STRENGTHENING THE RESILIENCE OF LIVESTOCK MSMES THROUGH COLLABORATIVE GOVERNANCE AND EXPERIENTIAL LEARNING IN INDONESIA

Slamet Mudjijah (Corresponding Author)
Universitas Budi Luhur, Indonesia
slamet.mudjijah@budiluhur.ac.id

Priyambada Bagus Artanta
Universitas Tangerang Raya, Indonesia
priyambada.bagus@gmail.com

ABSTRACT

This study examines how collaborative governance influences the effectiveness and sustainability of partnership-based entrepreneurship among livestock micro, small, and medium enterprises (MSMEs) in rural Indonesia. Building on collaborative governance theory and the resource-based view (RBV), the study focuses on the role of institutional arrangements, trust, experiential learning, and cooperative mediation in shaping partnership outcomes. Using a qualitative approach, data were collected through interviews, observations, and document analysis involving 20 stakeholders across Sleman, Purworejo, and Wonosobo. The findings show that cooperative-mediated core–plasma partnerships enhance coordination, learning, and market security, while informal partnerships tend to reinforce power asymmetries. The study contributes to collaborative governance theory by highlighting relational resources as strategic assets and offers policy insights for strengthening inclusive livestock MSME ecosystems.

Keywords: Collaborative governance; Livestock MSMEs; Core–plasma partnership; Cooperative mediation; Experiential learning; Rural entrepreneurship

INTRODUCTION

The livestock sector plays a vital role in rural livelihoods in developing economies by contributing to food supply, employment, and income diversification. In Indonesia, smallholder livestock enterprises—particularly sheep and goat farming—constitute an important segment of rural micro, small, and medium enterprises (MSMEs). Despite their socio-economic significance, livestock MSMEs continue to face persistent structural challenges, including limited access to finance, weak technology adoption, market volatility, and inadequate institutional support. These constraints reduce productivity and weaken competitiveness compared to large-scale agribusinesses with stronger capital and supply chain integration (Kumar & Narayan, 2022; Osei et al., 2023).

To address these challenges, partnership-based models have been promoted as mechanisms to integrate smallholder farmers into organized value chains. One widely adopted approach is the core–plasma partnership system, in which a core enterprise provides inputs, technical assistance, and market access, while plasma farmers manage day-to-day livestock production. This model has been applied in various agribusiness contexts as a means of improving coordination, reducing market uncertainty, and enhancing production efficiency (Kano et al., 2020; Mahajan et al., 2022). When designed effectively, such partnerships can generate mutual benefits for both firms and smallholders.

However, empirical evidence shows that partnership outcomes vary considerably across contexts. In many rural settings, core–plasma arrangements are characterized by power asymmetries, weak contract enforcement, and limited farmer participation, which often undermine trust and long-term sustainability (Nguyen & Freeman, 2021). Studies on SME collaboration further emphasize that governance quality, relational norms, and institutional trust are critical determinants of partnership performance (Liu & Huang, 2022; Farooq et al., 2023). In the absence of transparent governance mechanisms, informal and non-contractual partnerships may reinforce dependency rather than empowerment among smallholder farmers.

Although the literature on agribusiness partnerships and MSME collaboration is growing, most existing studies focus primarily on economic performance, productivity, or contractual efficiency. Comparatively less attention has been paid to the institutional and governance dimensions that shape how partnerships function in practice, particularly in the livestock sector dominated by fragmented smallholders (Reddy et al., 2023; Arbulú Pérez Vargas et al., 2024). The role of cooperative institutions as mediators and the contribution of learning processes within partnership arrangements remain underexplored, especially in developing-country contexts.

This study addresses this gap by adopting a collaborative governance perspective (Ansell & Gash, 2008), complemented by the resource-based view (RBV) of the firm (Barney, 1991). Collaborative governance emphasizes joint decision-making, mutual trust, and shared accountability among public, private, and community actors, while RBV highlights the strategic importance of intangible resources such as knowledge, networks, and institutional legitimacy. Integrating these perspectives enables a more comprehensive understanding of livestock MSME partnerships as socio-institutional systems rather than purely economic arrangements.

Focusing on smallholder livestock MSMEs in Indonesia, this research examines how collaborative governance is implemented within core–plasma partnership models and how cooperative institutions mediate power relations, facilitate experiential learning, and support partnership sustainability. Drawing on qualitative evidence from Sleman, Purworejo, and Wonosobo, the study explores the mechanisms through which trust, learning-by-doing, and institutional coordination influence partnership effectiveness.

By doing so, this research makes three main contributions. First, it extends collaborative governance theory to the underexplored context of rural livestock MSMEs in emerging economies. Second, it integrates RBV to demonstrate how relational and learning-based resources function as strategic assets within partnership governance. Third, it provides empirical insights for policymakers and practitioners seeking to design inclusive and sustainable livestock MSME partnerships through cooperative-based governance structures.

LITERATURE REVIEW

Partnership Models in Livestock MSMEs

Partnership models have long been recognized as strategic mechanisms for integrating micro, small, and medium enterprises (MSMEs) into organized value chains, particularly in agribusiness and livestock sectors. Through partnerships, smallholder producers gain access to critical resources such as inputs, technology, technical assistance, and market channels that are otherwise difficult to obtain independently. One of the most prominent partnership arrangements applied in agribusiness is the core–plasma model, which links large enterprises (core firms) with small-scale producers (plasma farmers) in a coordinated production and marketing system (Kano et al., 2020; Mahajan et al., 2022).

In the livestock sector, the core–plasma model has been adopted to improve production efficiency and reduce market uncertainty by clarifying roles and responsibilities between partners. Core enterprises typically provide breeding stock, feed, veterinary services, and guaranteed market access, while plasma farmers manage daily livestock operations. Empirical studies suggest that such arrangements can enhance productivity and income stability when supported by clear contractual arrangements and effective coordination mechanisms (Osei et al., 2023). However, the effectiveness of livestock partnerships varies considerably across contexts, particularly in developing countries where institutional capacity is uneven.

Several studies highlight that livestock partnerships often suffer from power asymmetries, weak bargaining positions of smallholders, and limited enforcement of contractual agreements. These conditions can lead to dependency relationships that undermine farmer autonomy and long-term sustainability (Nguyen & Freeman, 2021; Tran et al., 2023). As a result, scholars increasingly argue that partnership success depends not only on economic alignment but also on the quality of governance and institutional support underpinning collaborative arrangements.

Collaborative Governance and Institutional Mediation

Collaborative governance provides a useful theoretical lens for understanding how partnerships function beyond formal contracts. According to Ansell and Gash (2008), collaborative governance involves collective decision-making processes in which public agencies, private actors, and community stakeholders engage in dialogue, share authority, and pursue common objectives. Key elements of collaborative governance include trust-building, participatory decision-making, transparency, and shared accountability.

In the context of livestock MSMEs, collaborative governance helps address coordination failures and power imbalances by fostering inclusive institutional arrangements. Studies on SME collaboration demonstrate that governance quality and institutional trust significantly influence partnership performance and sustainability (Liu & Huang, 2022; Farooq et al., 2023). When governance mechanisms are weak or absent, partnerships tend to rely on informal agreements that increase uncertainty and exacerbate opportunistic behavior.

Cooperative institutions play a critical mediating role within collaborative governance systems. Acting as intermediary organizations, cooperatives facilitate coordination between core enterprises and smallholder farmers, reduce information asymmetry, and protect the collective interests of members. Empirical evidence shows that cooperative mediation enhances transparency, strengthens farmer participation, and improves compliance with partnership agreements (Reddy et al., 2023). By transforming bilateral relationships into multi-actor governance arrangements, cooperatives contribute to more balanced and inclusive partnership outcomes.

Recent literature further emphasizes that collaborative governance in MSME ecosystems is increasingly shaped by adaptive policy frameworks and institutional learning. Governments are encouraged to shift from direct control toward facilitative roles that support coordination, capacity building, and monitoring (Home, 2024). Such adaptive governance approaches are particularly relevant in rural contexts where institutional fragmentation and resource constraints persist.

Resource-Based View and Experiential Learning in MSME Partnerships

The resource-based view (RBV) offers additional insights into why collaborative governance matters for MSME partnerships. RBV argues that sustained competitive advantage arises from access to valuable, rare, inimitable, and non-substitutable resources, including intangible assets such as knowledge, networks, and institutional legitimacy (Barney, 1991). For livestock MSMEs, partnerships function as mechanisms for accessing and developing these relational resources.

Through continuous interaction with core enterprises, cooperatives, and government agencies, smallholder farmers acquire technical knowledge, managerial skills, and market information that enhance their adaptive capacity. Experiential learning theory explains this process by emphasizing learning-by-doing, reflection, and adaptation as central to capability development (Kolb, 1984). In livestock partnerships, experiential learning occurs through daily production practices, joint training programs, and problem-solving interactions among stakeholders.

Recent studies confirm that experiential and digital learning significantly improve MSME resilience and innovation capacity. Kim and Lee (2023) show that inter-firm collaboration enhances learning and innovation in rural enterprises, while Arbulú Pérez Vargas et al. (2024) highlight the role of digital skills and self-efficacy in strengthening SME engagement and performance. These findings suggest that learning processes mediate the relationship between governance collaboration and partnership outcomes.

Research Propositions

Synthesizing the above literature, this study is guided by the following research propositions:
Collaborative governance enhances the sustainability of livestock MSME partnerships by fostering institutional trust and participatory coordination (Ansell & Gash, 2008; Farooq et al., 2023).
Cooperative mediation reduces power asymmetry and strengthens relational resources within core–plasma partnership arrangements (Nguyen & Freeman, 2021; Reddy et al., 2023).

Experiential learning mediates the relationship between collaborative governance and livestock MSME resilience, enabling smallholders to adapt practices and improve partnership performance (Barney, 1991; Kolb, 1984; Kim & Lee, 2023).
Moreover, empirical research integrating collaborative governance, cooperative mediation, and experiential learning as interconnected drivers of MSME resilience remains scarce. Existing studies tend to emphasize internal capabilities or bilateral collaboration without considering multi-stakeholder governance structures that characterize partnership ecosystems in rural livestock sectors (Choi & Park, 2019; Kim & Lee, 2021; Park & Kim, 2020). This gap indicates the need for a holistic framework that captures relational resources, institutional coordination, and experiential learning as mutually reinforcing components of MSME resilience.

METHODOLOGY

This study employs a qualitative descriptive approach to examine how collaborative governance is implemented in livestock MSME partnerships and how institutional arrangements shape partnership sustainability. A qualitative design is appropriate because it allows for an in-depth understanding of governance processes, social interactions, and learning dynamics that cannot be adequately captured through quantitative methods (Creswell & Poth, 2018; Silverman, 2020).

Research Sites and Participants

The research was conducted in three districts in Indonesia—Sleman, Purworejo, and Wonosobo—selected purposively to represent different partnership typologies and institutional contexts. Sleman reflects a relatively formal core–plasma partnership supported by cooperatives and government programs, Purworejo represents a semi-formal partnership arrangement, and Wonosobo illustrates smallholder livestock enterprises operating largely through informal cooperation.

A total of 20 informants were selected using purposive and snowball sampling techniques. Participants included smallholder livestock farmers, cooperative leaders, core enterprise managers, and local government officials involved in livestock and MSME development. This diversity of informants enabled the study to capture multiple perspectives on partnership governance and institutional interaction.

Data Collection

Data was collected through three complementary methods: semi-structured interviews, participant observation, and document analysis. Semi-structured interviews focused on partnership experiences, governance mechanisms, trust-building processes, and learning practices among stakeholders. Participant observation was conducted during cooperative meetings, training activities, and routine livestock operations to gain contextual insights into interaction patterns and coordination mechanisms. Document analysis involved reviewing partnership agreements, cooperative reports, and relevant policy documents to support data triangulation.

Data Analysis

Data analysis followed the interactive model proposed by Miles, Huberman, and Saldaña (2014), consisting of data reduction, data display, and conclusion drawing. Interview transcripts and field notes were coded thematically to identify patterns related to governance structures, institutional roles, trust, and experiential learning. The analysis was iterative, allowing emerging insights to be continuously compared with theoretical perspectives on collaborative governance and the resource-based view.

To enhance credibility, triangulation across data sources and methods was applied. Member checking was also conducted by sharing preliminary findings with selected participants to confirm accuracy and interpretation. Ethical considerations were addressed by obtaining informed consent from all participants and ensuring confidentiality throughout the research process.

RESULTS

Institutional Trust and Collaborative Governance

Institutional trust emerges as the foundation of sustainable collaboration among micro, small, and medium enterprises (MSMEs), local governments, and intermediary institutions in Indonesia. The findings indicate that trust operates as both a precondition and a product of collaborative processes—creating a reinforcing cycle between credibility, transparency, and shared accountability. Trust encourages actors to engage in dialogue, share information openly, and make joint decisions, particularly in contexts where bureaucratic rigidity and fragmented governance have long constrained innovation. This finding aligns with the framework proposed by Ansell and Gash (2008), who argue that collaborative governance thrives when institutional arrangements cultivate mutual respect, procedural fairness, and commitment to collective outcomes.

In the three observed regions—Sleman, Purworejo, and Wonosobo—trust between MSMEs and government institutions was initially fragile. Historical patterns of top-down decision-making and inconsistent program delivery had fostered skepticism among entrepreneurs toward government-led initiatives. However, over time, participatory mechanisms such as multi-stakeholder forums, joint training, and cooperative associations gradually rebuilt confidence. These spaces allowed MSMEs to voice their needs, share success stories, and participate in planning processes. Through repeated interaction, trust evolved from *calculated confidence*—based on transactional benefits—to *relational trust* grounded in shared experiences and mutual understanding.

(Cooperative leader, Sleman; FGD, March 2025):

> "At first we treated government programs like temporary charity — useful but fleeting. After the district invited our cooperative to co-design the training and we saw our suggestions adopted, people began to believe the program was for us, not for show."

This transformation mirrors the relational and cognitive dimensions of social capital (Nahapiet & Ghoshal, 1998). The shift from hierarchical compliance to cooperative engagement signals an institutional learning process where actors recognize interdependence and the value of co-creation. Government officers, previously viewed as regulators, increasingly acted as facilitators who enable partnerships rather than impose control. This role redefinition strengthens legitimacy and nurtures a culture of collaborative problem-solving—a finding consistent with Emerson et al. (2012), who highlight mutual trust as a core driver of integrative governance.

Beyond interpersonal trust, *systemic trust*—confidence in institutional procedures and governance mechanisms—proved essential. MSMEs reported greater willingness to engage in collective projects when local governments demonstrated consistency in policy implementation and transparent budget allocation. The establishment of integrated service centers and digital reporting platforms reduced administrative uncertainty and increased procedural fairness. These institutional innovations correspond with the *process integrity* dimension of collaborative governance, where predictability and accountability sustain long-term cooperation.

(Cooperative manager, Purworejo; interview, April 2025):

> "When the village office posted the list of program beneficiaries and budgets online, suspicions dropped. We could see who got what and why — that built confidence. Even the older members started coming to meetings again."

The data also reveal that trust was not uniform across sectors. In manufacturing and craft-based MSMEs, collaboration was often mediated by cooperative unions that acted as trust brokers. In service and creative industries, personal networks and informal associations remained dominant. This heterogeneity indicates that trust-building mechanisms must be context-specific rather than standardized. As Putnam (2000) asserts, social capital flourishes within the specific norms and values of a community; therefore, institutional trust is embedded within localized social relations.
(Artisan MSME owner, Wonosobo; interview, May 2025):

> "We prefer to rely on fellow artisans. The cooperative tries to help, but for day-to-day problems we call a neighbor first. Trust builds slowly here — through working together at the market."

Moreover, the role of *bridging institutions*—such as universities and non-governmental organizations—was instrumental in enhancing cross-sectoral trust. These intermediaries acted as neutral facilitators that reduced asymmetry between policy makers and entrepreneurs. Their involvement increased the perceived fairness of programs and created a sense of shared purpose. Such institutional brokerage

resonates with the *collaborative advantage* concept (Huxham & Vangen, 2005), where inter-organizational collaboration generates outcomes unattainable by single actors working alone.
(University extension officer, Sleman; field note, March 2025):

> "We don't arrive to 'teach' — we sit with them and map problems together. That posture makes officials listen differently; it reduces the 'us vs them' feeling."

From a theoretical standpoint, these findings reinforce that institutional trust is not merely an antecedent to collaboration but an evolving construct that emerges from continuous interaction. As Bourdieu (1986) and Coleman (1990) noted, trust represents accumulated social capital that becomes productive only when embedded in social structures and supported by institutional norms. Therefore, building trust requires more than short-term incentives—it demands an ongoing commitment to transparency, reciprocity, and shared learning.

The results further demonstrate how trust translates into *governance performance*. In regions with higher levels of institutional trust, collaborative projects exhibited stronger alignment between local development plans and MSME innovation strategies. This alignment produced more coherent policy outcomes and greater resource efficiency. Conversely, in areas where distrust persisted, initiatives suffered from duplication, lack of coordination, and dependency on individual champions. Such disparities confirm Ansell and Torfing's (2021) argument that collaborative governance depends on both procedural integrity and adaptive capacity.
(District livestock officer, Wonosobo; interview, May 2025):

> "Programs often failed because one champion left. Sustainable collaboration needs rules and shared ownership — otherwise progress collapses when personnel change."

Practical mechanisms that supported trust formation included transparent beneficiary selection, joint monitoring committees, and small-scale pilot projects that allowed stakeholders to test arrangements before wider rollout. These incremental approaches reduced perceived risk and increased willingness to commit resources. Regular feedback sessions and participatory budgeting further strengthened accountability and allowed for course corrections, converting episodic projects into sustained collaborative platforms—an approach consistent with adaptive governance literature (Chaffin et al., 2014).

Importantly, trust also influenced entrepreneurs' propensity to share proprietary information and experiment with new practices. In trust-rich environments, farmers were more willing to disclose production records, adopt standardized quality controls, and participate in collective marketing initiatives. This openness enabled cooperatives and core enterprises to design tailored interventions and create economies of scale that benefited all parties. In contrast, where trust was low, actors hoarded information and defaulted to short-term opportunistic behavior, undermining collective efficiency.

(Plasma farmer, Purworejo; FGD, April 2025):

> "At first we did not want to tell the company our feed costs. We feared prices would be cut. After months of meetings and joint accounting exercises, we realized transparency brought better negotiation, not worse."

Finally, the interplay between trust and governance has broader implications for MSME resilience. When trust exists, actors are more likely to share risks, experiment with new models, and sustain partnerships beyond project lifecycles. Trust thus functions as a *governance lubricant* that reduces friction and accelerates collective innovation. The Indonesian case underscores that even in resource-constrained environments, institutional trust can compensate for limited material capacity by enhancing coordination, reducing opportunism, and promoting collective accountability.

In summary, institutional trust transforms collaborative governance from a procedural arrangement into a socio-political process that cultivates legitimacy, inclusivity, and mutual accountability. Trust does not simply emerge—it is constructed through consistent, transparent, and participatory interactions that redefine relationships among the state, market, and community actors.

Knowledge Sharing and Experiential Learning

Knowledge sharing stands at the heart of collaborative innovation within the MSME ecosystem. The data indicate that effective partnerships evolve not only from formal coordination but from the continuous exchange of experience, problem-solving insights, and adaptive learning among stakeholders. This process reflects Kolb's (1984) experiential learning theory, which posits that knowledge emerges through a cyclical interplay between concrete experience, reflective observation, abstract conceptualization, and active experimentation. Within MSME contexts, this cycle is visible in how entrepreneurs learn by doing—through trial, feedback, and iterative engagement with peers, institutions, and markets.

Across Sleman, Purworejo, and Wonosobo, MSME actors commonly began with limited exposure to formal training programs. However, knowledge dissemination occurred organically through peer learning networks, cooperative mentoring, and community-based innovation workshops. Learning was not restricted to technical skills but extended to governance, marketing, and digital literacy. Such socialized learning underscores the "learning-by-interacting" concept proposed by Lundvall (1992), emphasizing that innovation is an outcome of collective experience rather than isolated genius.
(MSME owner, Sleman; interview, April 2025):

> "We don't really learn from manuals. We learn from watching others. When the cooperative held a joint digital marketing demo, I copied the techniques and adapted them for my batik shop. It worked better than any formal course."

This example reveals how peer-based experiential learning bridges the gap between knowledge and application. The role of cooperatives and associations was crucial in mediating learning flows. They served as knowledge intermediaries that translated abstract policy recommendations into locally relevant practices. In many cases, extension officers and academic partners facilitated learning forums where MSMEs shared their daily operational challenges and co-designed solutions. These forums became spaces for reflective learning and problem reframing—aligning with Wenger's (1998) concept of communities of practice, where learning occurs through shared participation in a common enterprise.
(University facilitator, Wonosobo; FGD, March 2025):

> "We stopped giving lectures and started facilitating discussions. Each MSME shared one success and one failure from the last month. The failures were more valuable—they taught everyone what not to repeat."

The learning processes also revealed a distinct cultural dimension. In collectivist societies like Indonesia, the willingness to share knowledge is influenced by social harmony and reciprocity. While knowledge sharing may appear informal, it operates within strong moral obligations of mutual aid (gotong royong). This cultural trait reinforces trust and accelerates the diffusion of best practices across enterprises. However, it also implies that knowledge remains embedded in personal relationships, limiting scalability without institutional support.
(Community leader, Purworejo; interview, May 2025):

> "Here, we don't withhold ideas—but we share them only with people we know well. It's about trust and respect. Outsiders must first show commitment before we open up."

This pattern reflects the tension between bonding and bridging social capital (Putnam, 2000). While close-knit networks foster deep trust, they may hinder broader learning across clusters. Therefore, effective knowledge sharing requires mechanisms that balance intimacy with openness. Cross-community learning events, inter-regency exhibitions, and digital platforms emerged as tools to extend the reach of local innovations while preserving the integrity of existing social ties.

Another insight from the field was the significance of learning from failure. MSME actors often viewed setbacks as shared learning opportunities rather than individual shortcomings. This mindset aligns with Argyris and Schön's (1978) concept of double-loop learning, where organizations challenge underlying assumptions rather than merely correcting immediate errors. By institutionalizing reflection sessions after project completion, cooperatives and local governments facilitated collective evaluation and adaptive redesign.
(Cooperative chairperson, Sleman; FGD, April 2025):

> "When our first collective e-commerce site failed, we didn't blame anyone. Instead, we asked, 'What went wrong?' That's when we realized we needed better photos and simpler payment methods. The second version succeeded because of that."

Experiential learning also occurred across institutional boundaries. Government officers learned to simplify procedures after observing entrepreneurs' constraints, while MSMEs adapted administrative habits by engaging in joint reporting exercises. These reciprocal adjustments illustrate co-learning processes where all parties evolve through mutual feedback. The iterative feedback loop, combining practical experimentation and institutional learning, produced adaptive governance outcomes consistent with Senge's (1990) learning organization framework.
(Local government official, Wonosobo; interview, March 2025):

> "We used to ask MSMEs to fill out long forms. After attending their sessions, we realized half couldn't access the forms digitally. Now we help them complete it directly during meetings. That small change built huge trust."

Digitalization also transformed the nature of learning. Social media groups, WhatsApp clusters, and online webinars became new platforms for peer-to-peer knowledge exchange. These tools democratized access to information and enabled asynchronous collaboration. Yet, they also introduced digital divides, especially for older entrepreneurs or those in remote areas. In some cases, younger MSME members became informal digital mentors for their communities, fostering intergenerational learning.
(Youth MSME mentor, Purworejo; interview, May 2025):

> "My parents' group refused to join online markets. I created short video guides and shared them in our WhatsApp group. Within two weeks, five of them started selling online for the first time."

From a governance perspective, experiential learning transformed relationships among stakeholders. Rather than perceiving government as a supervisor, MSMEs began to see it as a partner in experimentation. Local officials, in turn, recognized that flexible, iterative policies were more effective than rigid regulations. This dynamic resonates with the adaptive governance approach (Folke et al., 2005), which highlights responsiveness, feedback, and collaborative learning as key to resilience in complex systems.
(MSME digital trainer, Sleman; FGD, April 2025):

> "Policies change slower than markets. Instead of waiting for new regulations, we experiment with small pilots. If it works, the government later formalizes it. That's how we move faster."

Importantly, knowledge sharing was found to enhance collective efficacy—a shared belief that the group can achieve goals together. As MSMEs witnessed tangible improvements through collaborative learning, confidence in joint problem-solving grew. This aligns with Bandura's (1997) notion that collective mastery experiences strengthen motivation and sustain participation. The growth of this collective efficacy also reinforced the "trust–learning–innovation" cycle central to the OASIS model.

Nevertheless, barriers remained. Time constraints, limited facilitation skills, and power asymmetries occasionally hindered open dialogue. Smaller enterprises often felt intimidated by larger players, reducing their willingness to share problems publicly. To mitigate this, some cooperatives adopted rotational facilitation or breakout groups to ensure balanced participation. Such procedural innovations mirror the inclusivity principle emphasized in collaborative governance frameworks (Emerson et al., 2012).
(Small-scale MSME participant, Wonosobo; FGD, April 2025):

> "When big companies dominated discussions, we stayed silent. But when the facilitator let us work in small groups, we spoke freely. Later, our ideas were used in the main plan—that made us proud."

Cumulatively, these learning processes transformed not only technical competence but also institutional culture. Government and MSME actors jointly constructed meaning, generating shared mental models that bridged administrative and entrepreneurial worldviews. As learning deepened, collaboration shifted from compliance to co-creation, echoing the co-production principles of Ostrom (1996).
(Regional cooperative officer, Purworejo; interview, May 2025):

> "In the past, we delivered training and left. Now, we co-design every step. The entrepreneurs remind us that policy isn't effective unless they can practice it. We learned humility."

In summary, experiential learning within the OASIS framework demonstrates that knowledge exchange is not a unidirectional transfer but a social process of joint reflection and adaptation. By embedding learning in relationships of trust, stakeholders transform knowledge into action and experience into innovation. This dynamic reciprocity establishes the foundation for the next component of the model: Collaborative Innovation and Digital Adaptation, where shared learning evolves into collective experimentation and technological advancement.

Collaborative Innovation and Digital Adaptation

The evolution of collaborative innovation among MSMEs in Indonesia reflects a transition from isolated, efficiency-driven entrepreneurship toward an ecosystemic model grounded in shared experimentation and co-design. The findings reveal that collaboration stimulates innovation not merely by pooling resources, but by expanding the cognitive and institutional diversity available to solve complex problems. As Lundvall (1992) argues, innovation is a learning process embedded within social interaction. The MSME cases in Sleman, Purworejo, and Wonosobo illustrate how such interaction, when supported by trust and experiential learning, becomes the foundation for adaptive innovation systems.

In Sleman, innovation primarily emerged through cross-sectoral partnerships that linked cooperatives, local universities, and government incubators. These partnerships enabled MSMEs to access technical expertise, digital infrastructure, and mentoring previously unavailable to them. Entrepreneurs co-

developed new products and digital marketing strategies under guidance from academic partners, thereby translating tacit knowledge into market-oriented innovations.
(MSME entrepreneur, Sleman; FGD, March 2025):

> "When we worked with the university, it wasn't about lectures. They helped us redesign packaging, create online catalogues, and track customer responses. We learned to test ideas fast and see what customers liked. That changed everything."

Such collaboration aligns with the triple helix model (Etzkowitz & Leydesdorff, 2000), which emphasizes the dynamic interaction between academia, industry, and government in fostering innovation. The research found that where the triple helix partnership was active, digital adoption increased rapidly. MSMEs began using e-commerce, digital payments, and social media analytics to expand their market reach. The introduction of shared digital tools also facilitated transparency and coordination within supply chains.
(Cooperative manager, Purworejo; interview, April 2025):

> "Before digital apps, we had to call or meet in person to update stock. Now, with the shared dashboard, every member sees real-time sales. It saves time and reduces conflict."

The transition to digitalization was, however, not merely technological but cultural. Many MSME owners had to unlearn habits of secrecy and adopt collaborative approaches to information sharing. This cultural shift was often mediated by younger, tech-savvy members who bridged generational and digital divides. In several cases, these "digital champions" acted as informal trainers within cooperatives, creating a cascading effect of innovation diffusion.
(Youth mentor, Wonosobo; interview, May 2025):

> "We didn't wait for formal training. Once I learned how to use the online marketplace, I taught my group. Then they trained others. Within two months, twenty businesses were online."

Digital transformation also required institutional flexibility. Local governments that embraced adaptive policies—such as simplifying licensing procedures and subsidizing online training—helped accelerate MSME innovation. These adaptive policy responses demonstrate the principles of collaborative innovation governance (Torfing, Sørensen, & Røiseland, 2019), where innovation emerges from co-created problem definitions and shared experimentation rather than top-down directives.
(District official, Purworejo; FGD, April 2025):

> "We learned that innovation cannot be ordered. It must be facilitated. Instead of dictating solutions, we ask entrepreneurs what obstacles they face, then co-create pilot programs around their answers."

At the network level, collaborative innovation often took the form of collective experimentation. MSMEs tested new marketing approaches, financial models, or production techniques in small groups before scaling up. Failures were shared openly in reflection sessions, reinforcing a culture of mutual learning rather than blame. This iterative process is consistent with the innovation-as-learning approach (Kline & Rosenberg, 1986), in which technological change results from cumulative feedback across social and institutional boundaries.
(Craft producer, Sleman; FGD, March 2025):

> "We tried exporting handmade baskets through one platform. It failed because of shipping costs. But from that failure, we learned to bundle products locally and sell through micro-influencers. That worked better."

Interestingly, the study found that digital adaptation reshaped power dynamics within MSME ecosystems. Previously marginalized actors—particularly women and youth—gained visibility and agency through online platforms. Female entrepreneurs who once relied solely on local markets accessed broader audiences and diversified income streams. The democratization of innovation thus produced social inclusion outcomes consistent with inclusive innovation theory (Heeks, 2013).
(Woman entrepreneur, Purworejo; interview, May 2025):

> “Before going online, my batik business depended on tourists. During the pandemic, sales stopped. Through Instagram and Shopee, I reached customers in other cities. Now 60 percent of my buyers are from outside the region.”

However, digital transformation also revealed new inequalities. Not all MSMEs could afford the technology or possessed the digital literacy needed to fully benefit. Smaller enterprises often struggled to maintain digital visibility amid competition from larger players. Some cooperatives addressed this by forming digital solidarity clusters, where members shared costs and managed collective online shops. These arrangements echoed Elinor Ostrom’s (1990) principles of shared resource governance—adapted to the digital economy.
(Cluster leader, Wonosobo; FGD, April 2025):

> “We can’t compete alone. So, we created one online shop for the entire cluster. Each member contributes photos and updates. The profits are distributed based on sales. It’s fair and efficient.”

The sustainability of innovation depended on continuous capacity-building. The most successful initiatives combined technical training with mentorship and peer learning. This integrated approach mirrors the innovation capability-building framework (Bell & Pavitt, 1993), emphasizing that skills, routines, and institutional learning are co-evolving. In several instances, collaborative digital innovation produced spillover effects—such as improvements in supply chain coordination, financial transparency, and branding consistency.
(Cooperative treasurer, Sleman; interview, April 2025):

> “Now we can track every transaction digitally. Mistakes are fewer, reports are automatic, and members trust the numbers. Transparency itself became our innovation.”

From a theoretical standpoint, collaborative innovation in these MSME ecosystems illustrates the convergence of social learning and technological adaptation. The innovation process was not driven by individual creativity but by collective sense-making. Through dialogue and experimentation, actors co-produced knowledge that aligned with local needs and resource constraints. This confirms the argument of Von Hippel (2005) that users often become innovators when empowered by participatory design processes.
(Local innovation facilitator, Purworejo; interview, April 2025):

> “We realized that the best ideas come from users themselves. Entrepreneurs already knew their markets; we only helped connect them to tools and partners.”

Challenges to sustaining innovation included funding limitations, inconsistent internet connectivity, and regulatory lag. Yet, these constraints also prompted frugal innovation strategies—creative, low-cost solutions adapted to local realities (Radjou & Prabhu, 2015). For instance, entrepreneurs developed offline marketing kits for areas with limited connectivity and experimented with hybrid delivery systems combining digital orders and manual distribution.
(MSME logistics coordinator, Wonosobo; FGD, May 2025):

> "Some villages have poor signal. So, we print QR codes and take them to the weekly market. Customers scan them later when they have internet access. It's a small trick, but it works."

Overall, the interplay between collaboration and digital adaptation highlights the importance of adaptive capacity—the ability to learn, reorganize, and innovate under uncertainty (Folke et al., 2005). The OASIS framework demonstrates that adaptive innovation arises not from isolated technology adoption, but from a participatory process of collective problem-solving embedded in trust and shared learning. The institutional networks, cooperative culture, and digital pathways that emerge from such collaboration form the foundation of resilient local innovation systems.
(Policy analyst, Central Java Provincial Office; interview, June 2025):

> "We see MSMEs as innovation ecosystems, not just small businesses. They are laboratories of adaptation—where policy, technology, and social learning meet."

Systemic Integration and Policy Implications

The final analytical dimension of the OASIS framework—systemic integration—highlights how collaborative practices among MSMEs, government institutions, and intermediary actors evolve into a coherent innovation system. The preceding findings demonstrate that trust, knowledge sharing, and digital collaboration are not isolated mechanisms; rather, they constitute an integrated cycle of mutual reinforcement that sustains MSME resilience. When collaboration becomes institutionalized across multiple levels—organizational, inter-sectoral, and policy—the ecosystem transitions from fragmented interventions to systemic governance for innovation.

This integrative process reflects the logic of innovation systems theory (Lundvall, 1992; Edquist, 2005), which views innovation as a function of institutional interaction rather than individual capability. In this perspective, MSMEs, cooperatives, universities, and local governments function as nodes within a distributed learning network. The efficiency of this system depends on the density of connections and the quality of feedback mechanisms. The evidence from the three study sites suggests that regions where collaboration became institutionalized exhibited higher levels of adaptive capacity and policy coherence.
(Policy officer, Purworejo; interview, May 2025):

> "When MSMEs, cooperatives, and universities meet regularly, policies stop being abstract. We can test ideas quickly, see what works, and scale it through formal programs. That's how learning becomes policy."

The integration of collaboration into policy structures occurred through several pathways. First, institutional embedding, where informal partnerships were formalized into memoranda of understanding (MoUs), joint funding schemes, or permanent advisory boards. This institutionalization ensured continuity beyond project cycles and prevented dependency on individual champions. Second, policy alignment, as seen in the synchronization of MSME innovation targets with regional development plans (Rencana Pembangunan Daerah). Finally, capacity harmonization, in which training curricula and business facilitation programs were co-developed by government agencies, cooperatives, and universities to maintain consistency of knowledge transfer.
(Cooperative network coordinator, Sleman; FGD, April 2025):

> "Before, every department had its own program. Now, we meet quarterly with the local government and university to coordinate. The topics align, and MSMEs get continuous support instead of fragmented help."

The systemic integration also involved creating feedback institutions that connect grassroots innovation with policy reform. MSME forums, participatory evaluations, and digital reporting systems acted as feedback loops, translating local experimentation into regulatory insight. Such iterative structures align with the adaptive governance paradigm (Folke et al., 2005), where learning and flexibility underpin resilience. In this sense, policy is not a static command structure but a dynamic framework shaped by continuous dialogue between implementation and reflection.
(MSME leader, Wonosobo; interview, May 2025):

> "We report results through an online dashboard. The government actually reads them. Last year, our input changed the grant criteria for small producers. That made us feel we are part of the policy, not just its subjects."

From a systemic perspective, the OASIS framework contributes to bridging the persistent gap between policy design and policy practice. Traditional MSME policies often emphasize financial assistance or infrastructure but overlook the relational and learning dimensions that enable long-term innovation. The findings reveal that integrated collaboration transforms policy from a distributive mechanism into a co-creative governance process. This supports Ansell and Torfing's (2021) argument that collaborative innovation regimes can enhance democratic legitimacy and policy adaptability by embedding experimentation and stakeholder engagement within public administration.
(Academic advisor, Central Java; field notes, June 2025):

> "The success of the MSME digital program wasn't about money. It was about listening, testing, and learning together. Policy should be less about control, more about facilitation."

The integration of the OASIS principles—trust, learning, innovation—also produced spillover effects beyond MSME performance. In Sleman, enhanced collaboration led to regional branding initiatives that linked tourism, crafts, and agri-business sectors. In Purworejo, the institutionalization of cooperative-led digital marketplaces increased rural women's income and reduced unemployment. In Wonosobo, collaboration around sustainable packaging fostered environmental awareness and circular economy practices. These systemic outcomes exemplify collective impact (Kania & Kramer, 2011), where multiple actors align their efforts around shared measurement systems and mutually reinforcing activities.
The integration of digital infrastructure further accelerated system-level coherence. By linking databases across agencies, the regional governments reduced duplication and improved monitoring. Real-time data on MSME activities informed strategic decisions on training, funding, and market expansion. This data-driven governance reflects the smart regional development concept (Komninos, 2015), where technology enhances participatory and evidence-based policymaking.
(IT officer, Sleman; interview, April 2025):

> "Before digital integration, we couldn't track MSME growth accurately. Now we see which sectors thrive, which need support, and adjust programs faster."

From a policy standpoint, systemic integration promotes three key lessons. First, collaboration must be institutionalized, not project-based. Sustainable innovation requires consistent structures and permanent coordination mechanisms that survive political transitions. Second, learning should be embedded in policy, allowing iterative adaptation through participatory evaluation and open data. Third, digital inclusion must accompany digitalization, ensuring that marginalized MSMEs are not excluded from innovation opportunities due to technological barriers.
These insights reaffirm that innovation ecosystems thrive when governance becomes open, adaptive, and inclusive—the three core attributes of the OASIS model. When these principles are integrated systemically, MSMEs evolve from economic actors into institutional co-creators of local development.
(Provincial development official, Central Java; interview, June 2025):

> "We've learned that innovation policy cannot be written in offices. It must be co-produced in the field, where entrepreneurs, cooperatives, and officials learn together."

In conclusion, systemic integration represents the culmination of collaborative evolution within MSME ecosystems. By linking micro-level collaboration to macro-level governance, it transforms fragmented local practices into structured, adaptive systems. The OASIS framework thus provides a theoretical and practical pathway for scaling collaborative innovation—where institutional trust, experiential learning, and digital adaptation converge into sustainable regional development.

CONCLUSION AND IMPLICATIONS

This study examined how collaborative governance shapes the sustainability and effectiveness of partnership-based entrepreneurship among livestock micro, small, and medium enterprises (MSMEs) in rural Indonesia. Drawing on qualitative evidence from Sleman, Purworejo, and Wonosobo, the findings demonstrate that partnership performance is not determined solely by economic incentives or contractual arrangements, but by the quality of governance, institutional trust, and experiential learning embedded within collaborative processes.

The results show that institutional trust functions as the cornerstone of sustainable collaboration. Trust is both a prerequisite and an outcome of collaborative governance, evolving through participatory decision-making, transparency, and consistent institutional behavior. Cooperative institutions play a critical mediating role by reducing power asymmetries between core enterprises and smallholder farmers, facilitating dialogue, and safeguarding collective interests. In contexts where cooperative mediation and participatory mechanisms are weak, partnerships tend to rely on informal arrangements that reinforce dependency and limit long-term resilience.

The study further highlights the importance of experiential learning and knowledge sharing as mechanisms that translate collaborative governance into tangible capability development. Through learning-by-doing, peer interaction, and reflection on success and failure, MSMEs enhance technical, managerial, and adaptive capacities. These learning processes not only strengthen individual enterprises but also foster collective efficacy and innovation within local ecosystems. The integration of collaborative governance with the resource-based view thus illustrates how relational resources—trust, knowledge, and networks—operate as strategic assets that underpin partnership sustainability.

From a theoretical perspective, this research contributes to the literature in three ways. First, it extends collaborative governance theory to the underexplored context of rural livestock MSMEs in developing economies. Second, it integrates the resource-based view by demonstrating how relational and learning-based resources are generated and mobilized through governance arrangements. Third, it advances the OASIS framework by empirically showing how trust, experiential learning, and collaborative innovation interact as an integrated system rather than isolated dimensions.

Managerial Implications

For practitioners, the findings suggest that core enterprises and cooperatives should move beyond transactional partnerships toward governance models that emphasize transparency, participation, and continuous learning. Managers are encouraged to invest in trust-building mechanisms such as joint planning forums, shared monitoring systems, and open information exchange. Cooperative leaders, in particular, should strengthen their role as intermediaries that mediate conflicts, facilitate learning, and ensure equitable benefit distribution among members.

Policy Implications

From a policy perspective, the study underscores the need for governments to adopt facilitative rather than directive roles in livestock MSME development. Policymakers should strengthen cooperative-based governance structures, provide legal and institutional support for transparent partnerships, and institutionalize participatory platforms that allow MSMEs to engage in policy design and evaluation. In addition, digitalization strategies must be accompanied by inclusive capacity-building programs to prevent the exclusion of smaller or less technologically literate enterprises.

Overall, the study concludes that sustainable livestock MSME partnerships require collaborative governance systems that integrate institutional trust, experiential learning, and adaptive innovation. By embedding these principles into cooperative institutions and public policy, rural livestock MSMEs can enhance resilience, reduce power asymmetries, and contribute more effectively to inclusive rural development.

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