

Research Article

Strengthening Msmes of Kedung Aren Banana Chips Through Product or Code to Promote International Marketing

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Abstract: The empowerment of micro, small, and medium enterprises (MSMEs) plays a crucial role in strengthening local economic resilience, increasing community welfare, and enhancing competitiveness in the digital era. This international community service program focuses on developing the Kedung Aren Banana Chips MSME through the implementation of product-based QR Codes as a digital marketing tool. The program aims to improve digital literacy, strengthen branding, and expand market reach, particularly toward potential international consumers. The activities conducted include training on QR Code creation, guidance on integrating digital information into product packaging, monitoring marketing practices, and evaluating the program's effectiveness. Feedback from Malaysian partners and participants indicates that optimizing QR Codes with dynamic and informative digital content significantly enhances market accessibility, consumer trust, and promotional effectiveness. The program generates positive economic impacts through increased sales potential, social benefits through improved human resource capabilities, and environmental benefits by reducing the use of printed promotional materials. Overall, the program provides a sustainable foundation for MSME modernization and positions Kedung Aren banana chip products to compete more effectively in both domestic and global markets.

Keywords: Banana Chips; Community Empowerment; Digital Marketing; International Market; QR Code.

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1. Introduction

Micro, Small, and Medium Enterprises (MSMEs) play a strategic role in driving national and regional economic development. In Indonesia, MSMEs function not only as contributors to Gross Domestic Product (GDP) and employment absorption, but also as key instruments for income distribution, poverty reduction, and strengthening community-based economic resilience rooted in local potential (Wati et al., 2024; Vinatra et al., 2023). According to data from the Ministry of Cooperatives and MSMEs, Indonesia is home to more than 65 million MSMEs, contributing approximately 61% to national GDP and absorbing over 97% of the total workforce (Badan Pusat Statistik [BPS], 2023). These figures underline the crucial position of MSMEs as the backbone of the Indonesian economy.

Despite their significant contribution, MSMEs continue to face persistent challenges, particularly related to competitiveness, limited market access, weak branding, and low levels of digital literacy (Octiva et al., 2024; Sifwah et al., 2024). The rapid acceleration of digital transformation has widened the gap between MSMEs that are able to adopt technology and those that remain dependent on conventional business practices. In the digital economy era, the ability to utilize information and communication technology has become a determining factor for business sustainability, efficiency, and growth (Larasati et al., 2024). Digital tools enable MSMEs to reduce operational costs, expand marketing networks, enhance transparency of product information, and increase consumer trust (Prayogi & Kirom, 2022).

However, many MSMEs still experience a digital divide due to limited technological skills, lack of infrastructure, and insufficient mentoring or assistance (Arifqi & Junaedi, 2021). This condition is also experienced by the Kedung Aren Banana Chips MSME located in Pisangan Village, Sleman Regency, Yogyakarta. Although this MSME possesses competitive products supported by abundant local raw materials, its marketing activities are still largely conducted through conventional methods. As a result, market reach remains limited and product visibility is less optimal compared to digitally empowered competitors (Budiantara et al., 2023).

One practical and accessible digital solution to enhance MSME competitiveness is the implementation of Quick Response (QR) Codes on product packaging. QR Codes serve as digital gateways that connect consumers directly to product information, business profiles, contact details, catalogs, and online marketplaces in a fast and efficient manner (Putri & Rahman, 2022). From the perspective of the Technology Acceptance Model (TAM), the adoption of technology is strongly influenced by perceived usefulness and perceived ease of use. QR Codes meet these criteria as they are simple to implement, cost-effective, and easily understood by both business actors and consumers (Sari & Pratama, 2023).

Moreover, the use of QR Codes supports modern, environmentally friendly, and paperless marketing strategies, aligning with the principles of sustainability and green innovation increasingly demanded by contemporary consumers (Bratamanggala & Hendayana, 2024; Ilyas et al., 2025). Digital-based marketing approaches not only enhance professionalism and brand image, but also contribute to the empowerment of MSME actors at the individual, organizational, and community levels (Zimmerman, 2000).

In response to these challenges and opportunities, a community service program was implemented through the International Community Service Program (KKN Internasional). This program was designed to provide training, mentoring, and hands-on assistance in the application of QR Codes for Kedung Aren Banana Chips MSME products. Insights from international partners, particularly from Malaysia, emphasized that local MSMEs must strengthen digitalization, information transparency, and product quality consistency to compete effectively in ASEAN and global markets. Therefore, this program aims not only to improve the digital marketing capabilities of MSME actors, but also to establish a sustainable foundation for strengthening the village economy and developing competitive local products with global market orientation.

2. Research Method

The implementation of the community service program for the Kedung Aren Banana Chips MSME was carried out through several systematically designed stages to achieve the objective of enhancing digital marketing capacity through QR Code application. The main activities included the preparation stage, core implementation, mentoring, and evaluation.

Program Preparation

The preparation stage was conducted to ensure that activities were well-directed and aligned with partner needs. The steps undertaken included:

- a. Coordination with Kedung Aren village officials and the MSME owner to identify key problems and determine the program focus.
- b. Preparation of training modules containing materials on MSME digitalization, QR Code utilization, and digital marketing strategies.
- c. Preparation of training tools and media, including QR Code generation software, sample packaging, and other supporting materials.

Training and Digitalization Practice Implementation

The core stage of the program was carried out through training activities focused on the adoption of digital technology, particularly the use of QR Codes on MSME products. The activities included:

- a. Introduction to the concept of MSME digitalization, the function of QR Codes, and their benefits in expanding market access.
- b. Hands-on practice in creating QR Codes linked to important information such as product catalogs, business identity, seller contacts, marketplaces, and social media.
- c. Placement of QR Codes on product packaging as part of digital branding efforts to enhance product professionalism.

Mentoring and Monitoring

Following the training, the team provided mentoring to ensure that QR Code implementation went beyond mere technical application. Mentoring activities included:

- a. Monitoring the utilization of QR Codes in daily marketing practices.
- b. Identifying challenges faced by partners, such as difficulties in managing digital content or maintaining information updates.
- c. Providing further guidance on digital marketing strategies, including consistency in social media posting and optimization of marketplace integration.

Program Evaluation

The evaluation stage was conducted to assess the effectiveness of the program in improving MSME digital capacity and its impact on partner businesses. Evaluation was carried out through observation, interviews, participant feedback, and analysis of field implementation results. The evaluation results indicate that:

- a. The MSME is able to independently create and install QR Codes on products.
- b. Business actors have begun to understand the importance of digital branding in expanding marketing reach.
- c. The use of QR Codes enhances packaging professionalism and serves as an initial step toward entering broader markets.

3. Results and Discussion

The program to strengthen the Kedung Aren Banana Chips MSME through QR Code implementation produced several important findings demonstrating positive changes from economic, social, and digital marketing perspectives. These results were obtained based on field observations, mentoring evaluations, and input from Malaysian partners and KKN participants.

Program Outcomes

The implementation of activities resulted in several tangible achievements for the MSME partner, including:

- a. MSME capability to independently generate and apply QR Codes.
Through technical training, MSME actors were able to create QR Codes linking consumers to product information, catalogs, business contacts, and other digital media. The QR Codes were then applied to product packaging as part of digital branding efforts.
- b. Increased digital awareness in marketing practices.
MSME actors realized that digital technology-based marketing can expand market reach more effectively than conventional marketing methods that previously relied solely on local shops and traditional markets.
- c. Improved product packaging professionalism.
The inclusion of QR Codes on product packaging enhanced the professional image and increased consumer trust. Products appeared more modern and competitive in wider markets.
- d. Emergence of initiatives for advanced marketing strategy development.
Following mentoring, MSME actors began considering product integration with marketplaces and maintaining consistent digital content uploads to strengthen brand awareness.

Feedback from Malaysian Partners

Partners from Malaysia emphasized that QR Code implementation should be optimized not only as a product identity, but also as a gateway to an active digital marketing system. QR Codes should be connected to:

- a. Regularly updated marketplaces,
- b. Digital catalogs,
- c. Social media platforms with consistent marketing content uploads,
- d. Informative content highlighting product quality and authenticity.

Furthermore, partners stressed the importance of consistency in taste and quality to ensure acceptance in the Malaysian market, which has specific preferences regarding snack quality standards and flavor profiles. This feedback serves as an important foundation for MSMEs in strengthening competitiveness within the ASEAN market.

Input from KKN Participants

KKN participants observed that while QR Code utilization is a positive step, it must be supported by:

- a. Improved managerial capabilities,
- b. More organized financial record-keeping systems,
- c. Scheduled digital marketing strategies,
- d. Visual content and supporting information on digital platforms.

With strengthened managerial capacity and online marketing capabilities, MSMEs can expand their market penetration in a sustainable manner.

Program Impact Discussion

Economic Impact

The implementation of QR Codes encourages increased sales opportunities through:

- a. Expansion of marketing networks,
- b. Improved product visibility, and
- c. Enhanced consumer trust.
- b. With more targeted digital marketing, MSMEs have the potential to increase revenue and expand their business capacity. At the local level, these opportunities also encourage the creation of new employment, particularly in the areas of production development and marketing.

Social Impact

Mentoring activities enhance the digital competencies of business actors, both in creating QR Codes and utilizing digital marketing technologies. This transfer of knowledge generates a multiplier effect within the community by:

- a. Increasing public awareness of MSME digitalization,
- b. Encouraging community participation in village economic development, and
- c. Inspiring other business actors to utilize technology as a marketing tool.

Thus, the activities not only improve the technical skills of MSME owners but also promote sustainable community empowerment.

Environmental Impact

The use of digital technology has an indirect impact on reducing physical waste because:

- a. Promotional activities no longer rely on brochures and printed materials, and
- b. Product information is delivered through more efficient digital media.

Furthermore, digital marketing enables MSMEs to manage production based on more measurable demand, thereby reducing the risk of raw material waste caused by overproduction.

4. Conclusion

The MSME strengthening program for Keripik Pisang Kedung Aren through the implementation of QR Codes has proven to make a tangible contribution to enhancing the digital capacity of business actors and expanding technology-based marketing strategies. Through training, mentoring, and evaluation activities, MSMEs have successfully adopted QR Codes as part of product packaging and digital identity, thereby increasing professionalism, information accessibility, and consumer trust. Input from Malaysian partners and KKN participants further enriched the business development process, particularly in terms of product quality consistency, digital content development, and managerial capacity strengthening. The positive impacts of the program include increased economic opportunities through expanded market access, strengthened social capacity through improved digital literacy among business actors, and environmental efficiency through reduced dependence on physical promotional media. Overall, this program provides a sustainable foundation for MSMEs in facing the digital era and serves as a model for technology-based MSME empowerment that can be replicated for other small-scale enterprises.

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