



## Increasing the Capacity and Quality of Cheisya Kitchen's Milkfish Processing with Technology and Innovation

**Novita Maulida Ikmal<sup>1\*</sup>, Dwi Hardaningtyas<sup>2</sup>, Subaderi<sup>3</sup>**

<sup>1\*,2</sup>Public Administration Department, Faculty of Social and Political Sciences,

<sup>3</sup>Mechanical Engineering Department, Faculty of Engineering,  
Universitas Wijaya Putra, Indonesia.

\*Corresponding Author. Email: [novitamaulidaikmal@uwp.ac.id](mailto:novitamaulidaikmal@uwp.ac.id)

**Abstract:** This community service program aimed to enhance the capacity and quality of processed milkfish products through technology utilization and product diversification innovation. The implementation methods were oriented toward solving priority problems through ergonomics training, social media marketing training, assistance in obtaining halal certification, and technology transfer in the form of a pressure cooker and charcoal grill. The intervention focused on three main problem areas: production, marketing, and management. The results of the program showed a significant improvement in the production capacity of the Cheisya Kitchen business with the provision of Appropriate Technology (AT) equipment, namely a 20-kg capacity pressure cooker and a 60×40×85 cm charcoal grill machine. Production capacity increased by approximately 50% among three assisted partners. In terms of efficiency, the use of these machines enabled larger-scale production within shorter processing times. Partners also received training on operating the AT machines to ensure sustainable use. From a quality perspective, ergonomics training helped partners organize the production process more effectively. Furthermore, the processed milkfish products successfully obtained halal certification, enabling their distribution through online sales platforms. Partners were also trained and mentored in packaging using a vacuum sealer and in digital marketing through TikTok and Shopee, contributing to increased market reach and business competitiveness.

### Article History:

Received: 02-09-2025

Reviewed: 07-10-2025

Accepted: 28-10-2025

Published: 25-11-2025

### Key Words:

Capacity; Quality;  
Technology; Innovation;  
Milkfish.

**How to Cite:** Ikmal, N. M., Hardaningtyas, D., & Subaderi, S. (2025). Increasing the Capacity and Quality of Cheisya Kitchen's Milkfish Processing with Technology and Innovation. *Jurnal Pengabdian UNDIKMA*, 6(4), 657-667. <https://doi.org/10.33394/jpu.v6i4.17788>



<https://doi.org/10.33394/jpu.v6i4.17788>

This is an open-access article under the CC-BY-SA License.



## Introduction

Currently, MSMEs are a strategic sector in both local and national economic development. This not only impacts gross domestic product (GDP) but also absorbs labor and creates significant business opportunities. As the backbone of the national economy, MSMEs contribute more than 60% to gross domestic product (GDP) and employ over 96% of the workforce (Kurniadi, Sudarmiati, and Wardana 2024). MSMEs are crucial for maintaining economic stability and promoting local sustainability, especially in rural areas (Goutte, Stéphane, Sanin 2024). The challenges of globalization and current changes require MSMEs to continuously innovate, utilize emerging technologies, and compete with other products. These challenges include limited access to digital infrastructure, low levels of digital literacy, and a lack of a coherent branding strategy. Such barriers often hinder their ability to grow, innovate, and effectively engage in the broader market ecosystem (Boom-Cárcamo et al. 2024). Regional governments have competed to support local MSMEs to develop regional



specialty products. One MSME sector with significant potential for development is the food industry.

In the business world, the process of selling products must have interesting innovations and be able to attract consumer interest, so that the products produced can adapt to developing trends. Digital transformation has changed the economic landscape substantially, presenting unprecedented opportunities for MSMEs to expand their reach, optimize operations, and increase consumer engagement through digital platforms such as e-commerce, social media, and community-based marketplaces (Marolt et al. 2025). Apart from that, the packaging process, promotion, and production quality control are also the main keys to the success of MSMEs (Ikmal, Holifah, and Indriastuti 2023).

Processed milkfish is currently a key commodity in souvenirs and regional specialties. Some of the advantages of milkfish include its high nutritional value, relatively affordable price, and abundant availability, especially in coastal areas of Surabaya. The primary goal is to maximize fishery yields and provide added value to improve product quality and competitiveness in the market (Yanis et al. 2025). Milkfish is a type of freshwater fish that has the potential to be developed (Muflinati, Affandi, and Wulandari 2020). In addition, milkfish is easy to cultivate and has high market demand (Asmayanti, Agus Syam, Muhammad Jufri, Sumiati, Sikar, and Sudarmi 2024). This means that the commodity has high economic value and makes a significant contribution to the national economy (Iswari 2022).

Cheisya Kitchen, a community service partner, started this business during the COVID-19 pandemic and is still running it today. The poor economic conditions led the partner to decide to create a milkfish processing business using a family recipe. The partner previously had experience in milkfish processing because his parents sold milkfish at the market. The production location is in the partner's home, which still shares a home with his parents and other family members. The partner used the space in front of the partner's room to create a simple kitchen that also serves as a milkfish processing production area. The partner's kitchen, which serves as the production area, is still unorganized; the kitchen floor is still cemented and is integrated with the clothes drying area. This type of production area is unhygienic and does not comply with the BPOM RI Regulation No. HK. 031.1.23.04.12.2207, and can be classified as a major category.

In addition, the fish storage place used by partners still uses a household refrigerator, which, of course, cannot store large quantities of milkfish. Partners must have a stock of marinated fish to shorten production times. This ensures that when large orders arrive, partners don't have difficulty finding milkfish suppliers. Furthermore, the production equipment used by partners is still small, such as a 3kg household pressure cooker. This significantly increases production time for partners. Other equipment with small capacities includes a grilled milkfish pan that can only hold three milkfish at a time. The production process is carried out on bamboo chairs, which are less hygienic in terms of food production.

When cleaning fish scales, partners also clean them on the floor without running water, which raises concerns about the hygiene of their processed milkfish products. The partners' production facilities are also still not hygienic and meet halal standards. This is due to the presence of pet birds in the same production area. The production tables used by partners are also made of bamboo and are in poor condition. The goal of this community service activity is to increase the capacity and quality of milkfish production, thereby increasing partners' income. Essentially, successful business turnover can revitalize the



surrounding community by providing additional economic benefits (Hardaningtyas, Andriyani, and Nugroho 2024).

This activity is expected to not only have a direct impact on increasing partner productivity, but also become a replication model for other MSMEs in the West Surabaya area as part of the implementation of the principles of Sustainable Development Goals (SDGs) point 8 on Decent Work and Economic Growth and point 9 on Industry, Innovation, and Infrastructure.

## Method

The implementation method at the community service activity stage includes the following: 1) Socialization related to community service activities to partners; 2) Conducting training related to improving production quality; 3) Implementing technology that can support the production process; 4) Assistance in processing halal certificates and evaluating marketing management; 5) Sustainability of the community service program.

The following can be explained in detail in Table 1. The implementation method is oriented towards priority problems and the solutions offered. The stages or steps in implementing the solutions offered consist of 3 areas, namely the production stage, the marketing stage, and the product quality management stage.

**Table 1. Implementation Method**

No	Problem	Solution	Method	Success Indicators
<b>Production Field Stages</b>				
1	The grilled milkfish process takes a long time because the partner uses a grill pan with a capacity of 4 milkfish at a time (approximately 1.25 kg). Each grilling/roasting process takes about 25 minutes, grilled twice until half-cooked, then seasoned and grilled again. In 25 minutes, only 4 portions of grilled milkfish can be made. Similarly, for pressure-cooked milkfish, the limited capacity of the pressure cooker can only fit 6 milkfish and cut them into 2 parts (approximately 3 kg) with a time required of 45 minutes. To increase production capacity and reduce production time, technology is needed to overcome this problem.	Design, manufacture, and implementation of AT machines in the form of a bone softener/pressure cooker with a capacity of 20 kg and a charcoal grill machine for grilled milkfish with machine dimensions of 100 x 40 x 85 cm.	1. Training and introduction to the advantages of the AT bone softener and milkfish griller 2. Creating a manual for operating the AT machine 3. Training on how to use the AT machine. 4. Mentoring and evaluation of the monitoring and evaluation process for the use of the TTG machine.	1. Partners possess the necessary operating and maintenance skills to operate and maintain the TTG machine. 2. The capacity of the 20 kg bone tenderizer machine and the charcoal grill machine for grilling milkfish, with dimensions of 100x40x85, is increased, and production times are shortened.
<b>Stages of the Marketing Field</b>				



1	Marketing carried out by partners is still limited to using WhatsApp social media; marketing reach to consumers is still limited to the partner's location.	Implementation of product marketing and sales strategies through: 1. The Instagram social media platform to promote the superiority of processed milkfish products 2. Expanding product sales market share through marketplaces, enabling product sales to reach consumers throughout Indonesia. 3. Involving partners in exhibition activities	1. Socialization to partners that product branding is necessary through social media platforms such as Shopee and TikTok as a promotional tool. 2. Training in creating video content or photos of superior products to be uploaded to social media. 3. Assisting partners in registering products on Shopee and TikTok. 4. Training and guidance in handling product orders and payments from consumers through the marketplace. 5. Assisting partners in participating in culinary expos or events for East Java MSME products. 6. Evaluation/Monitoring of sales and transaction support.	1. Partners possess marketing and sales strategies through marketplace sales systems. 2. Increased product sales. 3. Products become known to the local government and the Indonesian public.
---	---	--	---	---

#### **Product Quality Management and Product Packaging Stages**

1	Processed milkfish products already have a	1. Registration and processing	1. Processed milkfish	1. Implementation of 1 training on
---	--	--------------------------------	-----------------------	------------------------------------



brand and NIB certificate, but the packaging does not comply with BPOM standards and does not have a halal label.	Processed Food Distribution Permits 2. Registration and administration of halal certificates for processed food products	products have listed their expiry date on the packaging and food distribution permit.	2. packaging and label improvement 2. 75% skill increase for packaging and label improvement
		2. Processed milkfish products have halal certification	3. The labels on processed milkfish products already include the halal logo.
		3. Conducting labeling and packaging training on processed milkfish products	

Based on the table above, the indicators of success of community service activities are the implementation of socialization activities, training, mentoring, and increasing production capacity and quality by using Appropriate Technology (AT) for pressure cookers and other production support tools.

The evaluation of this activity can be seen through the increase in Cheisya Kitchen partners' production capacity in a single production run and increased sales. In addition, the partners' understanding of social media promotion and their ability to hygienically package products using vacuum sealers were also assessed.

## Results and Discussion

### Production Aspect

The community service program focused on production. In terms of product quality and quantity, the 20kg bone softening machine produces a softer fish texture, allowing the bones to be consumed without compromising the milkfish's authentic flavor. This will improve product quality to meet consumer demand. Initially, the partner used a 3kg pressure cooker, requiring the milkfish to be cut in half due to equipment limitations. This prevented the partner from meeting consumer demand and from competing with competitors. However, with a 20kg pressure cooker, the milkfish can be fed whole.

In addition to improving primary quality, product diversification was also successfully realized through the innovation of "grilled pressure cooker milkfish, grilled otak-otak, and otak-otak beranak." This innovation was driven by the availability of production equipment and consumer demand. These products provide added value by offering a wider variety of flavors and choices for consumers, ultimately meeting market demand. This diversification directly strengthens the partner's business competitiveness amidst competition from similar processed fish products. The process of implementing technology and innovation is carried out through three main stages. First, operational training is provided to partners to enable them to operate the Appropriate Technology (AT) independently.

The following is documentation of the Appropriate Technology (AT) operation:



**Figure 1. Appropriate Technology (AT) machine operation training**

Second, product diversification assistance is provided by introducing new recipes, processing techniques, and standards for cleanliness and production space layout. The following is documentation of the mentoring training:



**Figure 2. Training and mentoring on product diversification and ergonomics**

Third, the application of digital packaging and marketing technology, where partners are introduced to vacuum packaging techniques, label design, and social media and e-commerce-based marketing strategies. The following is documentation of the training activities:



**Figure 3. Training and assistance in product packaging using Vacuum Sealer**

The participatory approach used ensures that partners not only receive the technology but are also able to apply it independently for future business development. The application of technology also drives work efficiency and increases production capacity. While



previously the bone softening process was carried out manually due to limited production equipment, now with the AT machine, production time can be significantly reduced. Furthermore, processed milkfish products have also successfully obtained halal certification, which will further increase consumer credibility and trust. In the final stage, Cheisya Kitchen products have met food safety and packaging standards, marked by the use of labels and halal logos that comply with MSME food product standards. The following is documentation of the halal certification process and the handover of the halal certificate to the partner:

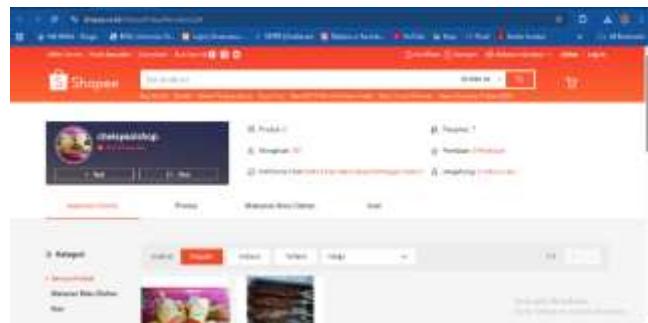


**Figure 4. Assistance in Processing and Submitting Halal Certificates**  
**Marketing Aspect**

From a marketing perspective, community service activities have had a significant impact on expanding market reach. Cheisya Kitchen products are not only marketed at partner locations but also in Surabaya and several other cities, such as Sidoarjo and Gresik. This marketing strategy is supported by training on social media and marketplaces. The following is documentation of the marketing media produced as a result of the training and mentoring activities:



**Figure 6. TikTok Cheisya Kitchen**  
[https://www.tiktok.com/@cheisya\\_kitchen? t=ZS- 8yWxjXcuvej& r=1](https://www.tiktok.com/@cheisya_kitchen? t=ZS- 8yWxjXcuvej& r=1)



**Figure 7. Cheisy Kitchen Online Store**  
<https://shopee.co.id/cheisyafirdausi>

Additionally, partners are registered on Google Maps, making it easier for visitors or consumers to reach their locations due to limited access to their homes or production facilities. Here's the documentation and Google Maps link for Cheisy Kitchen:

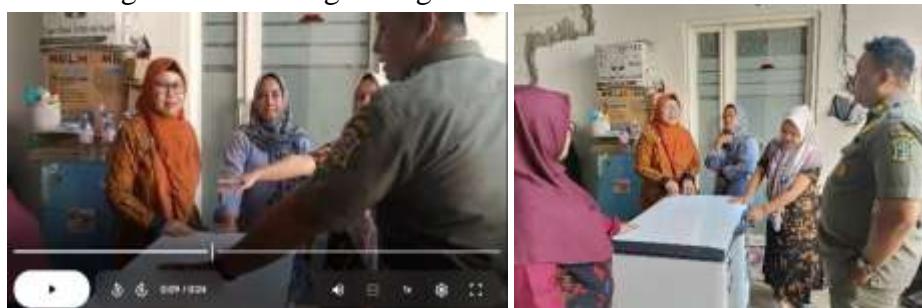


**Figure 8. Cheisy Kitchen Map**  
<https://share.google/rcQt8DjuqecAfcmlh>

The partners' improved business capabilities are reflected in their ability to manage WhatsApp social media as a promotional and sales tool. In designing their marketing strategy, they successfully developed a branding innovation with the name "Surabaya Specialties" as a local identity.

#### Management Aspect

In terms of management, partners have significantly improved their managerial skills. Partners have received ergonomic training, which helps them organize their production space for more efficient production times, from inventory placement to production tables to material processing areas. Ergonomic factors will provide important results in improving occupational safety and health factors (Witjaksono et al. 2023). The following is documentation of the ergonomic training during the freezer box handover:



**Figure 9. Ergonomics Training for Production Space Arrangement**



In addition, partners have begun implementing standard operating procedures (SOPs) in their production processes, resulting in a more structured workflow. Below is a look at the partner's kitchen before the ergonomics training:



**Figure 10. Condition of the partner's kitchen before training**

In terms of assets, the partner's business has increased with the addition of equipment such as a 20kg bone softener, a charcoal grill, a freezer box, a vacuum sealer, a fish scaler, and a spice cooper. These assets have significantly contributed to the increase in business value. Prior to the Community Service Program (PKM) program, Cheisya Kitchen partners only used small pressure cookers with a capacity of approximately 3 kg for their production process. This limited capacity meant that the number of fish that could be produced per batch was very small, namely, around 10-15 small milkfish, with an average processing time of 45-60 minutes. Using a 3 kg pressure cooker, the partners were only able to produce around 17-20 kg of milkfish per week. Beyond quantity, using a small pressure cooker also limited the consistency of the product. The texture of the fish was often uneven, some bones were less tender, and the flavor was less consistent due to uneven heat distribution.

Through the Community Service Program (PKM) program, partners were introduced to a 20 kg pressure cooker, which can accommodate up to 40-60 small/medium-sized milkfish in a single production cycle. The time required remains relatively the same, around 2 hours per cycle, but the production volume is up to six times higher than that of conventional pressure cookers. With this larger capacity, partners are now able to produce an average of 35-45 kg of milkfish per week, and can even reach over 60 kg when demand is high. In addition to increased capacity, the 20 kg pressure cooker also provides better consistency. The pressure and heat generated are more evenly distributed, ensuring the milkfish bones are truly tender and the flavor is maintained. In terms of efficiency, the 20 kg pressure cooker saves labor and production time, as it can produce a higher volume in a single cycle.

In addition to the bone softening machine, partners were also introduced to a charcoal grill machine to diversify their grilled milkfish products. Previously, partners used simple equipment, such as a grill pan. This technique was capable of producing a product, but had limitations in production volume. Production capacity was very limited because it could only grill three milkfish at a time, with a 15-minute grilling time for the first and another 5 minutes for the second. This increased production time and required intensive labor, making it inefficient for large-scale production. Furthermore, using a grill pan often resulted in uneven heat distribution, resulting in varying degrees of doneness for each piece.

Through this PKM, partners were introduced to a charcoal grill. This tool allows seven milkfish to be grilled simultaneously in 5 minutes. Furthermore, this grill is equipped with a blower to regulate heat flow for a stable distribution. The impact of using this modern grill is evident in increased production efficiency and consistent quality. Partners are not only able to increase the amount of grilled meat produced, but also strengthen the product's appeal



through improved taste. With increased production capacity and product diversification, business sustainability is increasingly assured. The partner has also begun developing expansion plans by developing other milkfish products with high economic value.

## Conclusion

The implementation of this community service activity has had a real impact on increasing the capacity and quality of partner milkfish processing businesses. Some important achievements obtained include: First, the use of a 20 kg capacity pressure cooker and modern milkfish grilling equipment has proven to be able to increase the quantity, quality, and diversification of products. Partners can now produce grilled pressure cooker milkfish with a softer texture, perfectly soft bones, and a more consistent taste. Production capacity has increased more than 5 times compared to before the technological intervention. Second, the implementation of digital marketing strategies and the expansion of the distribution network have succeeded in opening up new market access, both between regions and between cities. Partners also demonstrated increased ability in designing promotional strategies and utilizing e-commerce platforms, so that product competitiveness increased. Third, there was a significant increase in business management capabilities, including production space arrangement, asset management, and sustainability planning. Partner businesses now have a more organized structure, are open to innovation, and are able to plan for medium-term development. In general, this community service activity has succeeded in driving the transformation of partner businesses from household scale to appropriate technology-based MSMEs that are more productive, innovative, and competitive. The impact of this success also has the potential to become a model for community empowerment in the fish processing sector, especially milkfish processing, in the West Surabaya area.

## Recommendation

Recommendations to support partner businesses include the need for further assistance in processing BPOM distribution permits and food safety standards to expand access to modern markets. Partners are advised to continue developing derivative products such as milkfish floss, milkfish otak-otak, and milkfish nuggets, as well as introducing frozen food packaging to reach modern retail markets and practical consumers. Furthermore, digital marketing needs to be improved through professional branding, collaboration with resellers/agents, and penetration into souvenir centers and Horeca networks (hotels, restaurants, cafes). Partners are also advised to establish simple bookkeeping to record financial sales revenue. This community service activity can be replicated in other community groups to form clusters of milkfish-processed MSMEs, thus having a broader impact in creating jobs and driving the local economy. The government can open many quotas for community service grant programs to help MSMEs through universities.

## Acknowledgements

This community service was supported by the Ministry of Education, Culture, Research, and Technology and LPPM Wijaya Putra University, under Contract No.02.17/KPM/LPPM-UWP/V/2025. We sincerely thank all parties involved for their collaboration.



## References

Asmayanti, Syam, Agus, Jufri, Muhammad, Sumiati, Sikar, Muhammad Alfa, Sudarmi. 2024. “PKM Pengolahan Ikan Bandeng.” *SEMINAR NASIONAL HASIL PENGABDIAN* (September): 1211–17.

Boom-Cárcamo, Efrain, Schneyder Molina-Romero, Cesar Galindo-Angulo, and María del Mar Restrepo. 2024. “Barriers and Strategies for Digital Marketing and Smart Delivery in Urban Courier Companies in Developing Countries.” *Journal of the Knowledge Economy*: 19203–32. <https://doi.org/10.1007/s13132-024-01823-1>.

Goutte, Stéphane, Sanin, Maria-Eugenia. 2024. “Main Challenges Regarding Development and Sustainability in Economics and Finance, Development and Sustainability in Economics and Finance,.” 1. <https://www.sciencedirect.com/science/article/pii/S2950524024000027>.

Hardaningtyas, Dwi, Nuraini Kusuma Andriyani, and Alfi Nugroho. 2024. “Peningkatan Produksi Usaha Krupuk Bunga Telang Dan Daun Kelor Berbasis Green Economy.” 7: 1–4. <https://prosiding-pkmcser.org/index.php/pkmcser/article/view/2425>.

Ikmal, Novita Maulida, Nur Holifah, and Indriastuti Indriastuti. 2023. “PPM PENGUSAHA KECIL CANUKOPI ASAL ACEH SEBAGAI UPAYA MENINGKATKAN INOVASI PRODUK LOKAL.” *Prosiding Konferensi Nasional Pengabdian Kepada Masyarakat dan Corporate Social Responsibility (PKM-CSR)* 6: 1–7. <http://dx.doi.org/10.37695/pkmcser.v6i0.2009>.

Iswari, Kasma. 2022. “Inovasi Teknologi Pengolahan Cabai Mendukung Pengembangan Industri Olahan Di Sumatera Barat.” *Jurnal Sains Agro* 7(1): 65–78. <http://ojs.umb-bungo.ac.id/index.php/saingro/index>.

Kurniadi, Agus, Sudarmiatin, and Ludi Wishnu Wardana. 2024. “The Role of MSMES in Local Economic Improvement and Labor Absorption in Indonesia.” *Nusantara Economics and Entrepreneurships Journals* 2(3): 333–41.

Marolt, Marjeta, Gregor Lenart, Mirjana Kljajić Borštnar, and Andreja Pucihar. 2025. “Exploring Digital Transformation Journey Among Micro, Small-, and Medium-Sized Enterprises.” *Systems* 13(1): 1–23.

Muflighati, Iffah, Arief Rakhman Affandi, and Dewi Wulandari. 2020. “Perbaikan Sistem Pengolahan Dan Pengemasan Untuk Meningkatkan Kualitas Bandeng Presto.” *Amal Ilmiah : Jurnal Pengabdian Kepada Masyarakat* 1(2): 68. <http://dx.doi.org/10.36709/amalilmiah.v1i2.11700>.

Witjaksono, Andre, Dwiarko Nugrohoseno, Budiono Budiono, and Khoirur Rozaq. 2023. “Pelatihan Desain Ergonomi Peralatan Penggilingan Ikan Pada Desa Srowo Kecamatan Sidayu Kabupaten Gresik.” *Jurnal ABDI: Media Pengabdian Kepada Masyarakat* 8(2): 237–42.

Yanis, Fauziah et al. 2025. “Pengembangan Usaha Bandeng Presto Desa Pantai Sederhana Muara Gembong Dalam Meningkatkan Penjualan Melalui Digital Marketing.” *Jurnal Komunitas : Jurnal Pengabdian kepada Masyarakat* 7(2): 181–88.

*Peraturan Kepala Badan Pengawas Obat dan Makanan Republik Indonesia Nomor HK. 03.1.23.04.12.2207 Tahun 2012 tentang Tata Cara Pemeriksaan Sarana Produksi Pangan Industri Rumah Tangga*