

Bridging Villages and Retail Chains: A Pentahelix-Based Strategy for Strengthening Village-Owned Enterprises (BUMDes)–Modern Market Partnerships in Garut Regency

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ABSTRACT

This study aims to formulate a strategy for strengthening partnerships between Village-Owned Enterprises (BUMDes) and modern markets to support the development of microenterprises through a Pentahelix-based incubation approach. The background of the research is rooted in the challenges faced by MSMEs (Micro, Small, and Medium Enterprises) in Garut Regency, such as low product quality, limited access to modern markets, and weak institutional and promotional capacity. The Pentahelix model, which involves five key elements: government, academia, business actors, communities, and media, is promoted as a collaborative framework for building a competitive village business ecosystem. This research employs a qualitative method, which involves interviewing five informants from three villages in Garut Regency that have established distribution partnerships with modern market entities. The findings reveal that implementing formal agreements and MSME incubation programs through this model positively impact increasing turnover, obtaining quality certification, improving distribution efficiency, and enhancing business professionalism. The model also strengthens the strategic role of BUMDes as a link between village MSMEs and modern retail networks. These findings contribute theoretically to the literature on public service innovation and local economic empowerment, while also offering practical implications for local governments, business practitioners, and academics in supporting MSME transformation through cross-sector collaboration. The study recommends replicating this model in other regions with contextual adjustments and institutional strengthening to ensure program sustainability.

Keywords: BUMDes, strategic partnership, micro-enterprises, Pentahelix, modern market, business incubation, collaborative innovation.

INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs), particularly microenterprises, are the backbone of the economy in Garut Regency. According to data from the Garut Regency Office of Cooperatives and MSMEs, the number of MSME actors exceeds 150,000 units (Garut Regency Office of Cooperatives, 2023), the majority of which are household and informal enterprises. Despite their significant contribution to employment and the strengthening of the local economy, micro-enterprises still face various structural and systemic obstacles, one of the main challenges being limited access to modern markets.

Modern markets, such as supermarkets, minimarkets, and retail chains, have strict operational standards and procurement policies. Business actors must meet several key requirements to be accepted as supplier partners. First, product quality assurance is crucial. The products must be consistent in terms of taste, shape, packaging, and food safety. They must comply with quality standards such as halal certification, Home Industry Food Certification (P-IRT), or Food and Drug Supervisory Agency (BPOM) certification. Second, supply continuity

is equally important, as modern markets demand a stable and predictable supply of goods in terms of quantity and timing to ensure product availability on store shelves. Third, business legality, which includes business registration, Tax Identification Number (NPWP), distribution permits, and other legal aspects, is required to ensure legal certainty and professional partnership. Without fulfilling these three aspects, micro-entrepreneurs will struggle to enter and sustain themselves in the highly competitive and standardised modern market distribution chain.

In this context, the role of Village-Owned Enterprises (BUMDes) is highly strategic. As village economic institutions established under Village Law No. 6 of 2014, BUMDes can serve as intermediaries between local MSMEs and modern markets by facilitating product aggregation and providing business development support. The success of BUMDes in strengthening the bargaining position of MSMEs cannot stand alone—it requires multistakeholder support (Pawitan et al., 2025). A study conducted by Ditya et al. (2023) found that the Pentahelix approach is a collaborative development model involving five key elements: government, business, academia, community, and media. In the context of MSME development, this Pentahelix approach has proven effective in accelerating improvements in product quality, managerial capability, and access to capital and markets.

The government acts as a regulator and facilitator by issuing supportive policies such as business licensing and financial incentives. The business sector, including modern markets and financial institutions, is a commercial partner that provides market access and funding support. Academia contributes through research, training, and capacity-building for entrepreneurs. As both actors and consumers of MSME products, the community offers feedback and helps to form a locally based entrepreneurial ecosystem. Finally, the media plays a role in disseminating information, building product images, and expanding promotional outreach. By optimising the synergy of these five elements, the Pentahelix approach can create a more inclusive, targeted, and sustainable incubation and development system for MSMEs.

One practical implementation of this approach, according to Wahyuni et al. (2023), is the establishment of village business incubators, where BUMDes serve as the main facilitators, supported by technical assistance from academia and financing from private sector or financial institutions. A case study in Grujugan Village, Kebumen Regency, demonstrates that an incubator model managed by BUMDes can increase production capacity and expand online marketing access for MSMEs. This demonstrates the potential for such a model to be replicated in other regions, including Garut Regency.

Furthermore, it is necessary to develop a formal partnership agreement between BUMDes and modern markets, including quality standards, supply volumes, return systems, and periodic evaluation mechanisms. Such agreements not only provide business certainty for MSME actors but also increase modern markets' trust in locally produced village products. Against this background, this journal aims to formulate a strategy to strengthen the partnership between BUMDes and modern markets through formal agreement mechanisms and by enhancing micro-entrepreneurs' capacity through a Pentahelix-based incubation program. This strategy is expected to help create a conducive ecosystem for MSMEs to grow, become sustainable, and remain competitive in the modern market.

Hence, the objectives of this study are as follows:

- a. To analyse the existing conditions of the partnership between BUMDes and modern markets in the context of micro-MSME development in Garut Regency.
- b. To identify the structural and non-structural obstacles micro-MSMEs face in establishing partnerships with modern markets.
- c. To evaluate the contribution of the Pentahelix approach in strengthening micro-enterprise capacity through village business incubation programs.
- d. Formulating effective and sustainable partnership strategies between BUMDes and modern markets to enhance micro-MSMEs' competitiveness.

This research is important because it provides a concrete illustration of how partnerships between BUMDes and modern markets can drive micro-MSMEs' growth in rural areas. In the context of Garut Regency, this study highlights the potential of BUMDes to bridge small business actors with broader distribution networks. The findings will help MSME actors improve their production capacity and expand their market access. In addition, this partnership model offers strategic benefits and recommendations for all elements of the Pentahelix approach, namely, the government, academia, the business sector, the community, and the media. For local governments, this model can serve as a reference for formulating policies that support more integrated and sustainable MSME mentoring programs.

For the academic sector, these findings can serve as a foundation for further research, studies, and innovation in local economic empowerment. For business actors and the e-commerce sector, this opens up opportunities for long-term partnerships with local partners who are better prepared to meet market standards. For communities such as BUMDes and micro-MSMEs, this model provides a foundation for building business incubation systems and expanding access to coaching, financing, and product marketing. The media also play a key role in disseminating best practices from these partnerships, building positive narratives, and encouraging broader public participation. Through this cross-sectoral collaboration, the Pentahelix-based partnership model is expected to strengthen sustainable local economic empowerment and foster inclusive public-service innovation.

LITERATURE REVIEW

In this study, theoretical frameworks and previous research findings provide the foundation for understanding the concept of strategic partnerships, the role of BUMDes, and their collaboration with modern markets in supporting micro-enterprise development. This literature review is structured to explain key concepts directly related to the research focus, such as strategic partnership theory, the institutional structure of BUMDes, distribution mechanisms for MSME products, and the role of modern markets as business partners. These dynamics can be understood more deeply and holistically, both conceptually and empirically, through qualitative methods, including interviews, field notes, and document analysis. Collaboration between MSMEs, BUMDes, and modern markets forms a mutually supportive ecosystem for empowering the local economy. Strategic partnerships facilitated by BUMDes can open pathways for microentrepreneurs to improve product quality, expand market access, and foster village economic self-reliance.

Strategic partnerships in rural economic development represent long-term collaborations involving two or more parties that support one another to achieve common goals, such as increasing the added value of local products, improving distribution efficiency, and expanding market networks. This concept is especially relevant when applied to the relationship between BUMDes as village economic institutions and modern markets as distribution channels for microenterprise products.

It is also essential to examine how distribution agreements are structured, including the regulation of business legality, pricing agreements, and fair and sustainable supply and payment mechanisms. Other important aspects include the product quality standards required by modern markets, such as consistency, packaging, and certification, as well as regulatory support that enables equitable partnerships to be formed. Grounded in theoretical frameworks and relevant empirical findings, this study aims to develop a comprehensive analytical framework for strengthening partnership strategies that are economically beneficial and contribute to sustainable community empowerment.

A study conducted by Hanifah et al. (2023) examined the strengthening of entrepreneurship education and social networks among MSMEs managed by BUMDes Bina Laksana in Sukalaksana Village, Samarang District, Garut Regency. This study highlights the importance of product innovation, orderly financial management, and strengthening social capital through networking among business actors to enhance village MSMEs' competitiveness. The approach used in this activity prioritised entrepreneurship development, improvement of financial reporting skills, and the expansion of collaborative marketing networks. The results showed that collaboration between BUMDes, MSME actors, and village governments can serve as a sustainable empowerment model while contributing to local economic recovery in the post-pandemic period.

Pawitan et al. (2025) examined community empowerment by strengthening BUMDes in Mekarsari Village, Garut Regency. This research employed a participatory approach, involving various stakeholders, such as village governments, universities, the private sector, and local communities, to enhance the managerial capacity of BUMDes, promote bamboo-based product innovation, and expand market access through digital marketing strategies. This collaborative model demonstrates that the synergy between local and external actors can drive the creation of more competitive and sustainable management of village resources. This study also aimed to identify the factors influencing BUMDes' effectiveness and formulate strengthening strategies that can be replicated in other rural areas.

A study conducted by Muizu et al. (2025) examined human resource capacity-building assistance for BUMDes personnel and MSME actors to strengthen the business network of the Waste Management Unit at BUMDes Perkasa, located in Sindangsuka Village, Cibatu District, and Garut Regency. The research was carried out as part of a community service (KKN-PPM) program by students from Padjadjaran University, aimed at identifying the challenges in managing waste-based business units and developing collaborative strategies between BUMDes, the local community and the village government. The activities included training sessions, focus group discussions (FGDs), and managerial mentoring, which resulted in several agreements and strategic proposals, such as strengthening BUMDes' institutional capacity, establishing a waste bank system, and highlighting the importance of policy support from the village government. The findings underscore that enhancing human resource capacity and developing structured partnership models are key to optimising the economic potential of villages through sustainable waste management.

Further, Wardhana et al. (2024) examined the role of partnerships in implementing sustainability concepts between BUMDes Amarta and the non-governmental organisation ReiSPIRASI in Yogyakarta. This research employed a business partnership scheme approach that integrates universities, BUMDes, and NGOs to foster cross-sector collaboration in environmental management and strengthen local business units. This partnership model highlights the importance of sustainable synergy among social and economic aspects, supported by academic institutions through education, research and community service. This study aims to formulate a sustainable collaboration framework and promote the establishment of village business laboratories to enhance institutional capacity and community participation in environmentally friendly economic activities.

Besides, Rudin et al. (2025) discussed business management strategies to ensure the sustainability of BUMDes in Ombulodata Village, Kwandang District, North Gorontalo Regency. The study highlights the various challenges faced in BUMDes management, including limited human resource quality, low community participation, dependence on village budgets, and minimal support from the private sector. The findings suggest that strategies such as institutional strengthening, management training, program planning based on local potential, and enhanced transparency in business operations are essential for ensuring the sustainability of BUMDes. Partnerships with external parties and the private sector are strategic approaches to expand business networks and improve resource access. Therefore, a collaborative and professional management approach is key to driving sustainable economic independence in villages.

An article by Nugroho et al. (2025) discusses social innovation initiatives undertaken by BUMDes Bicak Makmur, focusing on the development of sustainable partnerships in the production and marketing of local handicrafts in Bicak Village, Mojokerto Regency. The study highlights how community empowerment strategies can enhance a village's economic independence through training in production, business management, and digital marketing. The findings show that using digital platforms, such as social media and e-commerce, significantly expanded the market reach of local craft products, increased sales volume, and boosted community income. The program also included the creation of a promotional website, social media accounts (e.g., Instagram and TikTok), and branding training, which strengthened the village's competitiveness as a handicraft centre. Therefore, collaboration between BUMDes, the community, and educational institutions, driven by digital-based social innovation, is an effective strategy for building sustainable and inclusive business partnerships at the village level.

An article by Suwarta et al. (2022) discusses the development of BUMDes through digital marketing strategies as part of the revitalisation of the Seba Floating Restaurant in Penatarsewu Village, Sidoarjo Regency. This study

highlights how social media platforms, such as Instagram and TikTok, were used as tools for rebranding to boost sales and business presence in the post-pandemic period. Using a descriptive and participatory qualitative approach, the community service team conducted a series of activities, including training on digital media usage, repainting the restaurant area to enhance its visual appeal, and creating online promotional content. The findings show that using social media effectively increased public awareness of Resto Seba and provided employees with a new understanding of the importance of information technology in supporting marketing and business development. Therefore, social media-based digital marketing strategies are effective in supporting village economic recovery and strengthening the role of BUMDes as a driver of the local economy.

In addition, a study by Ulil Albab et al. (2023) examined the oversight of partnership implementation between MSMEs and large enterprises in Indonesia and Malaysia. This study compares the effectiveness of regulations and the role of competition authorities in both countries, particularly in protecting small businesses when they partner with larger firms. The research found that in Indonesia, oversight is stronger because of the specific authority granted to the Business Competition Supervisory Commission (KPPU), as regulated under Law No. 20 of 2008 and Government Regulation No. 7 of 2021. In contrast, Malaysia's Company Act 2010 does not have specific provisions regulating partnership agreements, resulting in such agreements being treated similarly to other forms of business contracts. The study also highlights how MSMEs often have weak bargaining power and are vulnerable to domination by large enterprises, which can lead to inequality and unfair competition. Therefore, this study emphasises the importance of stricter, more transparent, and sustainable regulatory oversight to establish fair partnerships and ensure the long-term sustainability of MSMEs within national and regional economic ecosystems.

The study conducted by Dewi et al. (2018) examined university partnerships in empowering BUMDes in Losari Village, Pakis Subdistrict, Magelang Regency, through training and assistance in SWOT analysis of village potential. The activities focused on developing hydroponic farming and waste bank management, which could potentially improve the local economy. The results showed that the program succeeded in establishing a participatory and self-reliant community institution and increasing community awareness of strategically managing their village's potential. Collaboration between academics and village communities proved essential in creating sustainable empowerment strategies, fostering synergy that drives economic growth based on local potential.

Furthermore, Hendrawardani et al. (2025) discussed a community empowerment program through capacity building and improving the quality of bamboo hat (tudung) craft production in Grujugan Village, Kebumen. This was achieved by establishing a business incubator based on digital marketing managed by BUMDes. Using a collaborative and participatory approach involving BUMDes, the local tourism awareness group (Pokdarwis), the women's group "Srikandi," and vocational students, the program successfully encouraged artisans to shift from traditional methods to machine-assisted production and improved product quality. It expanded its market reach through digital platforms, such as social media and online marketplaces. The program demonstrated that Pentahelix collaboration, intensive training, and technology integration can strengthen a sustainable local economic ecosystem, although challenges remain, such as limited infrastructure and community adaptability to technology limitations. The success of this initiative is also marked by the inclusion of the business incubator in village regulations, which reinforces its legality and long-term sustainability. A strategic partnership is a long-term collaborative relationship between two or more entities that mutually support each other in achieving shared business goals. In the context of the relationship between BUMDes and modern markets, strategic partnerships are crucial to ensure the connection between local producers and broader markets. According to Mohr and Spekman (1994), effective partnerships must be built on trust, commitment, and open communication among parties.

In practice, such partnerships are typically formalised through distribution agreements that cover several key aspects:

1. Legal aspects, such as the legal status of business actors, distribution permits, tax identification numbers (NPWP), and product certifications (HALAL, P-IRT, or BPOM);
2. Quality aspects relate to product quality standards and consistency.

3. Volume and supply continuity are essential requirements for modern retail distribution systems.
4. Consumer retention refers to how products can remain attractive and build market loyalty.

These distribution agreements clarify the roles, rights, and responsibilities of BUMDes as suppliers of MSME products and modern market actors as distributors or final sellers to consumers.

In this regard, Hendayana and Fauzi (2024) emphasise that the success in establishing partnerships depends not only on the legal and technical readiness of their products but also on their capacity for innovation and cross-sector collaboration. In *Innovation Strategies for MSMEs*, the authors explain that business innovation—whether in business models, digital marketing, or resource management—must be developed within a collaborative ecosystem involving the government, the business sector, and educational institutions (Fauzi, 2024). The case study presented in the book demonstrates that strategic partnerships can function effectively when MSMEs and village institutions, such as BUMDes, leverage technology and establish strong reciprocal relationships with distribution partners. Thus, distribution agreements are not merely formal documents but also serve as adaptive strategies to expand market reach and build competitive advantage through sustainable collaboration.

The Pentahelix model is an extension of the triple helix approach, which initially emphasised synergy among three leading development actors: government, academia, and business. In the Pentahelix model, two additional elements—community/society and media—are key components in a more participatory and adaptive development process, especially in the digital age. This collaboration enables value creation by integrating knowledge, policies, networks, and technology (Tanzil et al., 2023). The model highlights the importance of cross-sectoral collaboration in establishing an inclusive and sustainable development ecosystem.

The Pentahelix approach is relevant as a collective strategy to strengthen institutional capacity, enhance business capabilities, and broaden market access in empowering MSMEs and developing BUMDes. Academia contributes knowledge and training, the business sector supports production and distribution, the media aids in promotion and branding, the government provides regulations and infrastructure, and the community acts as both the leading actor and beneficiary. The synergy among these five elements prevents sectoral and fragmented development practices and encourages BUMDes to become adaptive economic institutions responsive to modern challenges, particularly digitalisation and local entrepreneurship. This approach is well-suited for building a collaborative, resilient, and sustainable rural business ecosystem in the long term. Based on the literature review, various theories and previous studies indicate several key factors that influence the success of public service innovation through the Triple Helix Approach.

Based on the literature reviewed, a common theme emerges: strategic partnerships that involve BUMDes tend to succeed when embedded in a participatory framework and supported by institutional strengthening, innovation, and contextual adaptability. However, most existing studies generalise success factors without delving into locality-specific cultural or economic influences. This study contributes by contextualising the Pentahelix model within the unique socio-economic and cultural landscape of Garut Regency. Specifically, it highlights how traditional practices (e.g., community-based informal trade systems, seasonal bazaar culture) either facilitate or complicate formal partnerships with modern markets. These nuances are crucial for designing sustainable models that are both replicable and locally responsive. Thus, this study not only validates previous findings but also fills a literature gap by offering contextual insights from an underrepresented rural Indonesian setting.

METHODOLOGY

This study uses a Pentahelix approach with qualitative methods through simultaneous data collection via interviews and document analysis to gain a comprehensive understanding of strategies to strengthen partnerships between BUMDes and modern markets in supporting micro-enterprise development. The qualitative approach explores perceptions, strategies, and partnership practices through in-depth interviews with BUMDes managers, guided MSME actors and modern market managers. Focus Group Discussions (FGDs) were also conducted involving Pentahelix elements, such as village officials, academics, business actors, communities, and the media, to understand the dynamics of cross-sectoral collaboration and the role of BUMDes as a village business

incubator.

As part of the operational framework of the research, a strategic model consisting of two main components, namely the partnership agreement mechanism and the Pentahelix-based incubation scheme, was designed. The partnership agreement covers product standards (quality, packaging, and certification), medium-term contracts with agreed distribution schedules and pricing schemes, and a periodic evaluation system through quality audits and market sustainability analyses. The Pentahelix-based MSME incubation places BUMDes as a hub connecting five key actors: the government (for licensing and capital facilitation), business actors (mentors and distribution networks), academics (training and product development), the community (test market and promotion), and media (branding and public education). This model serves as a guideline for conducting field trials and analysing research findings.

The research was conducted in Garut Regency, West Java, using case studies of three BUMDes that established distribution partnerships with modern markets and three modern market entities as partners. The locations were selected purposively based on criteria such as having local product-based business units, existing partnerships with modern markets, and having documentation and field data readiness. Primary data were obtained through interviews, observations, questionnaires, and FGDs, while secondary data were obtained from BUMDes internal documents, sales reports, cooperation contracts, and village policies related to MSMEs. The data types studied include changes in sales volume before and after the intervention, product quality compliance (certification), partner satisfaction, and incubation success indicators, such as training participation, adoption of digital marketing, and the number of upgraded MSMEs.

The interviewee in this study were selected based on three purposive criteria: (1) their direct involvement in BUMDes–modern market partnership initiatives; (2) a minimum of one year’s experience managing or participating in such partnerships; and (3) their representation of one of the Pentahelix actors (BUMDes managers, MSME actors, retail partners, academic facilitators, and local government representatives). This selection ensured both role-based diversity and practical relevance in capturing partnership dynamics. Although the sample size was limited to nine interviewees, the study prioritised depth over breadth in alignment with qualitative research standards. Guest et al. (2006) suggest that thematic saturation in homogeneous groups can be achieved within 6–12 interviews. In this context, the consistency of responses across informants and alignment with document and observational data supported the credibility of findings.

In the analysis stage, qualitative data were analysed using data reduction, display, and conclusion drawing techniques following Miles et al. (1994) model. This approach is expected to provide a comprehensive picture of the effectiveness of cross-sectoral collaboration in supporting BUMDes as a driver of inclusive and sustainable local economic development. Triangulation was employed to enhance methodological rigour. Data were cross-verified through (1) in-depth interviews, (2) document analysis (e.g., sales reports, partnership MoUs, village regulations), and (3) Focus Group Discussions (FGDs). This multi-source approach allowed the researchers to confirm emerging themes and ensure trustworthiness in the interpretation of cross-sector collaboration outcomes.

RESULTS AND DISCUSSION

This study involves five key elements of the Pentahelix approach: government, academics, business actors, community (including MSMEs and local communities), and media. These five actors collaborate to promote public service innovation and strengthen micro-enterprises through BUMDes in the Garut Regency. Data were collected through interviews with nine representative informants, consisting of BUMDes managers from three villages, one mentored MSME actor, and one retail business actor, to explore the roles and synergy of each actor in the implementation of the partnership between BUMDes and MSMEs. Informants 1, 2, and 3 provided different perspectives on partnership dynamics.

Table 1. Stages of Implementing the BUMDes–Modern Market Partnership Model

Stage	Main Activities	Pentahelix Involvement
1. Feasibility &	Product quality assessment, production training, digital	Academics, Government, Media

Stage	Main Activities	Pentahelix Involvement
Training	marketing, and app-based financial management	
2. Partnership MoU	Signing of agreements on supply, pricing, returns, and contract evaluation	BUMDes, Modern Market, Village Government
3. Distribution & Legalisation	Initial product distribution to outlets, facilitation of HALAL, PIRT certification, trademark registration, etc.	BUMDes, Government, Business, Academics
4. Six-Month Evaluation	Evaluation of turnover, return rate, partner satisfaction, and growth of mentored MSMEs	Evaluation Team: Academics, Local Government, Modern Market Partners

Table 2. Impact of the Partnership on MSMEs

Indicator	Before Partnership	After Partnership	Change (%)
Average Monthly Turnover	Rp 4,500,000	Rp 6,750,000	+50%
Product Return Rate	±10%	<5%	-50%
Monthly Distribution Cost	Rp 1,000,000	Rp 800,000	-20%
Certification Ownership	30% of MSMEs	80% of MSMEs	+167%

Table 3. Roles of Pentahelix Actors in the Partnership Model

Pentahelix Element	Key Role in Implementation
Academics	Technical training, product development, market research
Government	Regulation, certification facilitation, contract witnessing, and funding support
Business/Banking	Retail distribution, business mentoring, financing access, digital integration
Community	Test market, local promotion, product validation
Media	Digital branding, coverage of success stories, and market education

The findings show that the strategic partnership model based on the Pentahelix approach—carried out by BUMDes and modern market partners—has effectively addressed key issues faced by rural MSMEs, such as low product quality, limited market access, and weak branding. MSMEs have improved in quality and scale through systematic collaboration and cross-sector support—like technical training, legal assistance, market access, and digital branding.

This success offers the potential for replication in other villages, with adjustments based on the readiness of BUMDes and local business potential. Adopting villages should receive initial training and technical guidance to ensure that the model fits the local context. Strengthening BUMDes institutions is vital. Beyond running businesses, BUMDes must serve as coordinators of Pentahelix actors. This requires better management skills, regulatory support, and integration into local economic policy.

Sustaining MSME incubation is both challenging and an opportunity. Initially project-based, these programs should become part of BUMDes' regular operations. This means continuous training, strong networks with the private and financial sectors, and relevant tech adoption, such as digital marketing platforms and inventory systems. The interview results show that collaboration among micro-enterprises, BUMDes, and modern markets supports local economic growth. BUMDes is a key mediator, but its success depends on professional governance, market assurance, and financing access. BUMDes is evolving from a passive role to a contract manager and

production aggregator, and the Pentahelix model must be based on clear roles, not just informal ties.

Challenges and Sustainability of Cross-Sector Partnerships

While the pilot implementation demonstrates the potential of the Pentahelix-based incubation model, long-term sustainability remains a critical challenge. Several obstacles were identified during interviews and FGDs. First, the continuity of leadership and institutional memory within BUMDes is often weak due to village-level political turnover. This poses a threat to sustaining MoU agreements, contract renegotiations, and incubation activities over the long term. Second, cultural practices in Garut—such as reliance on informal *gotong-royong* trading networks and communal bartering during seasonal markets—can sometimes resist the formalisation of micro-enterprises. Some MSMEs reported reluctance in complying with rigid product standards or registration protocols due to distrust in formal institutions or concerns over taxation.

Third, digital literacy disparities among MSME actors, especially women and older entrepreneurs, hinder the effective utilisation of digital platforms for branding, order tracking, or promotional campaigns. Despite support from the academic and media elements of the Pentahelix, adoption remains inconsistent. Fourth, economic fragility among MSMEs creates dependency on BUMDes and partner retailers. Without diversified revenue streams or scalable capacity, some microenterprises risk exclusion if partnership expectations (e.g., supply volume, consistency) are not met. These findings reinforce that successful partnership strategies must be accompanied by institutional capacity-building, digital inclusion policies, and culturally sensitive onboarding programs tailored to local realities.

In conclusion, market partnerships require systemic collaboration among all Pentahelix actors. Cross-sector partnerships are not just technical solutions but are essential foundations for building inclusive and sustainable rural micro-enterprise ecosystems. This model can serve as a policy framework for local economic empowerment that bridges village businesses and modern market dynamics.

CONCLUSION

Based on the implementation and pilot testing of the partnership between BUMDes and modern markets in supporting micro-enterprises in Garut Regency, it can be concluded that this approach has effectively driven the transformation of village MSMEs toward greater professionalism and competitiveness. Formal agreements between BUMDes and modern retailers—covering product standards, supply volumes, and legal compliance—have increased market trust, reduced return rates, and ensured continuity in modern distribution channels in Indonesia. The Pentahelix-based incubation model, involving the government, businesses, academia, communities, and media, played a key role in strengthening MSME capacity. This cross-sector collaboration accelerated improvements in production, packaging, financing access, legal facilitation, and product promotion. Consequently, informal microenterprises evolved into structured, long-term business entities.

The pilot's success in the three villages shows that this model is replicable in other areas with similar potential. Structured Pentahelix synergy has proven effective in fostering inclusive rural economic growth, strengthening BUMDes as local economic hubs, and bridging the gap between village microenterprises and modern market mechanisms. The model's phased implementation, from quality improvement and institutional strengthening to business incubation and efficient distribution, has created a more adaptive and sustainable MSME ecosystem. Beyond technical training to shape entrepreneurial mindsets and behaviour, the incubation process has better prepared MSMEs for modern market competition.

Furthermore, these results provide a solid foundation for developing more progressive rural economic policies. Continued support in regulations, incentives, mentoring, inter-regional distribution networks, and strengthened BUMDes institutions, alongside committed collaboration across all Pentahelix elements, positions this model as a viable strategy for inclusive, self-reliant, and sustainable rural economic development.

These findings suggest that for partnership models to be scalable and sustainable across diverse rural settings, stakeholders must prioritise institutional strengthening, policy continuity, and sensitivity to local business culture. Local governments should embed BUMDes–modern market partnerships into formal development plans

and allocate capacity-building budgets beyond short-term project cycles. Additionally, integrating cultural assets—such as seasonal markets and cooperative customs—into the design of incubation programs can improve local buy-in and long-term impact. The model's replicability lies not in uniform implementation but in its adaptability to each village's socio-economic fabric.

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