

Modernization of Banana-Based Product Development and Marketing Management Training Through Technological Innovation: A Case Study in Haya Haya Village Gorontalo

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Abstract

This study aims to modernize the production processes and diversify banana-based products in Haya Haya Village, West Limboto District, Gorontalo, through technological innovation, while simultaneously enhancing local residents' marketing management skills. The research focuses on developing various banana-derived products, including banana chips, organic fertilizers from banana waste, banana cakes, and banana brownies. A case study approach was adopted, involving technical training in production technology and workshops on digital marketing management for local entrepreneurs to increase product competitiveness. The methods employed included an initial needs analysis survey, hands-on training in production technologies, and workshops on digital marketing strategies. The results indicate that the application of production technologies significantly improved both the quality and quantity of the products. Additionally, digital marketing training enhanced the participants' managerial skills and promotional strategies. The study concludes that the simultaneous implementation of production modernization and marketing management training can enhance the economic value and sustainability of banana-based businesses in Haya Haya Village. Further research is recommended to expand market reach and provide ongoing support for product innovation and marketing strategies to improve the livelihoods of the local community.

Keywords: *Product modernization, production technology, marketing management training.*

A. INTRODUCTION

Indonesia, as one of the largest banana producing countries in the world, has an extraordinary wealth of biodiversity in terms of banana varieties. Bananas are not only cultivated for fresh consumption, but also as raw materials for various processed products (Wikantika et al., 2022). However, although bananas have great potential as a superior commodity, most local farmers and entrepreneurs are still trapped in limited production and traditional marketing patterns (Choudhury et al., 2023). This hampers the economic potential that can be generated from processing bananas into products with more added value, such as banana chips, banana cakes, and even organic fertilizers made from banana waste (Kurniawan et al., 2019).

Diversification of banana-based products is becoming increasingly important to increase the competitiveness of local products in an increasingly competitive market. By developing various types of banana-based processed products, both for consumption and for other needs, it is hoped that it can reduce dependence on fresh banana consumption which is often abundant in certain

seasons. In addition, product diversification will also increase economic value and open up wider market opportunities for small and medium entrepreneurs in rural areas (Azzahrah et al., 2023).

However, despite the enormous potential for banana product diversification, many rural communities still face significant challenges in adopting modern production technologies. Technology in agriculture and processing of processed products is often poorly understood by local entrepreneurs (“Influencing Factors on Adoption of Modern Agricultural Technology in Developing Economy Countries,” 2023). Lack of access to information and training on the latest technology results in inconsistent product quality and difficulty competing with products from other regions that are more advanced in terms of technology and production processes (Wongpit et al., 2023).

Technological innovation in agricultural product development can serve as a solution to improve the quality and efficiency of production. (Adukov, 2024), the application of modern production technology can reduce waste of raw materials and significantly increase productivity. Therefore, it is very important for local entrepreneurs to understand and adopt these technologies in order to compete in an increasingly competitive market. One of the technologies that can be applied is more efficient product processing technology, as well as the use of digital technology for product marketing (Hajiyeva et al., 2023).



Figure 1. The Condition of Target Partners and the Haya Haya Village Government.

Source: Progress Report, 2024

On the other hand, digital marketing is one aspect that is often overlooked in the development of small and medium enterprises in rural areas. Many local entrepreneurs do not yet understand the importance of digital-based marketing strategies, such as the use of social media and e-commerce platforms to reach a wider market. (Mpungose et al., 2024), shows that entrepreneurs who are skilled in digital marketing can expand their market, increase brand awareness, and ultimately increase product sales. Therefore, improving digital marketing skills among local entrepreneurs is very important to accelerate the growth of their businesses.

This study aims to address these issues by implementing a training program that focuses on two main aspects: modernization of production technology and development of digital marketing management skills. With a case study-based approach in Haya Haya Village, Gorontalo, this study hopes to improve the quality and quantity of banana products produced, as well as introduce local entrepreneurs to more effective and efficient marketing techniques (Jariyah et al., 2024).

In order to achieve these objectives, this study identified gaps in the development of banana-based products in the village, both in terms of production processes and marketing strategies. Based on literature studies, production and marketing skills training has been shown to have a

positive impact on the development of micro and small businesses in rural areas. However, there are still many challenges to be faced, especially related to limited access to quality technology and training (Jariyah et al., 2024).

Thus, the main objective of this study is to modernize the banana production process and diversify banana-based products in Haya Haya Village, as well as improve managerial skills in digital marketing through intensive training. It is expected that the results of this study can provide real contributions to the development of the local economy and increase the competitiveness of banana-based products, not only in the local market, but also in the global market (Rizal et al., 2022).

B. RESEARCH METHOD

This research approach uses a case study method with a focus on Haya Haya Village, located in West Limboto District, Gorontalo. The case study approach was chosen because it can provide a deep understanding of the local context and the problems faced by village communities in adopting modern technology in the production and marketing of banana-based products (T.P.Wijewardena et al., 2023). To achieve the research objectives, a mixed methods approach was used, which includes qualitative and quantitative analysis. This method allows researchers to collect rich data from in-depth interviews, as well as numerical data that can be analyzed statistically to measure the effectiveness of the interventions carried out (Febriansyah et al., 2023).

The subjects of this study were local entrepreneurs and residents of Haya Haya Village who were involved in the training and workshops held. The participants consisted of small entrepreneurs who were already running banana processing businesses, as well as people who were interested in developing banana-based businesses (Prasetyo et al., 2024). The training provided covered two main areas, namely production technology and digital marketing management. Therefore, training participants were selected based on their involvement in banana production activities and their motivation to learn and develop new skills (Anto et al., 2022).

The research procedure began with an initial needs analysis conducted through a survey to identify the main problems faced by local entrepreneurs in the production and marketing process of their banana products. This survey was also used to measure the level of knowledge and skills possessed by participants before attending the training. After that, direct training on production technology was conducted to improve participants' abilities in processing bananas into value-added products, such as banana chips, banana cakes, and organic fertilizers. In addition, a workshop on digital marketing strategies was also conducted to teach local entrepreneurs how to utilize digital platforms such as social media and e-commerce to market their products more effectively (Andrian et al., 2024).

The materials and instruments used in this study include training materials on production technology that include efficient ways to process bananas and utilize banana waste. In addition, digital marketing training materials use digital tools such as social media platforms (Instagram, Facebook) and website creation tools that allow local entrepreneurs to promote their products more widely. Other instruments used include questionnaires for surveys, interview guidelines for qualitative data collection, and statistical analysis tools to measure the impact of training on product quality and marketing effectiveness (Andrian et al., 2024).

Data collection was conducted through surveys conducted before and after the training to measure changes in participants' skills and knowledge. Qualitative data was collected through in-depth interviews with training participants to evaluate their perceptions of the training's impact

on their businesses. These interviews also aimed to explore challenges and barriers faced by participants in implementing new technologies and digital marketing strategies. In addition, statistical analysis was used to compare product quality before and after the training, as well as the effectiveness of product marketing through digital platforms. The results of this analysis will provide a clear picture of the success of the training and recommendations for further improvement (Rose et al., 2024).

C. FINDINGS AND DISCUSSION

The results of the study showed a significant increase in both product quality and marketing skills of participants after attending the training. In terms of product quality, the application of the production technology taught, such as more efficient banana processing techniques into banana chips and cakes, succeeded in increasing the quantity and quality of the product. Before the training, products produced by local entrepreneurs tended to be inconsistent in terms of taste and texture, thus reducing their appeal in the market.



Figure 2. Banana Chips Products Produced by the Partners

Source: Progress Report, 2024

However, after the training, participants were able to produce products with better quality and more in line with market tastes, such as crispier banana chips and banana cakes with a softer and more attractive texture. This improvement was also measured through a survey showing that more than 80% of participants felt an increase in product quality after using the technology introduced in the training.

Table 1. Product Quality

Product Quality Aspect	Before Training (Average Score)	After Training (Average Score)	Average Difference
Taste	2.6	4.1	+1.5
Texture	2.8	4.0	+1.2
Visual Appeal	2.5	4.2	+1.7
Product Consistency	2.7	4.3	+1.6

Source: Progress Report, 2024

In terms of marketing, the digital marketing training conducted also showed a significant impact. Before the training, the majority of participants only relied on word of mouth marketing and local sales in traditional markets. After attending a workshop on the use of social media and website creation, participants began to utilize digital platforms to market their products. This can be seen from the increase in participants' managerial skills in utilizing Instagram and Facebook to promote products. More than 60% of participants reported that they managed to reach new customers through digital platforms, which had a direct impact on increasing their sales volume. In addition, the results of qualitative interviews showed that participants felt more confident in implementing a more structured and professional marketing strategy.



Figure 3. Banana Tree Seedling and Organic Fertilizer Products

Source: Progress Report, 2024

However, despite clear improvements, several challenges remain in the adoption of technology and digital marketing among local entrepreneurs. One of the main challenges faced is limited access to adequate digital tools, especially in areas with less developed technological infrastructure. Several participants complained about a lack of knowledge in using more complex technological tools, despite having received training. Therefore, while the training has yielded positive results, further support is needed to ensure that all entrepreneurs are able to make the most of technology.



Figure 4. Technology Tools Provided to the Partners
Source: laporan kemajuan, 2024

From a scientific perspective, these findings are consistent with previous studies showing that the adoption of production and marketing technologies can significantly improve product quality and competitiveness in the market (Alam et al., 2020; Sari & Handayani, 2019). However, this study also highlights the importance of a context-based approach in technology implementation. As found by Sugiarto (2018), training tailored to local conditions and the needs of entrepreneurs is key to success in business development in rural areas. Therefore, although digital technology and marketing can provide great benefits, local entrepreneurs need ongoing support and more in-depth training to overcome technical barriers and maximize the potential of the technology.

Table 2. Marketing Skill

Marketing Skills Aspect	Before Training (Average Score)	After Training (Average Score)	Average Difference
Instagram Usage	2.4	4.0	+1.6
Facebook Usage	2.5	4.1	+1.6
Website Creation	2.3	3.9	+1.6
Online Marketing Strategy	2.6	4.2	+1.6

Source: Progress Report, 2024

Overall, the results of this study confirm that production modernization and digital marketing management training can have a significant positive impact on the development of banana-based businesses in Haya Haya Village. The application of efficient production technology and the use of digital marketing strategies have helped improve product competitiveness and open up wider market opportunities. However, to ensure its sustainability and effectiveness, long-term support is needed in the form of training updates and the provision of adequate facilities for local entrepreneurs. In the future, this study recommends that support for product and marketing

innovation be continued with the provision of better technology facilities and advanced training to maintain the sustainability and improve the quality of banana-based businesses in the village.

D. CONCLUSION

This study aims to modernize the production process and diversify banana-based products in Haya Haya Village through technological innovation, while simultaneously improving the marketing management skills of the local community. The findings revealed that the application of efficient production technologies, such as improved methods for processing bananas into banana chips and cakes, successfully enhanced both the quality and quantity of the products. Moreover, the digital marketing training provided had a significant positive impact. Many participants effectively leveraged social media platforms to market their products, leading to an expansion of their market reach and a noticeable increase in sales volume.

These results highlight that integrating production modernization with digital marketing management training can significantly boost the competitiveness of local products, thereby providing greater economic value for the people of Haya Haya Village. However, the challenges encountered—particularly the limited access to adequate technology and digital devices—underscore the necessity for continued support to ensure the sustainability of these positive outcomes. In light of this, it is not only important to offer technical and marketing training but also to provide infrastructure support and enhance access to digital tools to fully realize the potential of local entrepreneurs.

The study further recommends that future research focus on developing a more integrated and accessible digital marketing system that can be utilized by all segments of society. Exploring sustainable business models that support long-term product and marketing innovation is also crucial. This should include the establishment of continuous training facilities and the enhancement of technology empowerment to foster sustained growth. With these initiatives, it is anticipated that the development of banana-based businesses in Haya Haya Village will continue to flourish and contribute positively to the local economy.

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