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Innovative Strategies for Strengthening the Competitiveness of Wan Alan MSME through Production Technology Advancement and Digital Marketing

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ABSTRACT

This community service program aims to strengthen the production and digital marketing capacity of the Wan Alan Micro, Small, and Medium Enterprises (MSME), a home-scale spice producer in Padang Panjang, West Sumatra. The intervention was motivated by the partner's limited production technology, absence of standardized SOPs, lack of product testing, weak brand protection, and suboptimal digital marketing performance. The activities were carried out through training, technology adoption, mentoring, proximate testing, Standard Operating Procedure (SOP) development, brand IPR registration assistance, photography, videography workshops, and digital marketing coaching. The results show significant improvements: production capacity increased, sterilization time decreased, SOPs and cost of goods sold (COGS) calculations were implemented, proximate tests were completed, and trademark registration progressed to the substantive examination stage. In the marketing aspect, visual content quality improved substantially, Instagram performance increased by more than 233%, and new distribution channels were opened through a formal partnership with Budiman Supermarket. These outcomes demonstrate that integrated assistance combining production technology, operational standardization, and digital marketing enables MSMEs to enhance competitiveness, expand market reach, and strengthen business sustainability.

Keywords: MSMEs, production capacity, digital marketing, product innovation

INTRODUCTION

The food-processing and MSME sectors in Indonesia play a crucial role in the national economy, with more than 65 million MSMEs contributing around 61% of GDP and the culinary subsector alone comprising approximately 4.85 million businesses that generate nearly IDR 1,000 trillion in sales and employ over 9.8 million workers (OJK, 2024). In West Sumatra, this industrial strength is reflected in the presence of an estimated 296,000 to over 600,000 MSMEs, including 85,194 micro and small manufacturing units, many of which are engaged in food processing and spice production rooted in the region's rich Minangkabau culinary heritage (BPS Sumbar, 2024). High household demand for spices

and traditional food ingredients further reinforces the growth of local culinary industries, making the processed spice and food sector an essential driver of regional economic development (BPS Sumbar, 2023).

Wan Alan is a micro and small business located in RT 22, Guguk Malintang Village, Padang Panjang, West Sumatra, which specializes in the production of instant spices for traditional Minangkabau dishes. Its location on a strategic route connecting major cities in West Sumatra and close to agricultural center areas, such as Agam, Tanah Datar, and Limapuluh Kota, ensures a relatively stable supply of raw materials. This business was initiated at the end of 2020 with two initial products: ginger drink powder and fried onions. It then developed into various instant spices, including rendang seasoning, padeh acid, curry, fried rice, galangal, and soto. Currently, Wan Alan operates on a household scale with three employees, a production capacity of 200-250 packages per month, a selling price of IDR 18,000 to IDR 37,000 per product, and a monthly turnover of around IDR 7,000,000. Marketing is carried out through direct sales, MSME bazaars, as well as social media and marketplaces, enabling the products to reach local and international markets, including Jakarta, Bandung, and Batam.

Although it can survive and meet consumer demand, this business still faces several obstacles that impact its competitiveness and sustainability. In the production aspect, the use of simple equipment limits capacity and efficiency increases, written SOPs are not yet available, product variants are still limited, and microbiological tests have not been carried out to ensure product durability. In addition, although the business holds a PIRT permit and halal certification, the "Wan Alan" brand has not been officially registered, which potentially creates a risk of imitation by other parties (Permata et al., 2023). In the management aspect, partners lack adequate skills in preparing business plans, conducting business analysis, and bookkeeping, which makes it challenging to carry out performance evaluations and long-term planning.

In the marketing aspect, the use of digital marketing is not optimal, social media activity is inconsistent, visual content production capabilities are still limited, and brand awareness among consumers is relatively low. Business growth has also not been supported by a marketing strategy based on growth hacking, despite the fact that at the business growth stage, aggressive promotional strategies through influencer collaboration, paid advertising, and adapting to market trends are key to accelerating expansion (Kotler et al., 2023; Anggrela, 2022). Apart from that, partners have not collaborated with retail shops or gift centers, which are actually potential segments for marketing instant spices.

Based on these problems, this service program aims to: (1) increase production capacity through the procurement of grinding equipment and retorts, (2) expand market segments through developing product variants, (3) ensure consistency of quality and taste through preparing SOPs, (4) increase product safety through proximate testing, (5) assist brand IPR registration, (6) increase partners' digital marketing literacy, (7) strengthen brand awareness through social media, (8) increase product photo and video production capabilities, and (9) open up opportunities for collaboration with self-service.

METHOD

The community service activity was conducted at the Wan Alan MSME business location, situated in RT 22, Guguk Malintang Village, Padang Panjang City, West Sumatra, and supported by a series of training sessions held in the partner campus meeting room facilities. Proximate analysis is conducted in a certified laboratory to obtain valid and reliable quality test results. The service program is implemented through a systematic process, comprising initial observation, needs assessment, program socialization, training,

technology application, and implementation assistance at business locations. The evaluation and follow-up stages are conducted to assess the achievements of activities and ensure the sustainability of the intervention. The entire process is supported by the use of relevant equipment and materials, such as industrial-scale spice grinding machines, autoclave-modified retort sterilizers, digital scales, packaging equipment, as well as digital marketing devices, including smartphones, tripods, mini lighting lamps, and content processing applications.

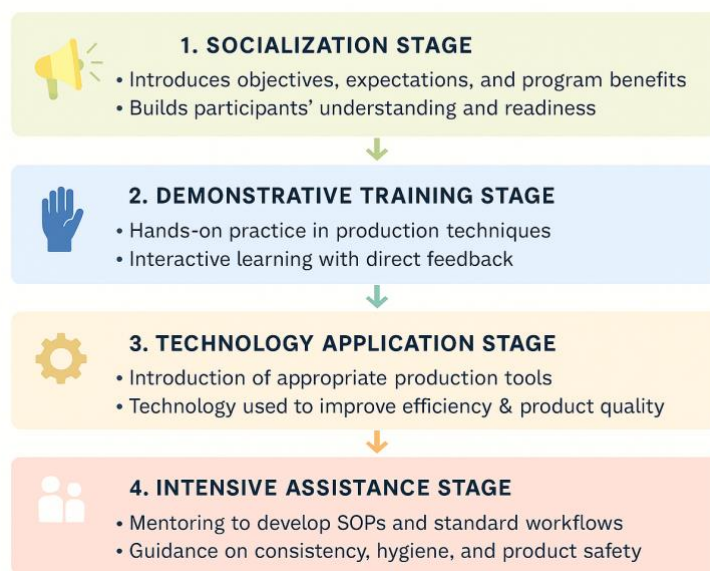


Figure 1. The method of community service

The implementation of activities utilizes a socialization approach as a stage for providing initial understanding, and demonstrative training as a means of enhancing technical skills in production and creating visual content. The application of technology is directed at increasing the efficiency of the production process. At the same time, intensive assistance is focused on preparing SOPs, calculating COGS, managing IPR, and implementing digital marketing strategies. Data collection was conducted through direct observation, informal interviews with business actors, assessment of participants' abilities using pre-tests and post-tests, visual documentation of activities, and recording of operational indicators such as production capacity and social media performance. Quantitative data were analyzed using a comparative approach before and after activities to identify changes in production and marketing indicators. Meanwhile, qualitative data was analyzed through a process of reduction, categorization, and interpretation to identify obstacles, participant responses, and business development opportunities, which then became the basis for formulating sustainability strategies.

RESULTS AND DISCUSSION

This community service activity focuses on strengthening the production and marketing aspects of Wan Alan MSMEs through a series of interventions designed to enhance technical capacity, product quality, and the effectiveness of digital promotions. In the production aspect, intervention focuses on improving operational capabilities, standardizing processes, driving product innovation, and securing intellectual property protection. Meanwhile, in the marketing aspect, activities emphasize increasing the ability

to prepare visual content and optimizing social media as a promotional tool that is relevant to current market needs.

Production Aspect

The increase in production capacity was achieved through the delivery of one unit of a spice grinder with a capacity of 5-10 kg and one unit of an autoclave retort sterilizer on 4 October 2025, accompanied by technical training using demonstrative methods for five MSME members. The results of the activity showed a significant increase in operational capabilities, where all participants were able to operate equipment independently, 80 percent understood maintenance procedures, and 60 percent were able to implement work safety procedures without assistance. Grinding capacity increased from 4 kg/hour to 8-10 kg/hour, while sterilization duration was reduced from around 60 minutes to 30-35 minutes. This achievement aligns with Kholis (2024) and Ali et al. (2023), who explain that the use of appropriate technology and direct training is effective in increasing production efficiency and enhancing food safety. This community service activity focuses on strengthening the production and marketing aspects of Wan Alan MSMEs through a series of interventions designed to enhance technical capacity, product quality, and the effectiveness of digital promotions. In the production aspect, intervention focuses on improving operational capabilities, standardizing processes, driving product innovation, and securing intellectual property protection. Meanwhile, in the marketing aspect, activities emphasize increasing the ability to prepare visual content and optimizing social media as a promotional tool that is relevant to current market needs.



Figure 2. Tool assistance and technical training on tool use

Assistance in preparing SOPs and calculating the Cost of Goods Production (HPP) on 23 August 2025 provides the basis for more structured production governance. The SOP document covers six core process stages, from material preparation to product storage, while the HPP document contains eight main cost components relevant to the production process. Four out of five MSME members were able to explain the SOP flow independently, and all participants were able to calculate COGS using the template provided. The implementation of SOP and HPP has been proven to help increase quality consistency and accuracy in pricing, in line with Muhfidin et al. (2025) and Yusnita (2024), who emphasize the role of operational standards in strengthening MSME production management.



Figure 3. Training on calculating cost of goods sold and creating SOPs

Product differentiation development activities were conducted on 5 October 2025, through assistance in creating new variants of soto seasoning, as well as the dissemination of proximate test results for three product variants: rendang seasoning, nasi goreng seasoning, and lengkuas seasoning. Laboratory test results in table 1 indicate significant variations in nutritional composition among the variants. Rendang seasoning has a lower water content (5.21%) than the other two variants, which suggests it may have a longer shelf life. In addition, the fat content of rendang seasoning (46.38%) is significantly higher than that of fried rice seasoning (14.55%) and galangal seasoning (24.76%), reflecting the character of typical Minang seasonings, which are rich in coconut milk and spices. In simple statistics, the component that shows the most significant variation is fat content, with a difference of 31.83%. In contrast, protein content remains relatively stable, ranging from 5.21% to 10.20%. This information strengthens the basis for product innovation decision-making, aligning with the study by Yuniastri et al. (2020) and Muliska and Sipahutar (2024), who emphasize the importance of proximate analysis in food product development strategies.

Table 1. Results of proximate analysis for instant seasoning samples

No.	Parameter	Unit	Simplo	Duplo	Rata-rata ($\pm$ SD)	Method
A. Bumbu Nasi Goreng						
1	Air	%	60.53	60.00	60.27 ± 0.37	Gravimetri-Moisture analyzer
2	Abu	%	4.53	4.61	4.57 ± 0.06	Gravimetri-Furnace
3	Lemak	%	10.06	9.96	10.01 ± 0.07	Soxhletasi
4	Protein	%	3.43	3.38	3.41 ± 0.03	Titrimetri-N-Kjeldahl
5	Karbohidrat	%	21.45	22.04	21.75 ± 0.42	By-different
B. Bumbu Lengkuas						
1	Air	%	66.10	66.16	66.13 ± 0.04	Gravimetri-Moisture analyzer
2	Abu	%	4.13	4.07	4.10 ± 0.04	Gravimetri-Furnace
3	Lemak	%	14.81	15.09	14.98 ± 0.20	Soxhletasi
4	Protein	%	1.59	1.56	1.58 ± 0.03	Titrimetri-N-Kjeldahl
5	Karbohidrat	%	13.37	13.12	13.24 ± 0.18	By-different
C. Bumbu Rendang						
1	Air	%	59.88	59.94	59.91 ± 0.04	Gravimetri-Moisture analyzer
2	Abu	%	5.57	5.47	5.52 ± 0.07	Gravimetri-Furnace
3	Lemak	%	13.45	13.57	13.51 ± 0.08	Soxhletasi
4	Protein	%	2.51	2.57	2.54 ± 0.05	Titrimetri-N-Kjeldahl
5	Karbohidrat	%	18.59	18.45	18.52 ± 0.10	By-different



Figure 4. Product differentiation

Assistance activities for managing Intellectual Property Rights (IPR) for brands, conducted on 27 September 2025, resulted in complete documents for the application for the brand "Bumbu Khas Minang Wan Alan," which has been assigned application number DID2025103982 and is currently in the substantive examination stage. These results indicate that technical assistance, which includes brand name verification, preparation of administrative requirements, and uploading files through the DJKI system, contributes to encouraging MSMEs to enter more formal legal protection mechanisms. These findings are in line with Rasyid et al., 2022 who emphasized that brand registration is a strategic instrument in increasing the competitiveness of MSMEs, and are supported by Siregar, Saidin, and Leviza (2022), who stated that brand legality not only provides protection against potential imitation but also strengthens business identity and increases consumer trust. Thus, this IPR assistance not only produces administrative outcomes, but also has strategic implications for the professionalization, sustainability, and strengthening of the legal position of Wan Alan MSMEs.



Figure 5. Assistance in IPR management

Marketing Aspects

The photography and videography workshop, held on 30 August 2025, aimed to enhance the digital marketing capabilities of Wan Alan MSME by strengthening its visual content production capabilities. Five MSME members participated in the workshop, focusing on mastering basic techniques in photography, lighting, composition, short video production, and editing using mobile applications such as Canva and CapCut. Evaluation results showed a significant increase in competency: 90 percent of participants were able to take product photos with lighting and composition that met marketing standards, 80 percent were able to produce 10–20-second promotional videos, and all participants were able to perform basic editing before publication. The workshop's outputs included 10 product photos, three short promotional videos, and ready-to-use Instagram content templates to support further marketing efforts. These findings align with those of Zubaidi et al. (2025), who demonstrated that visual content creation training enhances the production skills and product appeal of MSMEs. Furthermore, the results of this workshop

align with Rumondang and Hariningsih (2025), who emphasized that improved branding and visual content skills directly contribute to the effectiveness of MSME digital marketing.

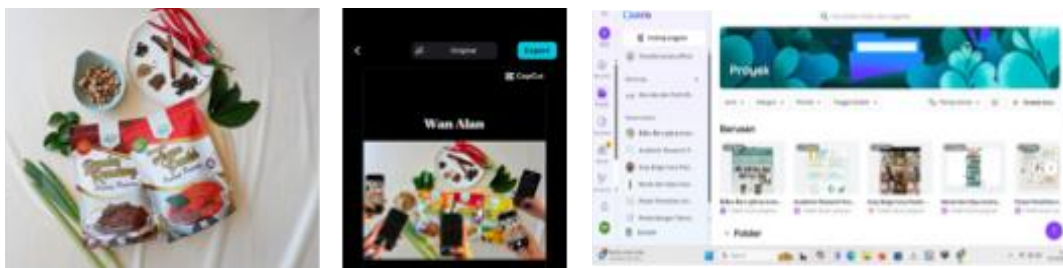


Figure 6. Photography and videography training

The Digital Marketing Workshop held on 20 September 2025 significantly improved the online marketing capacity of Wan Alan's MSMEs. The training materials covered content production strategies, social media account management, Instagram Ad optimization, and post planning using a content calendar. After participating, partners were able to produce promotional content more systematically and understand the basic principles of digital performance evaluation. Based on data monitoring, the MSME's Instagram account experienced significant follower growth, increasing from 385 to 1,284, a rise of over 233% in one month. Furthermore, audience interaction also showed positive developments, as evidenced by the increase in the number of likes on promotional videos from 2 to 100 on the first post-training post. These findings indicate that partners' skills in utilizing social media as a marketing tool have improved substantially. This development aligns with Yuliana (2021) and Ramadhani and Hati (2022), who emphasize that digital marketing literacy and consistent posting are crucial factors in expanding the market reach of MSMEs.



Figure 7a. Condition of the Wan Alan instagram account before digital marketing training
Figure 7b. Condition of the instagram account after the training.

The establishment of a product marketing collaboration between the Wan Alan and the Budiman Supermarket marked the final activity in this community service program. A negotiation visit conducted on 21 November 2025 resulted in an agreement that four product variants, namely galangal seasoning, fried rice seasoning, Padang soto seasoning, and curry seasoning, would begin to be marketed at the Budiman Supermarket outlet in early December 2025. This agreement demonstrates that the increase in production capacity and digital marketing that had been carried out previously had a concrete impact on expanding market access. In terms of output, this collaboration established the first formal distribution channel for the Wan Alan MSME in the modern retail sector, with the

potential to significantly increase sales volume and brand exposure. This condition aligns with Dewi (2020), who explained that MSME partnerships with modern retailers can expand market reach, improve product credibility, and strengthen competitiveness through access to a broader consumer base.



Figure 8. Collaboration visits and supplier agreement signing between Wan Alan and Budiman Supermarket

To provide a comprehensive overview of the program's achievements, key indicators related to production performance and marketing outcomes were compared before and after the implementation of the community service interventions. This comparison highlights the extent of improvements achieved through technology adoption, capacity-building activities, and digital marketing enhancement. The summarized data presented in Table 1 illustrate measurable changes in both operational efficiency and market reach, serving as the basis for evaluating the effectiveness of the program.

Table 2. Summary of Key Production and Marketing Indicators Before and After Program

Aspects	Indicators	Before the Program	After the Program
Production	Production capacity per hour	4 kg/hour	9 kg/hour
	Total monthly production	200 packs	320 packs
	Sterilization duration	60 minutes	32 minutes
	Production error rate	11%	3%
	Number of product variants	6 variants	8 variants
	SOP compliance	40%	92%
	Availability of written SOP	Not available	Available
	Proximate testing	Not conducted	Conducted
Marketing	Number of Instagram followers	385	1,284
	Average likes per content	2	100
	Engagement rate	0.4%	6.8%
	Posting frequency	Irregular	3 times per week
	Number of new content pieces	3	22 content pieces
	Photo/video production skills	Low	10 photos & 3 videos

Implementation challenges still arise in the form of participants adapting to new technologies, limited production space, and inadequate digital devices for content processing and uploading. Therefore, capacity building requires more optimal support. To maintain the sustainability of activity results, partners are directed to implement a

structured equipment operating schedule, regularly update SOPs, record production costs, develop a monthly content calendar, and appoint a social media manager, who will then be supported through monthly online monitoring. Increasing production capacity through technology and process standardization provides a crucial foundation for improving product quality and operational efficiency, while strengthening digital marketing capabilities opens up opportunities for market expansion and business visibility. The overall program contributes to maintaining the internal production structure and positioning MSMEs in digital competition.

CONCLUSION

The community service activities implemented for the Wan Alan MSME successfully addressed key challenges in production, product quality assurance, branding, and digital marketing. Through the provision of appropriate technology, structured training, and intensive mentoring, the partner's production capacity, process efficiency, and product consistency improved substantially. The development of SOPs and COGS calculations strengthened internal governance, while proximate testing enhanced product safety and informed product innovation. In the marketing aspect, the improvement of visual content skills and the adoption of digital marketing strategies significantly increased online visibility and consumer engagement. The establishment of a formal collaboration with Budiman Supermarket marks a major step in expanding market access and integrating the MSME into modern retail distribution channels.

These outcomes demonstrate that integrated interventions are effective in strengthening MSME competitiveness, and long-term sustainability can be ensured by maintaining consistent digital promotion, updating SOPs, monitoring production costs, and expanding retail partnerships. The program's success highlights important implications for community based enterprise development, demonstrating that systematic support in technology adoption, standardization, and market expansion can generate sustained performance improvements. To ensure long-term viability, the partner MSME is encouraged to maintain continuous digital promotion efforts, regularly update SOPs, monitor production costs, and pursue new retail collaborations. Future initiatives may incorporate advanced food safety certification, intellectual property protection, and broader utilization of digital commerce ecosystems to further strengthen competitiveness and safeguard the MSME's strategic positioning.

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