SPEKTA
(Jurnal Pengabdian Kepada Masyarakat: Teknologi dan Aplikasi)
ISSN 2723-8016 (online) | 2723-8008 (print)
Vol 7, No. 1, pp. 164-175

From Home Kitchen to Digital Showcase: The Transformation of Aku Pisang MSME in Alue Krueng Village

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ARTICLE INFO

Article history
Received March 13, 2026
Revised May 7, 2026
Accepted June 3, 2026

Keywords
Business management;
Digital marketing;
Community engagement;
MSME empowerment;
Product innovation.
.

ABSTRACT

Background: Home-based food MSMEs in rural and disaster-prone areas often face limited product innovation, weak managerial routines, and restricted market access. Objective: This community engagement program aimed to transform Aku Pisang MSME in Alue Krueng Village by integrating product innovation, simple business management, appropriate production technology, and digital marketing.
Contribution: This study contributes a process-based empowerment model that connects production readiness, cost control, and digital market activation within one staged intervention, thereby extending single-component MSME-upgrading approaches.
Method: A four-month participatory learning-by-doing program was implemented through needs assessment, production standardization, bookkeeping and cost-based pricing mentoring, equipment introduction, and guided social media/e-commerce onboarding.
Results: The program expanded product variants from two to six flavors, shifted production from irregular orders to planned routines, introduced cost-based pricing and simple bookkeeping, improved packaging consistency, and broadened market reach through online and offline channels.
Conclusion: The integrated approach strengthened Aku Pisang's operational, managerial, and marketing capabilities and provides a replicable framework for empowering rural food-based MSMEs in vulnerable contexts.

1. Introduction

Micro, small, and medium enterprises (MSMEs) remain a strategic pillar of local and national economies because they support household income, employment creation, and community resilience, especially where formal job opportunities are limited [1]–[4]. In rural agri-food contexts, MSME sustainability is also connected to the stability of local inputs, processing capability, and access to value-chain markets [5]–[7].

This issue is evident in Alue Krueng Village, Pasie Raya Subdistrict, Aceh Jaya Regency, where seasonal flooding and limited market infrastructure affect household economic activities. Aku Pisang MSME, a home-based banana-chip enterprise managed by local women, illustrates a common rural food-enterprise problem: production depends heavily on orders, product variants remain limited, bookkeeping is not yet routine, pricing is not systematically based on cost components, and sales still rely mainly on local offline channels.

The competitiveness problem addressed in this study therefore consists of three interrelated constraints. First, limited product and process innovation reduces differentiation and value-added opportunities in processed food products [8]–[10]. Second, weak financial recording, cost identification, and production planning constrain rational decision making and may threaten business survival [11]–[14]. Third, restricted market access persists when MSMEs do not use digital channels consistently, even though digitalization can reduce geographical barriers and increase customer interaction [3], [15]–[21].

Previous studies have discussed MSME upgrading through separate pathways, including product innovation, entrepreneurship or managerial training, financial literacy, e-commerce adoption, and digital marketing capability building [13]–[21]. These studies show that each component can improve MSME performance, but the practical implementation of these components is often fragmented, particularly in rural, home-based food enterprises with environmental vulnerability and limited managerial routines.

The research gap is that limited evidence explains how an integrated, practice-based empowerment package can simultaneously align product innovation, managerial discipline, appropriate production technology, and digital marketing adoption for a single rural food MSME operating under socio-economic and environmental constraints. The novelty of this study lies in documenting an integrated community-engagement pathway that combines co-diagnosis, hands-on product standardization, cost-based pricing and bookkeeping routines, appropriate technology use, and guided digital-channel activation. Unlike interventions that focus on only one capability, this study treats production readiness, financial control, and market activation as mutually reinforcing components of MSME transformation.

The contribution is threefold. First, the study provides process-and-outcome evidence of how coordinated capability building can transform a home-based rural food MSME. Second, it offers a replicable implementation logic for similar community-engagement programs: needs assessment, technical standardization, managerial mentoring, production technology application, and digital marketing onboarding. Third, it extends community empowerment

practice by showing how local-resource-based entrepreneurship can support women's participation, household income diversification, and rural economic resilience.

2. Method

This community engagement project used a participatory learning-by-doing approach combined with process-based program evaluation. Participatory engagement was chosen because it allowed MSME actors to diagnose problems, test solutions, and adjust routines collectively, while experiential learning supported skill internalization through repeated practice and reflection [22]–[25]. The evaluation design emphasized operational indicators, documentation, triangulation, member checking, and before-after comparison to improve transparency and analytical rigor in a single-case community program [26]–[28].

2.1. Location and time of implementation

The activity was conducted in Alue Krueng Village, Pasie Raya Subdistrict, Aceh Jaya Regency, Indonesia. The village was selected because it is exposed to seasonal flooding and because Aku Pisang represents a typical home-based food MSME facing production, management, and marketing constraints. The program was implemented for four months, from September to December 2025.

2.2. Population and participants

The population comprised all members of the Aku Pisang MSME group. A total sampling strategy was applied because all 20 local women involved in production and marketing participated in the empowerment process, including seven core members responsible for daily operational decisions. This approach reduced participant-selection bias and ensured that the intervention reached the actors directly affected by the business transformation.

2.3. Materials and preparation

The main materials were bananas, seasoning ingredients for flavor diversification, cooking oil, and packaging materials such as standing pouches and plastic jars. Supporting instruments included production SOP sheets, costing forms, bookkeeping templates, weekly/monthly production planning forms, observation checklists, and digital-content guidelines. Before the training, the team screened raw materials, tested flavor formulations in small batches, and standardized packaging elements to improve consistency in product quality and brand presentation.

2.4. Community engagement protocol (implementation procedures)

The intervention was implemented through five structured stages in Figure 1. First, needs assessment and business mapping: The team identified constraints through observation, group discussions, and informal interviews. The mapping focused on production flow, product variants, pricing practices, record keeping, equipment availability, and marketing channels. The results were used to prioritize the intervention package. Second, technical training and production standardization: Participants practiced banana slicing, frying-temperature control,

https://doi.org/10.12928/spekta.v7i1.15986

flavor formulation, and product finishing. The training produced six standardized flavor variants and simple SOPs for critical production steps, enabling more consistent output quality.

Third, managerial capacity building: Participants were mentored on identifying fixed and variable costs, calculating production cost, setting cost-based prices, recording expenses and revenues, and preparing weekly/monthly production plans. Manual records and spreadsheet templates were introduced so that participants could continue bookkeeping independently [11]–[14].

Fourth, appropriate production technology application: Simple equipment, including banana slices and improved frying utensils, was introduced to increase efficiency and reduce product variability. Participants practiced equipment operation, maintenance, and safety procedures to ensure that technology adoption remained feasible for household-scale production.

Fifth, digital marketing empowerment: Participants were guided to manage social media accounts, prepare product photos and captions, respond to customers, and use e-commerce features for order handling. The training emphasized do-it-yourself digital capability so that online promotion could continue after external assistance ended [15]–[21].

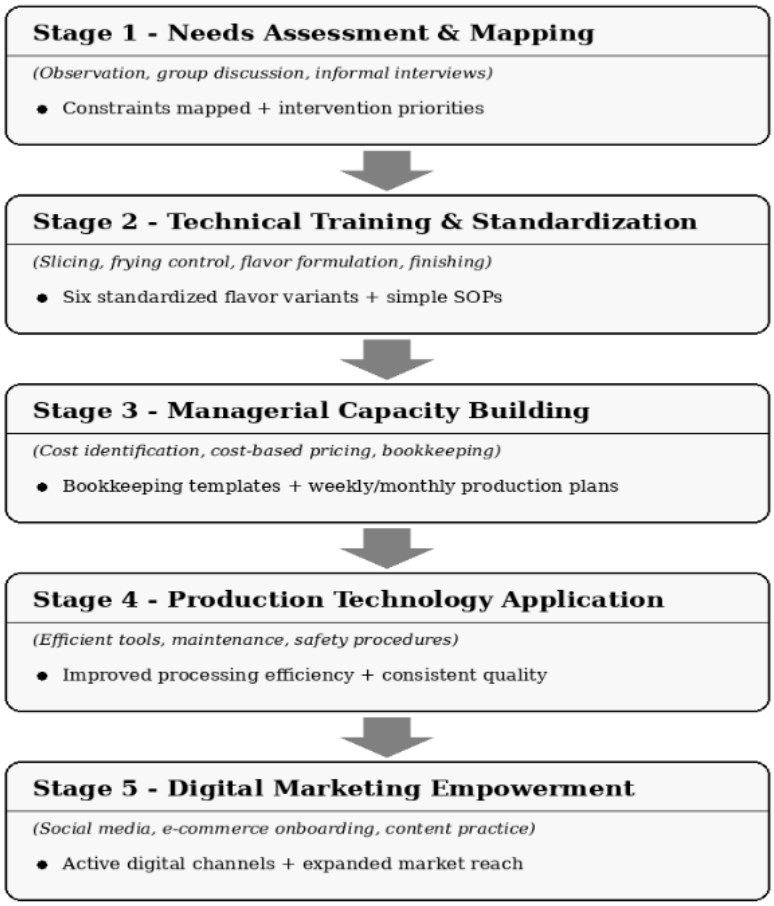

Figure 1. Integrated implementation protocol (5 stages)

2.5. Monitoring, evaluation, validity, and data analysis

Monitoring and evaluation used operational indicators defined before implementation: product variants (number of standardized flavors), production frequency and stability (weekly records), production capacity (batch output and consistency), pricing accuracy (alignment between selling price and cost components), bookkeeping adoption (completeness of cost and revenue records), marketing-channel use (active offline/social media/e-commerce channels), and market reach (areas and order sources reached). Data were collected from weekly production records, bookkeeping sheets, observation checklists, photo documentation, and participant feedback.

Validity was strengthened through source triangulation, member checking with core members after mentoring sessions, and cross-checking observation notes with business records. Reliability was improved by using the same observation checklist and bookkeeping template across monitoring sessions. The data were analyzed using descriptive before-after comparison because the objective was to evaluate process and outcome changes in a single community-engagement case, not to claim statistical causality [25]–[27].

Participation was voluntary, and informed consent was obtained from all participants. The program emphasized mutual learning, respect for local knowledge, and transparent decision making. Data were used only for academic and program-development purposes, and findings were reported in aggregate to minimize identification of individual participants.

3. Results and Discussion

This section presents the outcomes of the community engagement program and interprets why the changes occurred. The analysis is organized around the study objectives: improving production capacity through product innovation and standardization, strengthening managerial routines, and expanding market orientation through digital marketing adoption.

3.1. Main Findings of the present study

Product innovation and production capacity improved, before the intervention, Aku Pisang operated with two flavor variants and an irregular, order-based production pattern. After the intervention, the MSME produced six standardized flavor variants and adopted a more routine production schedule. The change was supported by repeated production trials, SOP development, and the use of simple equipment, which collectively reduced variability in slicing, frying, flavoring, and finishing.

Business management practices strengthened; Managerial mentoring helped the MSME shift from non-systematic pricing to cost-based pricing. Participants learned to identify input costs, calculate production costs, record expenses and revenues, and estimate indicative margins. The introduction of weekly and monthly production plans also improved task coordination among members and reduced dependence on unplanned orders.

https://doi.org/10.12928/spekta.v7i1.15986

Figure 2. Aku Pisang banana chip products after the empowerment program

Market reach expanded through digital marketing and branding; marketing initially depended on local offline sales. After the intervention, Aku Pisang combined offline promotion with social media and e-commerce channels. Packaging standardization and a consistent brand identity supported online visibility, while customer interaction through digital channels broadened market reach beyond the immediate village area.

Table 1. Changes in Aku Pisang MSME performance and supporting evidence sources

Indicator	Before Intervention	After Intervention	Evidence source
Number of product variants	2 flavors	6 standardized flavors	Production trial records and product photos
Production pattern	Irregular, order-based	Routine and planned	Weekly production records and observation checklist
Production capacity	Low and inconsistent	Increased and more stable	Batch-output records and field observation
Pricing strategy	Non-cost-based	Cost-based pricing	Costing sheets and mentoring notes
Financial record keeping	Not available	Simple bookkeeping applied	Bookkeeping sheets and spreadsheet templates
Marketing channels	Offline only (local)	Offline + digital	Social media/e-commerce account observation
Market reach	Village and surrounding area	Regional/inter-village reach	Order records and customer-location notes

The before-after comparison in Table 1 shows that the intervention generated multidimensional changes rather than isolated outputs. The additional evidence-source column clarifies how each change was verified during monitoring. Product diversification

strengthened market differentiation, cost-based pricing improved financial visibility, and digital-channel activation expanded promotion and order opportunities [10]–[19]. The results also indicate that the components reinforced one another. Product innovation created new reasons for consumers to try the product, production standardization helped the MSME fulfill demand more consistently, bookkeeping reduced uncertainty in price setting, and digital marketing made the improved product more visible to potential customers.

3.2. Interpretation of success factors

First, product innovation worked because the program built on a familiar local commodity while adding standardized flavors, improved finishing, and more consistent packaging. This combination increased perceived value and supported product differentiation, which is central to SME innovation capability and food-sector competitiveness [8]–[10], [29], [30].

Second, managerial improvement was effective because mentoring translated abstract financial concepts into daily routines. Participants did not only receive bookkeeping information; they practiced cost calculation, recorded transactions, and used the records to discuss selling prices and production planning. This practical routine formation is consistent with evidence that business training and advisory support improve decision making in small enterprises [11]–[14]. Third, digital marketing adoption succeeded because participants received guided practice rather than one-time instruction. Product photography, captions, customer responses, and e-commerce onboarding were demonstrated and repeated with the participants. This reduces adoption barriers that commonly prevent small firms from converting digital access into actual marketing performance [3], [15]–[21].

3.3. Implementation challenges and evaluation limitations

Several implementation challenges were observed. Some participants needed repeated assistance to prepare digital content, respond to online inquiries, and maintain regular posting. Internet access, data costs, and participants' confidence in using e-commerce features also affected the consistency of digital marketing practice. These constraints show that digital adoption should be understood as routine formation, not simply account creation. Seasonal flooding also remains an external risk that can disrupt raw-material access, production schedules, and physical distribution. As seen in Figure 3, the brand logo strengthened product identity by giving Aku Pisang a recognizable visual marker for packaging, social media, and offline promotion. In practical terms, the logo helped make the product easier to remember and supported consistent presentation across marketing channels.

The evaluation also has limitations. The before-after design did not include a control group, the observation period was limited to four months, and several outcomes relied on program records and participant feedback. These limitations mean that the findings should be interpreted as process-and-outcome evidence from a community engagement case rather than as statistically causal impact evidence. To reduce potential bias, observations were triangulated with production records, bookkeeping sheets, photo documentation, and participant confirmation.

https://doi.org/10.12928/spekta.v7i1.15986

Figure 3. Official logo of the Aku Pisang brand

3.4. Implications for MSME sustainability and community empowerment

The findings imply that MSME sustainability in vulnerable rural contexts depends on the integration of operational, managerial, and market capabilities. Product diversification and standardization can improve demand readiness, cost-based pricing can protect margins, and digital marketing can reduce reliance on geographically limited markets. Together, these capabilities support a more resilient local business model [31]–[34]. The participatory learning-by-doing approach also produced human-capital benefits. Participants gained technical skills, financial-management confidence, and a stronger sense of ownership because they were involved in diagnosis, practice, decision making, and evaluation. This finding supports participatory and experiential learning perspectives, which emphasize that capability is built through active involvement and reflection [23]–[27].

Women's participation was central to the program. By involving local women in production, management, and digital marketing, the intervention supported household income diversification and inclusive economic empowerment. This aligns with evidence that gender-responsive economic participation can contribute to household welfare and broader development outcomes [31]. At the community level, the transformation of Aku Pisang increased the visibility of a local food product and demonstrated that home-based enterprises can become more organized and market-oriented when technical, managerial, and digital support are delivered as one package. The model is therefore relevant for rural villages facing similar constraints in local-resource-based entrepreneurship.

Overall, the results show that the success of MSME empowerment was driven by capability alignment: the product became more differentiated, production became more reliable, financial decisions became more transparent, and market access became broader. This alignment is the main practical lesson from the program. The findings are consistent with studies showing that innovation capability, managerial support, and digital adoption each contribute to SME competitiveness [8]–[12]. The present study adds to this literature by showing how these elements can be combined in a staged community-engagement model for

a rural food MSME. It also supports digitalization and resilience literature by illustrating that technology adoption produces stronger benefits when it is accompanied by production readiness, managerial routines, and local ownership [3], [31], [33], [34].

4. Conclusion

This community engagement study demonstrates that an integrated empowerment strategy can strengthen the production, management, and market orientation of a home-based food MSME in a flood-prone rural setting. The intervention transformed Aku Pisang from an irregular, locally oriented producer into a more organized enterprise with six standardized product variants, planned production routines, cost-based pricing, simple bookkeeping, improved packaging, and combined offline-digital marketing. The main contribution of the study is the integrated empowerment model. Rather than treating product innovation, bookkeeping, production technology, and digital marketing as separate activities, the program connected them as one capability-building pathway. This linkage explains why the MSME could improve not only product output but also operational control, financial transparency, and market visibility.

Practically, the model can be replicated for similar rural food-based MSMEs that depend on local commodities and face limited managerial capacity, market access, and environmental disruption. Socially, the program supported women's participation and household income diversification through skills that can continue beyond the intervention period. Future programs should include longer post-program monitoring for 6-12 months to verify whether bookkeeping routines, production planning, and digital marketing activities are sustained. Future evaluations should also measure sales volume, repeat orders, production output, margin trends, and customer reach more systematically. Because this study used a single-case descriptive before-after design, future research should test the model across multiple MSMEs or villages with different levels of flood exposure, infrastructure access, and digital readiness. Comparative implementation would strengthen evidence on scalability and identify which components require local adaptation.

Acknowledgement

The authors express their sincere gratitude to the Aku Pisang MSME group and the community of Alue Krueng Village for their active participation, commitment, and collaboration throughout the community engagement activities. The authors also acknowledge the support of the Alue Krueng Village Government for administrative coordination and facilitation during program implementation. Appreciation is extended to all individuals who provided technical assistance and in-kind support, including materials and equipment used during training and production trials. Conflicts of Interest: The authors declare no conflict of interest. Author Contribution: All authors contributed equally to the main contributor to this paper. All authors read and approved the final paper.

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