table summarizes the key structural and cultural constraints identified during the initial assessment phase:

Table 1 Structural and Cultural Constraints in BUMDes Financial Governance

Dimension	Key Findings	Implications
Financial System	Manual, non standardized recording; lack of reconciliation	High risk of errors and inefficiency
Human Capacity	Low accounting and digital literacy	Limited ability to manage and interpret data
Administrative Culture	Reporting as symbolic compliance	Weak internal accountability
Transparency Practice	Limited public access to financial information	Low community trust and participation

Source: Research Data Analysis (2025)

Conceptually, these findings can be understood through the lens of public value governance, which emphasizes that effective governance is not solely about procedural compliance, but about the capacity of institutions to create value that is recognized and trusted by the public (Cutter, 2024; Kaya et al., 2025; Kruk et al., 2025). From this perspective, the observed weaknesses in BUMDes governance reflect a failure to align internal practices with the broader goal of generating public value. Financial reports that are inaccurate, inaccessible, or merely symbolic do not contribute to transparency or trust; instead, they reinforce perceptions of opacity and inefficiency.

Designing a Contextual Intervention: The Emergence of a Service-Learning-Based Digital Governance Model

The development of the intervention model in this study did not emerge as a predefined technical solution, but rather as a gradual, dialogical process shaped by continuous interaction between researchers, students, and the village community. Grounded in a participatory service learning framework, the model was designed to respond directly to the structural and cultural constraints identified in the earlier phase of the research. Instead of imposing an externally designed system, the process emphasized co-creation, where knowledge, experience, and local practices were brought into conversation to produce a contextually relevant governance model. This approach aligns with the growing emphasis on co-creation in public services, which views collaboration among multiple actors as central to generating meaningful and sustainable innovation (Fraser, 2022; Grybauskas et al., 2022).

The initial stage of model development began with a series of focus group discussions and informal consultations involving BUMDes managers, village officials, and community representatives. These interactions were not merely extractive but reflective, allowing participants to critically examine their existing practices and articulate their needs and

constraints. For instance, one BUMDes treasurer (informant SR) noted that “we do not need a complicated system, we need something simple that we can understand and use daily.” This statement became a key reference point in shaping the technological component of the model, reinforcing the importance of simplicity and usability over sophistication. In this sense, the intervention adopted the principle of appropriate technology, which prioritizes tools that are affordable, accessible, and aligned with local capacities (Harahap et al., 2024; Muneer & Khan, 2025).

The service learning component functioned as the core mechanism through which the model was operationalized. University students, guided by academic supervisors, were actively involved in facilitating training sessions, assisting with the development of digital financial templates, and engaging in day to day mentoring with BUMDes administrators. This process created a reciprocal learning environment where students applied their academic knowledge in real world settings, while community members contributed practical insights and contextual understanding. As one student participant reflected, “we did not just teach them, we learned together how to adjust the system so it fits their routine” (informant AN). This iterative process of learning and adaptation reflects the essence of experiential learning, where knowledge is constructed through action, reflection, and continuous feedback.

The technological aspect of the model was intentionally designed to be simple yet functional. Instead of introducing complex accounting software, the intervention utilized spreadsheet based systems and cloud storage platforms that could be easily accessed and modified. These tools were customized to include basic financial categories such as income, expenditure, cash balance, and reporting summaries, allowing BUMDes managers to gradually build familiarity with structured financial management. Importantly, the design process involved direct input from users, ensuring that the system reflected their workflow and terminology. This participatory design approach not only enhanced usability but also fostered a sense of ownership among participants, which is critical for the sustainability of innovation.

Equally significant was the incorporation of participatory mechanisms aimed at strengthening transparency and community engagement. The model encouraged the periodic sharing of financial information through community meetings and informal forums, where villagers could ask questions, provide feedback, and monitor BUMDes performance. This shift from closed administrative practices to more open and dialogical processes marked an important transformation in governance culture. A village elder (informant HL) expressed that “when we can see and discuss the financial reports, we feel more involved and confident about what the BUMDes is doing.” Such practices illustrate how transparency, when embedded in participatory structures, can function as a bridge between institutions and the community.

Table 2 Components of the Service Learning Based Digital Governance Model

Component	Description	Function
Experiential Learning	Collaborative learning between students and community through practice	Capacity building and knowledge co production
Appropriate Technology	Use of simple digital tools such as spreadsheets and cloud systems	Enhancing financial management efficiency
Participatory Mechanism	Community involvement in monitoring and discussion of financial reports	Strengthening transparency and trust

Source: Research Data Analysis (2025)

The emergence of this model reflects a shift from a top down intervention paradigm toward a more embedded and relational approach to governance reform. By situating technological innovation within a framework of experiential learning and community participation, the model addresses not only the technical deficiencies identified earlier but also the underlying social dynamics that shape institutional performance. In line with Schilling-Vacaflor et al. (2021), the co creation process observed in this study demonstrates that sustainable public sector innovation is less about introducing new tools and more about reconfiguring relationships among actors, knowledge systems, and practices. This insight becomes particularly relevant in rural contexts, where resource limitations necessitate solutions that are not only efficient but also socially grounded and collectively owned.

Transforming Financial Practices: Digitalization and the Shift Toward Data-Driven Governance

The implementation of the service learning based digital governance model marked a significant turning point in how financial practices were conducted within the observed BUMDes. Prior to the intervention, financial management was largely fragmented, reactive, and dependent on individual memory or informal recording habits. Following the introduction of simple digital tools and structured templates, a gradual yet observable transformation took place, not only in the technical execution of financial tasks but also in the way these tasks were understood and valued by the actors involved. This shift illustrates how digitalization, when embedded in a supportive learning environment, can reconfigure everyday administrative practices into more systematic and accountable processes.

One of the most immediate changes observed was the improvement in the accuracy and consistency of financial records. The use of spreadsheet based templates enabled BUMDes administrators to categorize transactions more clearly, calculate balances automatically, and minimize arithmetic errors that were previously common in manual bookkeeping. A BUMDes treasurer (informant SR) explained that “before, we often made mistakes when adding numbers, but now the system helps us check automatically, so we feel more confident with our reports.” This seemingly simple feature had a substantial impact on the reliability of financial information, which in turn strengthened internal decision making processes. The presence of structured data allowed managers to track income and expenditure trends over time, identify inefficiencies, and plan more strategically for future

activities.

In addition to improved accuracy, the intervention also contributed to greater regularity and discipline in financial reporting. Previously, reports were often prepared sporadically, typically in response to external demands from higher administrative levels. After the implementation of the digital system, reporting became a routine activity integrated into daily or weekly workflows. This shift was facilitated by the simplicity and accessibility of the tools, which reduced the perceived burden of documentation. As noted by one village official (informant DS), “now we do not wait until the end of the month to write everything, we input transactions as they happen, so reporting becomes easier.” This change reflects a transition from retrospective reporting to real time documentation, which is a key characteristic of more advanced governance systems.

Equally important was the enhanced accessibility of financial information. By utilizing cloud based storage and shared digital files, financial data could be accessed not only by BUMDes managers but also by other authorized stakeholders, including village officials and, in some cases, community representatives. This accessibility reduced information asymmetry and created new opportunities for transparency and collective oversight. A member of the supervisory body (informant HL) noted that “we can now see the financial data anytime, not only when reports are printed, so we feel more involved in monitoring.” The ability to access and review financial information in a timely manner contributed to a more open governance environment, where accountability was not confined to formal reporting moments but became an ongoing process.

To provide a clearer overview of these transformations, the following table summarizes the key changes in financial practices before and after the intervention:

Table 3 Transformation of Financial Practices in BUMDes

Aspect	Before Intervention	After Intervention
Recording System	Manual, inconsistent, prone to errors	Digital, structured, and more accurate
Reporting Frequency	Irregular, demand driven	Regular, routine-based, and continuous
Data Accessibility	Limited, mostly internal	Broader access through shared digital platforms
Decision Making Basis	Intuition and fragmented data	Data driven and evidence based

Source: Research Data Analysis (2025)

Beyond these observable improvements, the findings suggest a deeper transformation in the logic of governance itself. Digitalization did not merely introduce new tools; it reshaped how financial management was conceptualized and practiced. The shift toward data driven governance is particularly significant, as it reflects a move away from informal and experience based decision making toward more systematic and evidence based

approaches. This transformation aligns with the concept of digital era governance, which emphasizes the role of digital technologies in enhancing the capacity, efficiency, and responsiveness of public institutions (Eilola et al., 2021; G. Sharma & Dahlstrand, 2023; Somwethee et al., 2025).

Importantly, this transition was not without challenges. Some informants initially expressed hesitation in adopting digital tools, citing concerns about their limited technical skills and fear of making mistakes. However, the presence of continuous mentoring through the service learning process helped to mitigate these concerns. Over time, familiarity with the system increased, and digital practices became normalized within daily routines. This highlights the importance of coupling technological innovation with sustained human support, particularly in contexts where digital literacy is still developing.

Learning as Transformation: Enhancing Digital and Accounting Literacy through Service-Learning

The implementation of the service learning based intervention revealed that the most enduring change did not lie solely in the adoption of digital tools, but in the transformation of individual capacities and ways of thinking among BUMDes managers. At the outset of the study, digital and accounting literacy levels were uneven and generally limited, as reflected in participants' uncertainty when dealing with basic financial concepts and digital interfaces. However, as the intervention unfolded through iterative cycles of training, practice, and reflection, a gradual yet meaningful shift became evident. Learning was no longer experienced as a one directional transfer of knowledge, but as a dialogical and situated process in which participants actively engaged with new concepts while relating them to their daily responsibilities. This aligns with the broader understanding of service learning as an experiential pedagogy that fosters both technical competence and critical reflection (Hamrouni et al., 2025; Osuma et al., 2025).

The learning environment was intentionally designed to be collaborative and non hierarchical, allowing participants to express doubts, share experiences, and collectively solve problems. Students and academic facilitators did not position themselves as external experts imposing solutions, but rather as co learners who supported the exploration of context appropriate practices. This approach proved particularly effective in reducing resistance to change, which is often associated with the introduction of new technologies in rural settings. One BUMDes administrator (informant ML) noted that "because we learn together and step by step, it does not feel difficult or intimidating, we can ask questions anytime." Such statements indicate that the relational dimension of learning played a crucial role in building confidence and motivation among participants.

Over time, improvements in digital literacy became increasingly visible. Participants who initially struggled with basic computer operations began to demonstrate familiarity with spreadsheet functions, data entry procedures, and file management. More importantly, they developed an understanding of how digital tools could support their work, rather than perceiving them as external or burdensome requirements. This shift from technical

apprehension to functional appropriation reflects what Wahyudi et al. (2025) describe as the human dimension of digital transformation, where capacity building is essential for the effective integration of technology into public sector practices. In parallel, accounting literacy also improved, particularly in relation to the ability to categorize transactions, interpret financial data, and understand the implications of financial decisions.

This dual enhancement of digital and accounting competencies contributed to a broader transformation in work practices and professional orientation. Financial management, which was previously seen as a routine obligation, began to be understood as a strategic activity requiring accuracy, consistency, and accountability. A BUMDes manager (informant AR) explained that “now we realize that financial records are not just for reports, but for knowing whether our business is running well or not.” This change in perception is significant, as it indicates a shift from compliance based behavior toward a more reflective and data oriented approach to governance. Such transformation resonates with the idea that experiential learning can reshape not only skills but also values and attitudes, leading to more sustainable institutional change (Azimi et al., 2025; Chingiz et al., 2025; Nham & Ha, 2025).

To illustrate the progression of learning outcomes, the following table summarizes key changes observed in participants’ competencies:

Table 4 Changes in Digital and Accounting Literacy among BUMDes Managers

Competency Area	Before Intervention	After Intervention
Digital Literacy	Limited ability to use basic computer tools	Functional use of spreadsheets and digital storage
Accounting Understanding	Minimal knowledge of financial categorization	Improved ability to record, classify, and interpret data
Work Orientation	Task oriented and procedural	Reflective and data driven
Learning Attitude	Passive and dependent	Active, collaborative, and adaptive

Source: Research Data Analysis (2025)

The transformation observed in this study suggests that service learning functions not merely as a training method, but as a mechanism for reconfiguring how knowledge is produced and applied within community institutions. By embedding learning within real world practice and social interaction, the approach enables participants to internalize new competencies in a way that is both meaningful and sustainable. Importantly, the iterative nature of the process, characterized by cycles of action and reflection, allowed participants to gradually build confidence and refine their skills without the pressure of immediate perfection.

Transparency and Trust: Reconstructing Community-Institution Relations

The findings of this study indicate that the introduction of transparent financial practices, supported by simple digital systems, has played a critical role in reshaping the relationship between BUMDes as an institution and the community it serves. Prior to the intervention, transparency was largely procedural and limited to formal reporting obligations

directed toward higher administrative levels. Financial information was rarely communicated to the broader community, resulting in a gap between institutional activity and public awareness. This opacity contributed to a climate of uncertainty and skepticism, where community members perceived BUMDes as distant and, in some cases, unaccountable. As one community participant (informant HL) explained, “we knew the BUMDes existed, but we did not know what they were doing with the money.” This statement reflects a broader issue of informational asymmetry, which has long been identified as a barrier to trust in public institutions (Astuti et al., 2022; Boonmee et al., 2025; Doytch et al., 2024).

Following the implementation of the service learning based digital governance model, a notable shift occurred in how financial information was produced, shared, and interpreted. The use of digital tools enabled more systematic documentation and facilitated the timely dissemination of financial reports. More importantly, these reports were no longer confined to internal archives or formal submissions, but began to be shared in community meetings and informal discussions. This practice created new spaces for interaction, where financial data became a basis for dialogue rather than a static administrative artifact. A village official (informant DS) observed that “now when we present the financial data, people ask questions, give suggestions, and even propose new ideas.” Such interactions signal a transition from passive reception to active engagement, where transparency becomes a catalyst for participation.

This transformation highlights that transparency, in this context, functions not merely as a technical attribute of governance but as a social mechanism that enables the reconstruction of institutional relationships. By making financial information accessible and understandable, BUMDes managers reduced the distance between themselves and the community, fostering a sense of openness and accountability. At the same time, the community’s ability to access and discuss this information contributed to a sense of inclusion and shared ownership. This dynamic aligns with the argument that transparency, when coupled with opportunities for engagement, can enhance trust by demonstrating institutional integrity and responsiveness (Dias et al., 2024; Raman et al., 2025).

The increase in trust was not expressed abstractly, but manifested in observable changes in community behavior. Focus group discussions revealed that community members became more willing to participate in BUMDes activities, whether by engaging in village enterprises, attending meetings, or supporting new initiatives. One participant (informant ML) noted that “because we can see how the money is managed, we feel more confident to be involved.” This suggests that trust is built not only through the availability of information, but through the credibility of processes that allow individuals to verify and engage with that information. In this sense, transparency operates as a bridge between institutional performance and public perception, translating technical improvements into social legitimacy.

At a deeper level, the findings suggest that the reconstruction of trust involves a reciprocal process. While BUMDes managers demonstrate accountability through

transparent practices, community members respond by increasing their engagement and support. This mutual reinforcement creates a virtuous cycle, where improved governance leads to higher trust, which in turn encourages greater participation and oversight. Such a cycle is essential for the sustainability of community based institutions, as it distributes responsibility across multiple actors rather than concentrating it within formal structures. As noted by one BUMDes manager (informant AR), “when people trust us, they also help us monitor and improve our work.” This statement captures the relational nature of governance, where trust and accountability are co produced through ongoing interaction.

These findings can be situated within broader discussions on social accountability and participatory governance, which emphasize that effective institutions are those that are not only transparent but also responsive to citizen input (Nti et al., 2023; Panduwiyasa et al., 2024). In the context of this study, the integration of digital tools with participatory practices allowed transparency to move beyond compliance and become embedded in everyday interactions. This shift is particularly important in rural settings, where formal oversight mechanisms may be limited, and trust plays a central role in sustaining collective action.

From Technical Change to Social Impact: Participation and Local Economic Revitalization

The transformation of financial governance within BUMDes, as observed in this study, extends beyond internal administrative improvements and begins to generate broader social and economic effects at the community level. As transparency increased and financial practices became more structured and accessible, a parallel shift emerged in how community members perceived and engaged with BUMDes activities. Trust, which had previously been fragile due to limited information and perceived opacity, gradually evolved into a more grounded confidence supported by visible and verifiable practices. This shift in perception became a key enabling factor for increased participation, illustrating how technical reforms in governance can catalyze wider processes of social change.

One of the most notable impacts of this transformation is the growing involvement of community members in BUMDes related activities. Participation was no longer limited to passive observation or occasional attendance in formal meetings, but expanded into more active forms of engagement, including contributing ideas, monitoring financial performance, and participating in local economic initiatives facilitated by BUMDes. A community member (informant HL) explained that “before, we did not feel connected to BUMDes, but now we attend meetings and even suggest business ideas because we understand what is happening.” This statement reflects a shift from detachment to a sense of ownership, where transparency functions as a precondition for meaningful participation.

The increased participation observed in this study can be understood as both a consequence and a driver of institutional improvement. On the one hand, transparent and accountable practices create the conditions for community members to engage with confidence. On the other hand, active participation introduces new forms of oversight and feedback that further strengthen governance quality. This reciprocal relationship aligns with the broader literature on participatory development, which emphasizes that community

engagement is not merely an outcome but an integral component of effective local governance (Afnan et al., 2025; Sjaf et al., 2022). In this context, participation becomes a mechanism through which governance is continuously negotiated and refined, rather than a static feature of institutional design.

Beyond its implications for governance, the rise in participation also contributed to the revitalization of local economic activities. As trust in BUMDes increased, community members became more willing to engage in economic programs, whether as beneficiaries, partners, or contributors. This was evident in the expansion of small scale business initiatives, increased utilization of BUMDes services, and the emergence of new collaborative ventures. A BUMDes manager (informant AR) noted that “after people started trusting us, more villagers joined our business programs, and some even proposed new ideas that we are now developing together.” Such developments suggest that institutional credibility plays a crucial role in mobilizing local resources and fostering economic dynamism.

The relationship between governance reform and economic outcomes in this study reflects the principles of community empowerment, where the strengthening of local institutions enables individuals and groups to take a more active role in shaping their economic environment (Nisak et al., 2025; Sabaruddin et al., 2026). Importantly, empowerment in this context is not imposed from outside but emerges through processes that enhance access to information, build capacity, and create opportunities for participation. The integration of digital tools and service learning approaches contributed to this process by making financial information more accessible and by equipping individuals with the skills needed to engage with that information. As a result, economic activities became more transparent, coordinated, and inclusive.

At the same time, the findings highlight that the impact of governance transformation is not uniform or immediate. Some community members remained cautious in their engagement, particularly those who had previously experienced disappointment or exclusion. However, the overall trend indicates a gradual strengthening of social cohesion and collective action, driven by increased interaction and shared understanding between BUMDes and the community. This gradualism is consistent with the view that social trust and participation are built over time through repeated interactions and consistent institutional performance (Mahaputra et al., 2025; Purnama et al., 2025; Widiastuti et al., 2026).

In linking these findings to broader discussions on local development, it becomes evident that governance reform at the village level has significant implications for sustainable economic growth. When institutions are able to operate transparently and responsively, they create an enabling environment for local innovation and entrepreneurship. Conversely, weak governance can constrain economic potential by limiting trust and discouraging participation. The experience documented in this study demonstrates that even modest interventions, when carefully designed and contextually grounded, can initiate processes of change that extend beyond organizational boundaries and contribute to the revitalization of local economies.

Toward a Replicable Model: Integrating Governance, Technology, and Community Engagement

The synthesis of findings in this study points toward the emergence of a governance model that is not only contextually grounded but also potentially replicable across similar rural settings. Rather than presenting a rigid framework, the model evolves from the integration of three interdependent elements observed throughout the research process: service learning as a mode of capacity building, simple digital technologies as enabling tools, and participatory mechanisms as the social infrastructure of accountability. What makes this model distinctive is not the novelty of each component in isolation, but the way they are interwoven to address both the technical and relational dimensions of governance. This integrative approach reflects a shift from fragmented interventions toward a more holistic understanding of how institutional change occurs in resource constrained environments.

At its core, the model operates through iterative cycles of engagement, learning, and adaptation. Service learning provides the entry point, creating a collaborative space where academics, students, and community members engage in joint problem solving. This process is not limited to knowledge transfer but involves mutual learning, where local practices and external insights are continuously negotiated. A student participant (informant AN) described this dynamic by noting that “each village has its own way of working, so we adjust the system together instead of forcing one model.” This flexibility is crucial for replication, as it allows the model to be adapted to diverse local contexts rather than applied as a standardized solution. In this sense, the model aligns with adaptive governance perspectives, which emphasize learning, reflexivity, and responsiveness as key features of sustainable institutional design (Edelmann et al., 2022; Hilmawan et al., 2023).

The technological dimension of the model is intentionally modest, relying on accessible tools such as spreadsheets and cloud based storage systems. This choice reflects an understanding that in many rural contexts, the primary barrier to digitalization is not the absence of advanced technology, but the mismatch between complex systems and local capacities. By prioritizing usability and relevance, the model ensures that technology serves as an enabler rather than an obstacle. Importantly, the adoption of these tools is embedded within the service learning process, allowing users to develop familiarity and confidence over time. A BUMDes manager (informant AR) stated that “because we learned step by step and used tools that are not too complicated, we can continue using them without depending on outsiders.” This indicates that sustainability is closely tied to the degree of ownership and competence developed during implementation.

Equally central to the model is the incorporation of participatory mechanisms that extend governance beyond internal administration to include community engagement. The regular sharing of financial information, coupled with opportunities for dialogue and feedback, transforms transparency into an interactive process. This participatory dimension ensures that governance is not only accountable but also socially embedded, reflecting the needs and expectations of the community. As one village official (informant DS) observed,

“when people are involved, they not only trust us more but also help us improve.” Such interactions illustrate how participation can function as both a source of legitimacy and a mechanism for continuous improvement. This resonates with recent discussions on co-creation in public governance, where value is generated through the active involvement of multiple stakeholders (Kurnio et al., 2021; Liu et al., 2025; A. Sharma et al., 2025).

CONCLUSION

This study concludes that the reconstruction of BUMDes governance is most effectively achieved not through isolated technical interventions, but through an integrative approach that simultaneously addresses capacity, technology, and social relations. By embedding simple digital financial tools within a service learning framework, the model developed in this research demonstrates that improvements in financial accountability are closely tied to processes of experiential learning and participatory engagement. The findings confirm that when BUMDes managers are supported through contextual and collaborative learning, their digital and accounting literacy improves in ways that directly influence the quality, consistency, and transparency of financial practices. More importantly, the study shows that transparency, when enacted as an open and interactive process rather than a formal obligation, contributes to the gradual rebuilding of community trust and encourages more active participation in local economic initiatives. In this sense, the research addresses the initial paradox by illustrating that the gap between the strategic role of BUMDes and their empirical limitations can be narrowed through a model that integrates governance reform with social learning and appropriate technology. The contribution of this study lies in advancing a replicable yet flexible framework that connects digitalization with trust building, positioning governance not only as a matter of compliance but as a relational process grounded in shared understanding and collective involvement.

ETHICAL STATEMENT AND DISCLOSURE

This study was conducted in accordance with established ethical principles, including informed consent, protection of informants' confidentiality, and respect for local cultural values. Special consideration was given to participants from vulnerable groups to ensure their safety, comfort, and equal rights to participate. No external funding was received, and the authors declare no conflict of interest. All data and information presented were collected through valid research methods and have been verified to ensure their accuracy and reliability. The use of artificial intelligence (AI) was limited to technical assistance for writing and language editing, without influencing the scientific substance of the work. The authors express their gratitude to the informants for their valuable insights, and to the anonymous reviewers for their constructive feedback on an earlier version of this manuscript. The authors take full responsibility for the content and conclusions of this article.

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