Vol 9 No 3, September 2025
ABDI DOSEN
Jurnal Pengabdian Pada Masyarakat
pISSN: 2614-6509
eISSN: 2620-5156

APPLICATION OF SMART PRODUCTION AND DIGITAL EDUCATIONAL MARKETING TO STRENGTHEN THE COMPETITIVENESS OF MOCAF IN KWT GEMILANG II

Sri Andaiyani [1*], Hera Febria Mavilinda [2], Citra Defira [3]
[1] Jurusan Ekonomi Pembangunan, Fakultas Ekonomi
[2] Jurusan Manajemen, Fakultas Ekonomi
[3] Jurusan Teknologi Hasil Pertanian, Fakultas Pertanian
Universitas Sriwijaya
Jl. Raya Palembang - Prabumulih No.KM. 32, Indralaya Indah, Kec. Indralaya, Kabupaten Ogan Ilir, Sumatera Selatan 30862, Indonesia
Email: sriandaiyani@fe.unsri.ac.id

Abstract

Food security is a major challenge for Indonesia, particularly due to its heavy reliance on imported food commodities. In this context, community groups such as the Women Farmers Group (Kelompok Wanita Tani/KWT) play an essential role in supporting local food self-sufficiency. This Community Service Program (PKM) under the Community Partnership Empowerment scheme was implemented with KWT Gemilang II in Palembang to improve the added value and competitiveness of *mocaf* flour as a local substitute for wheat. The program emphasized three aspects: enhancing production capacity, strengthening business management, and optimizing branding and digital marketing. Activities included training on digital business adoption, promotional content creation, and educational content marketing to raise consumer awareness of healthy local food. Smart production practices were introduced to increase efficiency and hygiene through the use of modern equipment such as sealers, ovens, mixers, and blenders. Branding and packaging improvements were also carried out, including logo, label, and design development aligned with the values of local food innovation. The results show improved knowledge of efficient and hygienic production, stronger brand identity, better digital marketing skills, and more professional packaging. Digital outreach has expanded through Instagram, WhatsApp Business, and Shopee. These achievements are expected to enhance competitiveness, strengthen local economic independence, and contribute to food security in South Sumatra.

Keywords: Digital Edu-Marketing, Added Value and Competitiveness, Modified Cassava Flour

INTRODUCTION

Food security is one of the strategic issues that has received the Indonesian government's primary attention, especially in facing global challenges related to dependence on food imports. Data from the Food Security Agency shows that Indonesia's wheat imports reached 9.45 million

Submitted: September-2025 Received: September-2025 Available online: September-2025

tons in 2024, an increase of 19.5% compared to the previous year (Andi & Winarto, 2024). This situation is a serious concern because the high consumption of wheat in Indonesia is not matched by domestic production, which could pose a risk to food security and national economic stability, as wheat prices are highly vulnerable to global market fluctuations and geopolitical issues. On the other hand, public awareness of healthy eating patterns is increasing, along with high rates of diabetes and various metabolic diseases. This has driven the need for healthier food alternatives that are low in glycemic index and gluten-free.

In Indonesia, there is a potential solution to meet the need for healthier food alternatives, namely mocaf or modified cassava flour, which has characteristics similar to wheat flour, is gluten-free, and is safe for consumption by people with diabetes, obesity, and gluten intolerance. The fermentation process used in the production of mocaf also reduces cyanide levels and improves the digestibility and functional properties of the flour, such as a structure similar to wheat flour, making it suitable for making cakes, bread, and noodles (Hadistio & Fitri, 2019). Mocaf has even been used as an emergency food source in disaster situations, as it can be easily processed into various forms such as snack bars, biscuits, and nutritious noodles (Pandin et al., 2022). The ease of harvesting cassava makes Indonesia the sixth largest cassava producer in the world, according to national cassava production data, which reached 16.92 million tons in 2023. This figure certainly represents a huge potential for Indonesia in developing mocaf (BRIN, 2025). However, this potential has not been matched by optimal utilization in the processed food industry. For example, the government is even preparing a policy to restrict cassava and tapioca imports to support domestic production and strengthen food self-sufficiency (Pouna, 2025). Globally, demand for cassava processing continues to increase; in 2024, total global cassava processing reached around 324.4 million tons and is projected to increase to 365.8 million tons by 2033 (Market, 2025).

Local studies and practices also show the growing potential and applications of mocaf. Previous research mentions that mocaf flour has been used as an alternative to wheat flour in the manufacture of various products such as meatballs, noodles, biscuits, and low-gluten brownies through outreach and demonstration activities at Madrasah Aliyah Mambaul Ulum, Bengkulu (Gusriani et al., 2021). Similarly, innovative studies have presented mocaf as a gluten-free substitute for nastar cookies, with advantages in texture, aroma, and shelf life, although production costs are still relatively high. Innovations continue to be made, such as the use of the "Bimo CF" fermentation starter, which consistently improves the quality of mocaf (Ilyasa et al., 2024).

Although mocaf has been widely introduced as an alternative to wheat flour, most studies still focus on the technical aspects of fermentation and sensory testing of products. However, the reality on the ground, especially in South Sumatra Province, is that food security challenges are not only related to the availability of ingredients, but also to public acceptance and the sustainability of its use. The widespread use of mocaf is still limited due to a lack of socialization and low literacy in local food processing. Therefore, the novelty of this community service lies in the integration of mocaf processing technology innovation with a community empowerment approach, resulting in healthy and competitive food products while strengthening local food independence by targeting local businesses in the province of South Sumatra.

One notable local business initiative is the Gemilang II Women Farmers Group (KWT)

in Palembang City. Established in 2015 and located on Jln. Sersan Zaini, Kelurahan 2 Ilir, Kecamatan Ilir Timur II, Palembang City, this group has been producing mocaf flour on a household scale as an effort to empower women and develop local food. However, KWT's business still faces serious obstacles: unclear business management, unorganized organizational structure, inefficient production flow, very limited capacity (around 40 kg/week), and conventional marketing. The brand identity "TEPOENKGS" is also not strong, with simple packaging design and minimal use of digital marketing, resulting in a very limited market reach.

This Community Service Program (PKM) was implemented to address the gap between the potential of mocaf as a healthy food and the various limitations still faced by KWT Gemilang II, particularly in terms of production capacity and business management. The focus of this activity is to introduce simple and efficient mocaf processing technology, increase production capacity while encouraging product diversification, and strengthen digital marketing strategies through a storytelling approach. By empowering women in the agro-industry sector, this activity not only fosters local economic independence but also contributes to national food security, aligning with the Sustainable Development Goals (SDGs) and the priorities of the National Research Master Plan (RIRN) in the fields of food, agriculture, creative economy, and digital technology.

IMPLEMENTATION METHOD

This community service activity was carried out using a participatory approach, actively involving partners from the planning stage to the evaluation stage. The techniques used in the implementation of the activity were training, simulation, mentoring, and reflective evaluation, so that the process was not only a transfer of knowledge, but also provided space for partners to play a direct role in each stage. The main partners were the Gemilang II Women Farmers Group (KWT), consisting of housewives in the local area. They were not only present as participants but also conveyed the main obstacles they faced in mocaf production, such as limited production capacity and a lack of product variety. Therefore, the activity methods were designed so that each step could address real needs in the field.

The first stage was digital marketing training, which took the form of simulations using social media platforms such as WhatsApp Business, Instagram, Shopee, and TikTok as virtual storefronts. Through this activity, partners were taught how to create attractive promotional content to improve digital literacy and master creative content-based marketing strategies (Amalliah et al., 2025).

Next in the second stage is the application of Appropriate Technology (TTG) through the use of donated production machinery. The use of this equipment not only increases production capacity, but also serves as a means of transforming slow manual processes into a more efficient modern work system. Partners are assisted in understanding how to operate, maintain, and integrate technology into their daily work processes. Thus, productivity and marketing reach can be expanded through the synergy between the use of TTG and e-commerce platforms (Andaiyani et al., 2024).

Finally, the third stage involves guidance and evaluation, which is conducted to assess skills and product outcomes while also serving as a reflection space for partners. The evaluation emphasizes the active involvement of KWT members in the provision of raw materials,

production practices, and product diversification innovations for mocaf. This diversification is expected to enhance creativity, skills, and awareness among partners regarding the importance of sustainable innovation in business development (Choiriyan et al., 2025).

Thus, this implementation method emphasizes the full involvement of partners through training techniques, simulations, mentoring, and reflective evaluation so that the activities not only result in improved skills but also encourage real transformation towards business independence based on local food.

RESULTS AND DISCUSSION

This community service activity partnered with KWT Gemilang II, a business group of housewives with 10 active members. This activity also involved 5 students from the Development Economics Department of Sriwijaya University as part of the implementation of the independent campus program. The presence of students helped with the mentoring process, knowledge transfer, and supported the sustainability of the program. The series of activities were carried out in stages, starting from socialization to technological innovation, as described in several stages.

The initial activities, consisting of socialization and discussions, were held on Monday, July 1, 2025. During this session, the team and partners discussed the production process, business management, and marketing strategies that had been implemented. The discussion was interactive, with partners explaining their business experiences and the challenges they faced, such as limitations in human resource management, production capacity, product diversification, and digital marketing. These findings confirm that partners need sustainable solutions that integrate technology and marketing innovations that are effective in improving MSME marketing (Az- Zahra, 2021).

Figure 1. Socialization and Discussion with KWT Gemilang II Partners

The second stage was held on Wednesday, July 9, 2025, in the form of mocaf flour production practice. Partners were invited to directly process cassava through a natural fermentation process that produces gluten-free flour with a smooth texture, fragrant aroma, and is healthier and more environmentally friendly. This process includes soaking, drying, and

grinding into ready-to-sell flour. Partners were enthusiastic because this process was able to produce valuable products.

They also began implementing a stock provision strategy to reduce weekly production costs in order to prevent material shortages and significantly reduce inventory costs (Sabiq, 2024). In several industries, stock supply strategies using the EOQ method have proven successful in reducing the frequency of orders from weekly to monthly, as well as reducing ordering costs and holding costs (Hati et al., 2025).

Figure 2. Mocaf Flour Production Process with KWT Gemilang II

Integrated training was the next stage, which was held on Wednesday, August 13, 2025. Mrs. Sri Andaiyani, S.E., M.S.E. assisted and directed the first focus of this activity, which was strengthening business management, where partners were trained to make simple financial records, compile structured production plans, and make business decisions based on more rational analysis. This approach is important because managerial skills are the foundation for maintaining the sustainability of small businesses so that they can adapt to market changes. With an understanding of financial records and production management, partners can manage their businesses more systematically and have a clear direction for future development, making it easier for MSME players to conduct transactions and obtain capital support (Andaiyani et al., 2022).

In addition, this training also emphasizes product diversification and modern marketing strategies. Diversification is carried out to encourage partners to create a variety of mocaf-based products so that they do not rely on just one type of product, thereby increasing competitiveness and expanding market segments (Nurdin, 2018). At the same time, an Edu Content Marketing strategy was also introduced, emphasizing the importance of packaging product information in the form of educational and interesting content. Partners are taught how to use digital channels to develop a storytelling approach that contains narratives about the origin of the product, the creative process of each variant, and to consistently disseminate these stories through social media, websites, and other digital promotional materials. Findings show that authentic storytelling and experiential storytelling increase product differentiation, consumer loyalty, and engagement (Mulyani, 2024).

With a combination of strategies packaged attractively by Mrs. Hera Febria Mavilinda,

S.E., M.Si and the assistance of students trained in digital skills, partners no longer rely solely on conventional promotion but are also able to build long-term relationships with consumers through educational content. The results of this training show significant changes. Partners have become more confident in managing their businesses, are beginning to innovate with new products, and understand how to communicate product value to consumers in an engaging way.

Figure 3. Business Management and Educational Content Marketing Training

To support efficiency, partners received grants for packaging sealing machines. Packaging sealing machines or continuous sealers have been proven to increase the efficiency of the packaging process and production capacity, because before using sealing machines, the process was still conventional and took longer (Bintoro et al., 2021). The production tool innovation to be implemented is a packaging sealing machine used to improve the efficiency and quality of the mocaf flour packaging process. Powered by an 80W motor and 600W sealing power, this machine is capable of sealing plastic at speeds of up to 0-19 meters per minute, adjusted to production needs. The flexible sealing width (6-12mm) and the ability to seal plastic with a thickness of ≤0.08mm ensure that the packaging remains tight and secure. A temperature range of 0-400°C allows for optimal heat settings for various types of packaging plastic. With dimensions of 80cm x 40cm x 31cm and a weight of only 16 kg, this machine is easy to move and does not take up much space. The operational voltage of 220V/60Hz makes it compatible with standard power sources.

Figure 4. Innovation of the Mocaf Flour Packaging Sealing Machine

When using the packaging sealing machine, partners are assisted by students in using and implementing the tool, which has been studied beforehand and followed with safe usage practices. The practice is directly supervised by Mrs. Citra Defira, S.Si, M.Si. In addition to technical efficiency, packaging upgrades are also seen as an important strategy in strengthening branding. Food product packaging design now not only serves to protect, but also as a means of information and promotion. Elements such as logos, nutrition labels, composition, and attractive stickers increase product appeal, while the inclusion of legalities such as P-IRT, halal logos, and SNI add credibility and comply with regulations. The combination of aesthetics and label compliance has been proven to strengthen the competitiveness of MSME products in the market (Dewanti et al., 2021; Diningrat et al., 2025).

This community service activity has had a tangible impact on increasing the production capacity and skills of partners in processing mocaf. With the use of appropriate technology and packaging sealing machines, KWT Gemilang II is now able to produce mocaf flour that is more hygienic, efficient, and in significantly increased production quantities compared to before. In addition, product diversification has also been achieved with the introduction of various mocaf products such as noodles, brownies, and biscuits, as well as more attractive product packaging and packaging designs that are able to appeal to consumers through visual elements that suit consumers' emotions and psychological preferences (color, shape, visual texture), thereby enhancing the market value of KWT Gemilang II's mocaf products while expanding market opportunities (Campakasari et al., 2024).

Figure 5. Packaging Upgrade and Product Photo Results

From a business management perspective, partners have developed significant skills, ranging from financial record-keeping and raw material stock management to digital marketing strategies that emphasize storytelling and educational content. These changes have made partners more confident in running their businesses and more aware of the importance of healthy food consumption based on local resources. More broadly, this activity has contributed to strengthening food security by utilizing cassava as a local raw material that can reduce dependence on imported wheat flour while increasing the economic value of cassava. Thus, this service not only solves the partners' problems but also supports the national agenda of creating food independence through healthy and sustainable product innovation.

The evaluation of this activity shows that the application of appropriate technology and digital marketing strategies can increase production capacity and expand the partners' market. Consistent use of social media has a positive impact on MSME marketing through increased visibility and sales opportunities (Silajadja et al., 2023). In addition, collaboration between universities, students, and the community strengthens the adoption of MSME innovations. Thus, strengthening through multi-stakeholder synergy can contribute to the sustainability of MSME businesses through sustainable digital marketing strategies (Dora, 2024).

CONCLUSION

The community service program implemented in collaboration with the Gemilang II Women Farmers Group (KWT) has resulted in a significant increase in the production and quality of mocaf flour. Through the use of packaging sealing machines, the processing has become faster, more efficient, and more hygienic. In addition, mocaf-based product diversification has also been successfully achieved, such as noodles, biscuits, and brownies, which add variety and selling value. Assistance in business management, including financial recording, stock management, and production planning, has equipped partners with more systematic skills to develop their businesses sustainably.

Not only in terms of production, this activity also strengthens marketing strategies through the application of digital marketing with a storytelling approach. This has helped KWT Gemilang II expand its market network, strengthen its product image, and increase consumer confidence through informative packaging designs that comply with legal standards. Thus, this community service activity not only promotes community economic independence but also contributes to local food security through the optimization of cassava as a healthy and competitive alternative food resource.

Acknowledgment

The authors would like to express their sincere gratitude to the Directorate of Research, Technology, and Community Service, Directorate General of Higher Education, Research, and Technology, for funding this community service program under Contract No. 109/C3/DT.05.00/PL/2025 dated May 28, 2025. We also extend our appreciation to the Institute for Research and Community Service (LPPM), Universitas Sriwijaya, for its continuous support, as well as to the student team (Galeh Yusnindar, M. Farih Ramadhan, Arum Larasati, Amelia Virgianita, and Bernadheta Mita Afetalia) for their valuable contributions to the implementation of this program.

REFERENCES

Amalliah, A., Siahaan, F. M., Cindrakasih, R. R., & Hidayat, R. (2025). Pelatihan Strategi Komunikasi Pemasaran Digital melalui Instagram dan TikTok bagi Ibu PKK Desa Cikasungka , Kecamatan Solear , Kabupaten Tangerang. *Jurnal Pengabdian Sosial*, *5*(2), 100–107. https://doi.org/https://doi.org/10.32493/pbs.v5i2.51493

Andaiyani, S., Adnan, N., Yunisvita, Y., & Riswan, M. (2022). Does financial inclusion reduce income inequality in South Sumatra, Indonesia? *Journal of Enterprise and Development*, *4*(1), 49–59. https://doi.org/10.20414/jed.v4i1.4853

Andaiyani, S., Yunita, D., & Hamira, H. (2024). Strategi Peningkatan Capacity Production dan Digital Marketing UMKM Rinjani Snacks Melalui Penerapan Teknologi Tepat Guna. *Martabe: Jurnal Pengabdian Kepada Masyarakat*, *7*(12). https://doi.org/https://doi.org/10.31604/jpm.v7i12.5133-5140

Andi, D., & Winarto, Y. (2024). *Permintaan Tinggi, Impor Gandum Tembus 9,45 Juta Ton Hingga September 2024*. Kontan.Co.Id. https://industri.kontan.co.id/news/permintaan-tinggi-impor-gandum-tembus-945-juta-ton-hingga-september-2024

Az-Zahra, N. S. (2021). Implementasi Digital Marketing Sebagai Strategi Dalam Meningkatkan Pemasaran UMKM. *NCOINS: National Conference Of Islamic Natural Science*, *1*(1), 77–88. http://103.35.140.33/index.php/NCOINS/article/view/47%0Ahttp://103.35.140.33/index.php/NCOINS/article/download/47/30

Bintoro, V. P., Rizqiati, H., & Nurwantoro. (2021). Upaya Peningkatan Ekonomi Di Masa Pndemi Covid 19 Melalui Teknologi Continuous Sealer Untuk Mengemas Bumbu Grombyang di UMKM Bumbu Grombyang Bintang Pemalang. *Jurnal Pengabdian Kepada Masyarakat*, *1*(1), 14–17.

BRIN. (2025). Singkong Mulai Diminati Konsumen AS dan Eropa, BRIN Dorong Produsen Diversifikasi Produk. *Badan Riset Dan Inovasi Nasional*. https://brin.go.id/dpri/posts/kabar/singkong-mulai-diminati-konsumen-as-dan-eropa-brin-dorong-produsen-diversifikasi-produk

Campakasari, N., Delfitriani, & Ginantaka, A. (2024). Perencanaan Desain Visual Kemasan Produk Pangan dengan Pendekatan Kansei Engineering. *Karimah Tauhid*, *3*(10), 11184–11192. https://doi.org/10.30997/karimahtauhid.v3i10.15593

Choiriyan, V. A., Nasihah, N. D., Fatmawati, N. A., Nurlita, I., & Nuraeni, M. E. (2025). Pemberdayaan KWT Permai Tani Desa Gandusari Melalui Diversifikasi Produk Jamu Bubuk Bebas Gula. *Jurnal Lintas Karsa*, *2*(1), 15–23. https://ejournal.unesa.ac.id/index.php/lintaskarsa/article/view/67390%0Ahttps://ejournal.unesa.ac.id/index.php/lintaskarsa/article/download/67390/50318

Dewanti, R. P., Ningsih, H., Paryanto, E., & Yudhanto, S. H. (2021). Desain Kemasan Produk UMKM Makanan Ringan sebagai Peningkatan Daya Beli Konsumen Keripik Singkong. *UN PENMAS: Jurnal Pengabdian Masyarakat Untuk Negeri*, *1*(2), 50–56. https://doi.org/10.29138/un-penmas.v1i2.1593

Diningrat, R. B. S. N., Purba, R., Azis, A. C. K., Azmi, A., Amirulloh, T. M., & Yumielda, V. D. (2025). Pengembangan Desain Kemasan untuk Meningkatkan Daya Saing Produk UMKM Fahmi Ummi melalui Pendampingan Terpadu. *TERAS: Jurnal Pengabdian Masyarakat Sosial Budaya*, *1*(2), 80–88. https://doi.org/10.71094/teras.v1i2.114

Dora, Y. M. (2024). Kolaborasi Dan Digital marketing Untuk Keberlanjutan Usaha UMKM Kota Bandung. *Jurnal Abdimas Kartika Wijayakusuma*, *5*(2), 400–408. https://doi.org/10.26874/jakw.v5i2.437

Gusriani, I., Koto, H., & Dany, Y. (2021). Aplikasi Pemanfaatan Tepung Mocaf (Modified Cassava Flour) Pada Beberapa Produk Pangan Di Madrasah Aliyah Mambaul Ulum Kabupaten Bengkulu Tengah. *Jurnal Inovasi Pengabdian Masyarakat Pendidikan*, *2*(1), 57–73. https://doi.org/10.33369/jurnalinovasi.v2i1.19142

Hadistio, A., & Fitri, S. (2019). Tepung Mocaf (Modified Cassava Flour) Untuk Ketahanan Pangan Indonesia. *Jurnal Ilmiah Pangan Halal*, *1*(1), 13–17. https://doi.org/10.30997/jiph.v1i1.2005

Hati, S. W., Azhari, A., & Intan, S. (2025). Analysis of Coffee Bean Raw Material Inventory Control Using the Comparative Approach of Economic Order Quantity (EOQ) And Material Requirement Planning (MRP). *Proceedings of the Sixth International Conference on Applied Economics and Social Science (ICAESS 2024)*, *2015*, 501–512. https://doi.org/10.2991/978-94-6463-640-6_37

Ilyasa, S. N., Hodijat, A., & Putranto, K. (2024). Pengaruh Konsentrasi Starter Bimo-CF dan Waktu Fermentasi terhadap Karakteristik Tepung Mocaf. *Jurnal Dimamu*, *3*(2), 177–186. https://doi.org/10.32627/dimamu.v3i2.957

Market, R. and. (2025). Cassava Processing Market Research 2025-2033: Forecasts Suggest 365.8 Million Tons Will be Processed by 2033, Driven by the Growing Utilization of Cassava in Various Industrial Applications. *Globe News by Notified*. https://www.globenewswire.com/news-release/2025/03/05/3037551/0/en/Cassava-Processing-Market-Research-2025-2033-Forecasts-Suggest-365-8-Million-Tons-Will-be-Processed-by-2033-Driven-by-the-Growing-Utilization-of-Cassava-in-Various-Industrial-Appli.html

Mulyani, F. A. (2024). Utilizing Storytelling As A Persuasive Communication Technique In The Branding Of HMNS Perfume Products. *LONTAR: Jurnal Ilmu Komunikasi*, *12*(2), 355–364. https://doi.org/10.30656/lontar.v12.i2.9229

Nurdin, J. (2018). Strategi Pemasaran Tepung Mocaf Sebagai Bahan Subtitusi Tepung Terigu Pada Industri Pangan Olahan di Makassar. *Jurnal Ilmiah METANSI*, *1*(2), 59–65. https://journal.metansi.unipol.ac.id/index.php/jurnalmetansi/article/view/66

Pandin, M. G. R., Waloejo, C. S., Sunyowati, D., & Rizkyah, I. (2022). The Potential of Mocaf (Modified Cassava Flour) as Disaster Emergency Food. *IOP Conference Series: Earth and Environmental Science*, *995*(1). https://doi.org/10.1088/1755-1315/995/1/012006

Pouna. (2025). Indonesia to Limit Cassava and Tapioca Imports to Support Domestic Farmers. *Asean Cassava Center*. https://sustainablecassava.org/news-and-events/news/News25-03-04Eng

Sabiq, A. H. (2024). Optimizing Inventory Management To Address Delivery Delays And Cost Inefficiencies: A Case Study Of Pt Genta Trikarya. *PARADOKS Jurnal Ilmu Ekonomi*, *7*(4), 379–389.

Silajadja, M., Magdalena, P., & Nugrahanti, T. P. (2023). Pemanfaatan Media Sosial (Digital Marketing) untuk Pemasaran Produk UMKM. *Cakrawala: Jurnal Pengabdian Masyarakat Global*, *2*(2), 21–28. https://doi.org/https://doi.org/10.30640/cakrawala.v2i2.1001