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Empowering PKK Dasawisma Mawar 1 Tosari through Appropriate Technology for Potato Chip Business Development

Theresia Pradiani [1, a)], Tri Wahyuni [2, b)], and Rifki Hanif [1, c)]

[1]Magister of Management, Institute of Technology and Business Asia Malang, Malang, Indonesia
[2]Faculty of Technology and Design, Institute of Technology and Business Asia Malang, Malang, Indonesia

[a)]Corresponding author: theresia.pradiani@asia.ac.id
[b)]triwahyuni@asia.ac.id
[c)]rifki.hanif@asia.ac.id

ABSTRACT

This Community Service Program (PKM) aimed to empower women members of the PKK Dasawisma Mawar 1 group in Tosari Village, Pasuruan Regency, by integrating appropriate technology with entrepreneurship and digital-marketing capacity building. The intervention introduced a semi-automatic potato-slicing machine (35–50 kg/hour). It provided a series of training sessions on machine operation, product innovation, basic financial record-keeping, packaging, and online promotion. A participatory, educational, and applicative approach was applied over four months involving 15 group members. After implementation, slicing time decreased from approximately 2–3 hours to 45 minutes per 50 kg of potatoes; drying time and oil content were reduced, yielding crisper chips with extended shelf life. Weekly production rose from about 50–60 to 90–100 packages (≈70% increase). Partners adopted basic management practices and diversified product flavors, while market reach expanded through social media. The program demonstrates that culturally appropriate technology, combined with hands-on training and participatory methods, can significantly improve productivity, product quality, and the entrepreneurial capacity of rural women micro-enterprises, contributing to inclusive local economic development and SDG 8 (Decent Work and Economic Growth).

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INTRODUCTION

Tosari Village, located in Tosari Subdistrict, Pasuruan Regency, is part of the Bromo Tengger Semeru National Park (TNBTS) area and is well known as both an agricultural and cultural tourism center. The community relies primarily on potato and corn cultivation, which provides substantial potential for the development of small-scale agribusiness. Leveraging this agricultural strength, the PKK Dasawisma Mawar 1 group—led by Mrs. Aris Prastiwi—initiated a household-based potato chip business in 2023 as a form of economic participation among local women. Despite this initiative, production has remained limited due to manual processes, simple equipment, and inconsistent product quality. The absence of modern production tools and structured management practices has hindered efficiency and reduced competitiveness. These challenges reflect a broader issue common among rural microenterprises in Indonesia, where the lack of technological adaptation and entrepreneurial capacity limits economic growth opportunities (Sari & Purbasari, 2022; Pratiwi & Nugroho, 2021).

Introducing appropriate technology—such as semi-automatic slicing equipment—offers an opportunity to improve efficiency, ensure uniform product quality, and increase productivity. Combined with entrepreneurship and digital marketing training, such interventions can enhance women's skills in financial management, innovation, and market expansion. According to Nugraheni and Handayani (2023), empowering women through technology-driven entrepreneurship not only strengthens family income but also promotes inclusive and sustainable local economic development.

Community empowerment programs are most effective when implemented through participatory and educational approaches that utilize local potential (Mardikanto, 2014). Within this framework, the PKK Dasawisma Mawar 1 group in Tosari was selected as a partner to strengthen women's entrepreneurship in the rural tourism economy. The program aimed to (1) increase production efficiency through the application of appropriate technology, (2) improve business management and product innovation, and (3) expand digital marketing capacity to reach broader markets. By focusing on women's empowerment and technology-based microenterprise development, this PKM program contributes to the enhancement of local economic resilience and aligns with Sustainable Development Goal 8 (Decent Work and Economic Growth), which promotes productive employment and inclusive community-based entrepreneurship.

Community empowerment is widely recognized as a participatory process that enables individuals and groups to enhance their capacity, autonomy, and control over economic and social resources. According to Mardikanto (2014), empowerment in community development requires a bottom-up approach where beneficiaries are directly involved in identifying needs, implementing solutions, and sustaining outcomes. In rural contexts, empowerment programs frequently integrate education, technology introduction, and entrepreneurship training to promote local economic independence. Women's empowerment, in particular, plays a crucial role in the development of community-based microenterprises. Handayani and Pramesti (2020) explain that women's organizations, such as the Family Welfare Movement (PKK), have long been instrumental in mobilizing local participation through skill-based economic activities. In Indonesia, these activities often focus on household food processing, crafts, and local product marketing, contributing directly to family welfare and rural economic stability.

The use of appropriate technology has been identified as an essential driver for improving production efficiency and product quality in small-scale industries. Pratiwi and Nugroho (2021) reported that the adoption of simple, locally adapted technology can increase production capacity by up to 80% and enhance the sustainability of microenterprises. Dewi, Kurniawan, and Lestari (2023) further emphasize

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that technological interventions must be complemented with continuous mentoring and participatory training to ensure that beneficiaries can operate and maintain the innovations effectively. In addition to technological adaptation, entrepreneurship education and digital literacy have become increasingly important for expanding the competitiveness of rural enterprises. Nugraheni and Handayani (2023) found that women entrepreneurs who integrate digital marketing strategies, particularly through social media, experience significant increases in sales and market visibility. Similarly, Sari and Purbasari (2022) argue that empowering women through entrepreneurship contributes not only to household income but also to the achievement of broader sustainable development goals. Wulandari and Rahmawati (2021) add that digital marketing skills enable rural women to transcend geographical limitations and access wider consumer networks.

In summary, the literature indicates that empowerment programs combining appropriate technology, entrepreneurship development, and participatory learning approaches have proven effective in enhancing productivity, innovation, and market competitiveness in rural communities. These theoretical insights provide the foundation for the present PKM program in Tosari Village, which seeks to strengthen women's economic independence through integrated technological and entrepreneurial interventions.

FIGURE 1. Manual Production

METHOD

This Community Service Program (PKM) was implemented over an eight-month period from January to August 2024 in Tosari Village, Tosari Subdistrict, Pasuruan Regency. The program involved 15 active members of the PKK Dasawisma Mawar 1 group as primary participants. A participatory, educational, and applicative approach was adopted to ensure that partners were directly engaged in all stages of problem identification, solution design, and implementation. This approach aligns with Mardikanto (2014), who emphasizes that sustainable community empowerment is best achieved when beneficiaries actively participate as co-creators rather than passive recipients of aid.

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Implementation Stages

The PKM activities were carried out through four systematic stages as follows:

- Problem Identification and Needs Assessment

  An initial survey and Focus Group Discussion (FGD) were conducted with the group chairperson and members to map production challenges and business limitations. The assessment revealed that manual slicing processes required significant time and effort, product quality was inconsistent, and marketing strategies were underdeveloped. These findings served as the basis for designing targeted interventions.

- Solution Design and Program Planning

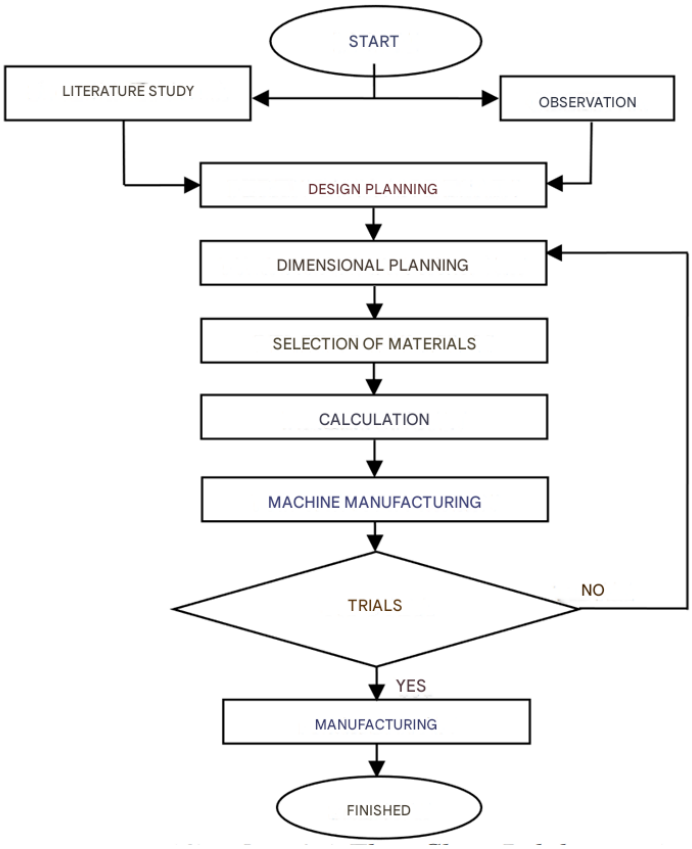

FIGURE 2. Technology and Innovation Implementation Flowchart

Based on the needs analysis, the service team formulated a strategy focusing on production efficiency and business capacity strengthening. The proposed interventions included:

- ✓ The introduction of an appropriate technology tool, namely a semi-automatic potato slicing machine with a capacity of 35–50 kilograms per hour.
- ✓ Delivery of two structured training programs:

  Entrepreneurship and Business Management Training – to enhance partners' managerial competence in production planning, financial recordkeeping, and quality control.

  Product Diversification Training – to build creative skills in developing new flavor variants and value-added products.

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- ✓ Mentorship on packaging innovation and digital marketing techniques to support product promotion.

- Program Implementation

  The program was conducted through eight field visits combining theoretical workshops and practical demonstrations. During this phase, partners learned to operate and maintain the slicing machine, apply quality control standards, and experiment with new product flavors such as cheese, balado, and sweet corn.

- Assistance, Monitoring, and Evaluation

  Regular assistance was provided to ensure partners could consistently apply the introduced technology and business practices. Monitoring was carried out through direct observation, performance assessment, and participant feedback. Evaluation focused on production improvements, financial record accuracy, and the sustainability of marketing practices.

Partner Participation and Program Priority

Active participation from the PKK Dasawisma Mawar 1 members was integral throughout the program. Participants contributed labor, provided raw materials for production trials, and collaboratively managed training venues. Priority was placed on interventions that could directly enhance production efficiency and entrepreneurial motivation, while broader market expansion and networking were designated for future follow-up programs. The methodological integration of technology introduction and entrepreneurship education ensured that empowerment outcomes were not only immediate but also sustainable. The eight-month implementation period allowed sufficient time for skill acquisition, behavioral change, and measurable improvement in production performance and managerial capacity.

RESULTS AND DISCUSSION

The implementation of the PKM program in Tosari Village resulted in significant improvements in both production efficiency and business management among members of the PKK Dasawisma Mawar 1 group. The combination of appropriate technology, entrepreneurship management training, and product diversification training produced measurable outcomes that directly enhanced productivity, product quality, and market competitiveness.

Production Efficiency Improvement

Before the intervention, the potato-slicing process was performed manually, requiring approximately two to three hours to process 50 kilograms of potatoes. After introducing the semi-automatic slicing machine (35–50 kg/hour), the same volume could be processed in only 45 minutes, producing uniform slices with more consistent texture and reduced contamination risk. Drying time also decreased from around one hour per 10 kilograms to approximately 15 minutes, while oil content in the final product declined from 25% to about 10%. These improvements resulted in crispier, more hygienic potato chips with longer shelf life and greater consumer appeal. Weekly production increased from 50–60 packages to 90–100 packages, representing an approximate 70% improvement in output. Partners reported greater confidence in meeting consumer demand, particularly during tourism events in Tosari Village.

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TABLE 1. Production Key Indicators

Aspect	Before	After	Improvement/Change
Slicing	Manual, 2–3 hours/50 kg	Semi-automatic, 45 minutes/50 kg	Increased efficiency and uniformity
Drying	Traditional, weather-dependent	Controlled process, 15 minutes/10 kg	More hygienic, weather-independent
Oil Content	±25%	±10%	Improved texture and shelf life
Weekly Output	50–60 packages	90–100 packages	Increased productivity by ~70%
Packaging	Plain, unbranded plastic	Modern labeled packaging	Enhanced product image
Marketing	Local, event-based	Digital and social media	Expanded market reach
Management	No recordkeeping	Simple bookkeeping adopted	Improved professionalism

(Source: Program Field Data, 2024)

Product Diversification and Marketing Development

Through the product diversification training, partners developed three new flavor variants—balado, cheese, and sweet corn—which improved the market appeal of their products. The introduction of modern packaging with proper labeling increased the perceived value and hygiene assurance for consumers. Meanwhile, entrepreneurship management training equipped members with basic financial literacy and simple production planning techniques. Participants also learned to promote their products through digital marketing channels, particularly WhatsApp and Instagram. This shift from local, event-based sales to online promotion allowed them to reach customers outside of Tosari and receive orders from nearby towns. According to Nugraheni and Handayani (2023), such digital engagement is a crucial factor in improving rural women's business competitiveness, enabling microenterprises to expand beyond geographical constraints.

Empowerment and Entrepreneurial Capacity

The program's participatory learning approach successfully strengthened the members' sense of ownership and motivation to sustain their business activities. Post-training evaluations indicated that 80% of participants were able to operate the slicing machine independently and 100% of members expressed willingness to continue improving product quality and marketing. These behavioral outcomes align with the empowerment framework proposed by Mardikanto (2014), which highlights participatory engagement as the foundation for building long-term self-reliance in community programs. In addition, the findings support the conclusions of Pratiwi and Nugroho (2021), who found that the introduction of appropriate technology in rural SMEs significantly improves productivity and enhances innovation capacity. Similarly, Dewi et al. (2023) emphasized that when technological interventions are integrated with entrepreneurship mentoring, communities experience more sustainable adoption and lasting economic benefits.

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FIGURE 3. PKM's Team and the PKK Group

DISCUSSION

The integration of appropriate technology, entrepreneurship education, and digital marketing in this PKM program demonstrates a multidimensional empowerment approach. It not only addresses technical challenges (such as low productivity) but also promotes cognitive and motivational growth. Participants developed practical business knowledge, digital literacy, and an entrepreneurial mindset—skills that are transferable beyond the potato chip enterprise. The findings highlight the strategic role of women's community groups (PKK) as platforms for collective learning and business incubation in rural settings. By strengthening production capabilities and marketing networks, such groups can significantly contribute to local economic resilience and inclusive growth. This aligns with Sari and Purbasari (2022), who argue that women's entrepreneurship at the village level serves as a foundation for sustainable community economies. Moreover, the program's participatory nature fostered peer collaboration and shared responsibility, reducing dependence on external facilitators. This social dynamic corresponds to the empowerment model outlined by Nugraheni and Handayani (2023), where empowerment outcomes are sustained through internal motivation and collective agency rather than external intervention.

In the context of national development priorities, the outcomes of this PKM contribute directly to Sustainable Development Goal 8 (Decent Work and Economic Growth), which emphasizes inclusive and sustainable economic empowerment. The model demonstrated in Tosari Village can serve as a replicable framework for similar community-based empowerment initiatives across rural Indonesia—especially those focusing on women-led microenterprises and local product innovation. Overall, this program validates the theoretical framework that effective empowerment requires the integration of technology, skills, and participation. The improved productivity, increased market access, and heightened entrepreneurial motivation observed in this case collectively illustrate how applied community service activities can translate academic concepts into practical socio-economic benefits.

CONCLUSION

The implementation of this Community Service Program (PKM) in Tosari Village demonstrates that combining appropriate technology with entrepreneurship-based capacity building can generate transformative impacts for women-led microenterprises. The introduction of a semi-automatic potato slicing machine (35–50 kg/hour), supported by entrepreneurship management and product diversification training, significantly improved the productivity, product quality, and competitiveness of the PKK Dasawisma Mawar 1 group. Slicing time decreased from 2–3 hours to 45 minutes, production increased by

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about 70%, and product quality and shelf life were enhanced. Beyond technical improvements, the program fostered behavioral transformation—members became more motivated, organized, and proactive in managing their business and marketing through digital platforms.

This program's success extends beyond quantitative results. It has strengthened women's confidence, teamwork, and autonomy in running sustainable enterprises, turning the group from a loosely structured activity into a more independent and market-oriented community business. These changes affirm that empowerment through participatory learning and technology integration promotes self-reliance and social transformation in rural contexts. To sustain these achievements, partners should continue applying standard production procedures, maintain equipment functionality, and regularly innovate in product variants. Strengthening digital marketing and collaboration with local tourism networks will further expand market reach. Moreover, ongoing mentoring and institutional cooperation are essential to ensure continuous learning and scalability. In essence, this PKM initiative illustrates how technology-driven empowerment can foster inclusive economic growth and women's entrepreneurship at the community level. The outcomes contribute directly to the realization of Sustainable Development Goal 8 (Decent Work and Economic Growth), advancing productive, innovative, and sustainable livelihoods within rural Indonesia.

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REFERENCES

Dewi, R. A., Kurniawan, M., & Lestari, D. (2023). Technology Adoption and Empowerment in Rural MSMEs: Lessons from Indonesia. Journal of Rural Development Studies, 9(1), 22–31.

Handayani, T., & Pramesti, D. (2020). Women's Empowerment through PKK Programs: A Local Innovation in Community Development. Journal of Social Service and Extension, 6(2), 101–109.

Hidayatullah SH, Windhyastiti IW, Aristanto EA, Khouroh UK, Rachmawati IK. PKM Kopi Rakyat Kelompok Wanita Tani (KWT) "Ngudi Rahayu" Desa Kebobang Wonosari Kabupaten Malang. JAPI (Jurnal Akses Pengabdi Indones. 2020

Mardikanto, T. (2014). Community Empowerment: Concepts and Applications. Surakarta: Sebelas Maret University Press.

Nugraheni, D., & Handayani, T. (2023). Women Empowerment through Technology-Based Entrepreneurship in Rural Areas. Journal of Sustainable Development Studies, 11(2), 88–98.

Pratiwi, R., & Nugroho, H. (2021). Appropriate Technology and SME Productivity in Rural Indonesia. Jurnal Pengabdian Kepada Masyarakat, 5(2), 112–119.

https://doi.org/10.35568/abdimas.v8i4.7230

Rachmawati IK, Isvandiari A, Andini TD, Hidayatullah S. PKM. Peningkatan Usaha Jamu Saritoga Ukm "Prayogo" dan Karang Taruna "Bhakti" Dusun Lopawon Desa Kebobang Wonosari Kabupaten Malang. JAPI (Jurnal Akses Pengabdi Indones. 2018;3(2):70.

Rachmawati, I. K., Alamsyah, A. R., Aristanto, E., & Hidayatullah, S. (2019). Model of Accommodating Microfinance Institutions for SMEs. International Journal of Scientific and Technology Research, 8(11), 2342-2346.

Rachmawati, I. K., Handoko, Y., Rahman, A., & Hidayatullah, S. (2019). IFAS & EFAS-Investigating evaluation strategies for facing SMEs competition. European Journal of Business and Management, 11(12), 176-182.

Sari, D., & Purbasari, N. (2022). Women Empowerment and Rural Entrepreneurship Development. Journal of Community Development, 8(3), 145–154.

UNDP. (2023). Sustainable Development Goals Report 2023: SDG 8—Decent Work and Economic Growth. United Nations Development Programme.

Wulandari, N., & Rahmawati, F. (2021). Digital Marketing for Rural Women Entrepreneurs. Journal of Small Business and Community Engagement, 5(3), 45–56.

Yuliani, E., & Setiawan, A. (2024). Empowering Rural Women Entrepreneurs through Appropriate Technology and Financial Literacy Training. Asian Journal of Community Service and Innovation, 4(1), 33–42.

https://doi.org/10.35568/abdimas.v8i4.7230