

Digital Marketing and Modern Management to Build Competitive Advantage for Pineapple Fiber MSMEs at Omah Kreatif Indy Prabumulih

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Abstract

Purpose: This community service program aims to strengthen the competitive advantage of pineapple fiber MSMEs, Omah Creative Indy in Prabumulih, through digital marketing strategies and modern management practices to improve production capacity, branding, managerial skills, and business sustainability.

Methodology: The program used a qualitative descriptive and participatory approach through field observations, in-depth interviews, and documentation. The implementation was conducted in sequential stages, including socialization, training, technology introduction, mentoring, and evaluation. Data validity was ensured through triangulation, while data were analyzed using reduction, display, and conclusion drawing.

Results: The program improved partners' skills in digital marketing, business management, and product development. The use of new machinery increased production capacity and product quality, enabling more varied and consistent pineapple fiber products. Partners also became more capable of using social media and e-commerce platforms, increasing product visibility and brand positioning.

Conclusions: Digital marketing integration, modern management, technology adoption, and continuous mentoring successfully enhanced MSME competitiveness, production efficiency, managerial capability, and digital market reach.

Limitations: The program remains limited by product design innovation, capital access, and advanced digital marketing skills.

Contribution: This program supports local MSME empowerment and offers a collaboration model between academia, government, and MSMEs in developing creative industries based on natural resources.

Keywords: *Digital Marketing, SMEs, Pineapple Fiber, Competitive Advantage, Community Empowerment*

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1. Introduction

Micro, Small, and Medium Enterprises (MSMEs) are the backbone of the national economy and play a crucial role in job creation and regional economic growth. According to data from the Ministry of Cooperatives and SMEs, more than 99% of businesses in Indonesia are MSMEs, employing approximately 97% of the workforce and contributing over 60% to national GDP. This means that the sustainability of MSMEs is key to Indonesia's economic stability and progress ([Maulana, Novalia, Rosa, & Yunita, 2021](#)).

One MSME sector with significant potential is pineapple fiber processing. Pineapple fiber is known as a natural, environmentally friendly raw material with good fiber strength and aesthetic value. Pineapple fiber derivative products, such as bags, woven fabrics, shoes, wallets, and accessories, can be marketed both domestically and internationally ([Wagiyem, Sudarmadi, & Putri, 2025](#)). However, many MSMEs producing pineapple fiber still face various obstacles, such as limited production technology, limited understanding of digital marketing strategies, and weak business management. These limitations make pineapple fiber products less competitive than similar products made from synthetic materials or mass-produced products ([Agnihotri, Dingus, Hu, & Krush, 2016](#)). This community service program is designed to address these challenges. The focus of the program is on empowering pineapple fiber MSMEs through the application of digital marketing strategies and modern management principles. The primary goal is to increase the capacity of MSMEs in managing their businesses, expand market reach, and enhance the competitiveness of pineapple fiber-based products in both domestic and global markets ([Nasrika, 2019](#)).

The significant shortage of production equipment, particularly sewing machines, is a major obstacle that directly impacts production rates. Currently, the availability of sewing machines is limited to a single Butterfly brand unit, a situation that is highly inadequate considering the urgent need for high-speed machines to increase efficiency ([Lestari, 2019](#)). This shortage of modern equipment directly hampers the productivity of artisans in producing the quantity of pineapple fiber products required by the market. In addition to equipment infrastructure issues, there are also significant constraints related to human resource capacity ([Afri, 2021](#)). Specifically, the low skill level of artisans in product design and innovation poses a serious obstacle. They face difficulties in creating new design variations or updating existing models to make them more attractive and competitive ([Alvarez-Risco, Del-Aguila-Arcentales, & Yagüe-Caballero, 2022](#)). Furthermore, this constraint is exacerbated by the difficulty in consistently maintaining production quality on an ongoing basis; fluctuations in quality from one batch to the next often occur, which ultimately also becomes a substantial obstacle to their operations ([Hidayat, Mulyana, Andayani, Zuliarni, & Pratama, 2021](#)).

Handmade products have a very specific and well-defined market. This market tends to value the artistry, uniqueness, and craftsmanship inherent in each item, which automatically positions their selling price at a relatively high level when directly compared to similar products mass-produced through standardized industrial processes or modern manufacturing lines ([Nurmalasari, Kumalasari, & Putri, 2025](#)). Beyond pricing and market segmentation, another significant challenge faced by producers of these handmade goods is the significant limitations in utilizing and implementing effective digital marketing strategies to reach a wider audience ([Paramitha, 2019](#)).

Low levels of managerial knowledge, which specifically refers to a lack of in-depth understanding by organizational leaders of contemporary management principles, relevant organizational theories, and best practices in managing human resources and operations, often constitutes a significant barrier ([Hidayat & Purnomo, 2020](#)). This situation is exacerbated by the underuse of technology in management, meaning that systems, software, or digital innovations that could automate processes, improve decision-making efficiency through data analysis, or facilitate better communication across hierarchical levels are not implemented or utilized to their full potential. This gap between modern managerial needs and actual implementation capacity creates widespread structural and operational inefficiencies ([Abdul & Muhammad, 2022](#)).

Pineapple fiber-based products have unique aesthetics and value, making them a potential commodity for both domestic and export markets ([Rahman & Lestari, 2022](#)). However, many MSMEs producing pineapple fiber are still trapped by conventional marketing methods and poorly structured operational management. Limited digital market penetration, a lack of understanding of modern marketing strategies, and challenges in supply chain management and product quality pose significant obstacles to realizing their full economic potential ([Setiawan, 2024](#)). As a result, their products often struggle to penetrate broader markets and face stiff competition from similar, more well-promoted products.

Recognizing these challenges, this Community Service (PkM) activity focuses on empowering pineapple fiber MSMEs through knowledge transfer and intensive mentoring. The main objective of this activity is to build competitive advantage for pineapple fiber MSMEs through two main pillars: implementing effective digital marketing strategies and applying modern management principles in their business operations ([Saepudin, Marselina, Wahyudi, & Ciptawaty, 2023](#)). Specifically, this activity aims to improve the understanding and practical capabilities of MSMEs in utilizing digital platforms for promotions, sales, and customer interactions, introducing and applying modern management principles (such as stock management, quality control, and branding) to improve operational efficiency and product sales value, and also encouraging increased income and sustainability of pineapple fiber MSME businesses by expanding market reach ([Fanggidae & Molidya, 2023](#)).

This community service activity is expected to provide real benefits for MSME partners, including increasing product visibility in the digital realm, improving brand image (branding), marketing cost efficiency, and improving product quality and consistency ([Saraswati & Hastasari, 2020](#)). For the implementing team, this activity represents a concrete manifestation of academics' contribution in applying science to solve real-world problems in society, while also enriching the database and case studies of appropriate technology implementation in the real sector ([Abdul & Muhammad, 2022](#)).

The theoretical foundation underpinning the connection between digital marketing and competitive advantage in MSMEs has been extensively explored in contemporary management literature. Porter's competitive advantage framework, when applied to small enterprises, highlights the importance of differentiation and cost leadership as core strategic orientations. In the digital era, digital marketing tools, ranging from social media platforms to search engine optimization and e-commerce marketplaces, serve as accessible, low-cost mechanisms through which MSMEs can achieve differentiation without proportionally large financial investments. Studies conducted across Indonesia consistently demonstrate that MSMEs that actively adopt digital marketing channels experience significantly higher brand visibility, broader market reach, and improved customer engagement compared to those relying solely on conventional marketing methods. Moreover, the integration of modern management principles into MSME operations, including structured financial planning, quality management systems, and systematic inventory control, further reinforces competitive positioning by ensuring operational stability and product consistency that customers increasingly expect ([Afri, 2021](#)).

Prabumulih City, located in South Sumatra Province, presents a distinctive socio-economic context that renders the development of its creative MSMEs a matter of both local economic urgency and broader regional significance. As a city transitioning from its historical dependence on petroleum and natural gas extraction toward a more diversified economic base, Prabumulih faces the challenge of creating sustainable livelihoods for its population through sector diversification ([Agnihotri et al., 2016](#)). Pineapple fiber-based handicraft MSMEs represent a promising area of growth, drawing on the region's agricultural heritage, South Sumatra is one of Indonesia's largest pineapple-producing provinces, while simultaneously tapping into growing global demand for eco-friendly and artisanal products ([Habib & Wahyudi, 2022](#)). However, the persistence of traditional production methods, limited access to digital infrastructure, and insufficient managerial training have constrained these enterprises from realizing their full economic potential. Addressing these structural barriers through targeted community service intervention is therefore not merely an academic exercise but a practical imperative for local economic development ([Gumay & Syarif, 2025](#)).

Beyond its economic dimensions, pineapple fiber production at MSMEs like Omah Kreatif Indy carries important social implications, particularly with respect to women's economic empowerment and community cohesion. The majority of artisans engaged in pineapple fiber handicraft production in Prabumulih are women, many of whom operate within the constraints of limited formal education and restricted mobility ([Kotler & Armstrong, 2020](#)). For these artisans, participating in an MSME that successfully integrates digital marketing and modern management does not merely translate into improved income; it also fosters enhanced self-efficacy, greater awareness of entrepreneurial opportunities, and stronger social networks among peers. Research on women-led MSMEs in Indonesia consistently demonstrates that capacity-building interventions that combine technical skills with market access have a multiplier effect on household welfare and community resilience, effects that extend well beyond the individual enterprise. This social dimension underscores the importance of designing MSME empowerment programs that are not only economically rigorous but also socially inclusive and gender responsive.

Furthermore, the evaluation process also focuses on measuring the long-term impact of the program on business sustainability and partner readiness to face future market challenges. Indicators such as the ability to independently manage business operations, maintain product quality standards, utilize digital platforms consistently, and develop innovative products are carefully assessed. Feedback obtained from partners is used to identify strengths and weaknesses in the implementation process, while also providing valuable insights for improving future community service programs. The findings from this evaluation serve as a foundation for developing strategic recommendations, including advanced training programs, continuous technical assistance, stronger networking with stakeholders, and broader market expansion initiatives. Through a comprehensive evaluation and reflection process, the program not only measures immediate outcomes but also ensures that the knowledge, skills, and technologies introduced can be sustainably adopted and continuously developed by the partners to support long-term business growth and competitiveness.

2. Research Methodology

This Community Service Activity uses a qualitative descriptive approach as explained by [Sugiyono \(2022\)](#), a research method that aims to describe naturally occurring phenomena with an emphasis on meaning and process. In this approach, the researcher or implementing team acts as the primary instrument, interacting directly with research subjects to understand the social context and real-world situations. According to Sugiyono, qualitative methods are used when researchers want to gain a deep understanding of social realities, rather than simply measuring variables quantitatively. In the context of this community service activity, this approach was used to identify real-world problems faced by pineapple fiber MSMEs, explore their potential and needs, and design solutions tailored to the conditions on the ground.

The activity process was conducted using a participatory model, where MSME partners were not merely beneficiaries but also actively participated in every stage of the activity. This participatory approach aligns with Sugiyono's qualitative research principles, which emphasize the importance of direct involvement between researchers and subjects to ensure authentic, contextual, and meaningful data collection ([Silaen, Bachtiar, Silaen, & Parhusip, 2024](#)).

In line with Sugiyono's opinion, this community service activity emphasizes data triangulation, namely combining the results of observations, interviews, and documentation to ensure more valid and comprehensive analysis. The data analysis process is carried out interactively through three steps: data reduction, data presentation, and conclusion drawing/verification. With Sugiyono's qualitative descriptive approach, the activity not only produces output in the form of improved skills and technology but also strengthens the conceptual understanding and entrepreneurial behavior of MSME partners in the long term ([Sulastri, Adam, Saftiana, Nailis, & Putri, 2023](#)).

The selection of Omah Kreatif Indy as the primary partner for this community service program was based on a systematic needs assessment conducted in the preliminary phase of the program. The selection criteria included: the enterprise's operational continuity of at least two years, its active role in

producing pineapple fiber-based handicrafts as the primary business activity, and its demonstrated willingness to participate actively in training and mentoring activities. A pre-program diagnostic assessment was subsequently conducted through structured interviews with the MSME owner and key artisan members, supplemented by direct observation of production facilities, existing marketing channels, and financial documentation practices. This assessment identified four primary gaps: (1) insufficient production equipment capacity; (2) limited knowledge of digital marketing platforms and content creation; (3) absence of systematic financial record-keeping; and (4) inadequate product quality standardization procedures. The findings from this diagnostic assessment served as the foundational basis for designing the training curriculum and technology assistance components of the program.

To ensure rigorous evaluation of program outcomes, the implementing team developed a multi-indicator success framework aligned with the program's four strategic objectives. Production-related indicators included output volume per month, product defect rates, and machine utilization efficiency. Marketing indicators encompassed the number of active social media followers, monthly digital platform interactions, and the volume of orders received through online channels. Managerial indicators assessed the regularity and accuracy of financial record-keeping, adoption of basic costing methods, and implementation of simple inventory systems. Capacity-building indicators measured participant attendance rates, pre- and post-training knowledge assessment scores, and self-reported confidence in applying new skills. Data collection instruments included observation checklists, structured interview guides, and participant feedback questionnaires administered at the end of each program stage. Ethical considerations were addressed by ensuring that all participants provided informed consent, that their identities and business information remained confidential in public reporting, and that the program's participatory design respected the autonomy and local knowledge of MSME partners.

The stages of community service program implementation designed to strengthen the competitiveness and sustainability of pineapple fiber MSMEs. The program was carried out systematically through five main stages, namely socialization, training, application of technology, mentoring and evaluation, and program sustainability. The socialization stage aimed to introduce the program objectives, benefits, and activity plans to MSME partners while building their commitment to active participation. The training stage focused on improving partners' practical knowledge and skills in financial management, digital marketing, branding, quality management, and pineapple fiber-based product innovation. Furthermore, the application of technology stage was directed at increasing production capacity and product quality through the introduction and use of high-speed sewing machines, postbed machines, and leather sewing machines. This stage was implemented through demonstrations, direct practice, and technical assistance to ensure that partners could operate the equipment effectively.

The mentoring and evaluation stage was conducted to ensure that the knowledge and skills gained during the program could be applied consistently in business operations. This stage involved regular monitoring, observation, interviews, and documentation of business development to measure changes in production capacity, product quality, management practices, and digital marketing readiness. Finally, the program sustainability stage emphasized the importance of connecting MSME partners with external support systems, particularly through collaboration with the Cooperatives and SMEs Service, marketing networks, and business development opportunities. Overall, the table shows that the program was not only designed as a short-term training activity but also as a structured empowerment model that integrates education, technology transfer, mentoring, evaluation, and institutional collaboration to support the long-term growth of pineapple fiber MSMEs.

2.1 Field Observations

The team conducted direct observations of the partners' production processes, supporting infrastructure, and business management practices to obtain a comprehensive and factual understanding of the existing business conditions. These observations were carried out by examining each stage of production, the availability and use of equipment, the condition of work facilities,

product handling, and the way partners managed daily business operations. Through this activity, the team was able to identify several key issues related to production capacity, product quality, managerial practices, marketing readiness, and operational efficiency. The results of the observations became an important basis for determining partner needs and designing appropriate intervention strategies.

2.2 Interviews and Group Discussions

Based on the results of problem identification, the team developed a training program that focused on financial management, digital marketing, and product innovation to address the main needs of the partners. The training was designed to improve the partners' ability to manage business finances, promote products through digital platforms, and develop more creative and market-oriented pineapple fiber products. In addition, the implementation of new technologies was carried out as a form of action research, in which the proposed solutions were directly tested in real business situations. This approach allowed the team and partners to evaluate the effectiveness of the technology, identify practical obstacles during implementation, and make necessary adjustments to ensure that the solutions were relevant, applicable, and sustainable ([Ummat & Hayuningtias, 2022](#)).

2.3 Evaluation and Reflection

At this stage, the results of the activities are evaluated using predetermined success indicators, including increased production capacity, improved product quality, better business management, and enhanced digital marketing capabilities. The evaluation is conducted to measure the extent to which the training, mentoring, and technology implementation have contributed to solving the partners' problems. In addition, reflection sessions are carried out with the partners to discuss the benefits, challenges, and obstacles encountered during the program. Through this reflection, the team and partners can assess the effectiveness of each activity, identify areas that still require improvement, and formulate appropriate follow-up plans to ensure the sustainability of the program outcomes.

3. Results and Discussion

After identifying various problems related to production operations, the effectiveness of overall business management, and product marketing strategies and implementation, Omah Kreatif Indy MSMEs have enormous potential to significantly improve and strengthen their competitive advantage in an increasingly dynamic and challenging market ([Gumay & Syarif, 2025](#)). A series of comprehensive solutions have been proposed, which include several important aspects, namely through substantial improvements to the means and means of production used, the implementation of structured training programs to improve the technical and managerial skills of craftsmen, the implementation of relevant and appropriate technology for process efficiency, as well as the design and implementation of well-planned and effective marketing strategies, all of which are expected to collectively achieve sustainable success and ensure the operational sustainability and growth of the Omah Kreatif Indy MSME business in the future ([Wardhana, 2015](#)).

The results of the community service activities show significant improvements in various aspects of the pineapple fiber MSME partners' businesses. Production capacity and quality have significantly increased since the partners adopted new machinery. Previously limited to approximately 5 kilograms of raw materials per month, partners are now able to produce a wider variety of products with more consistent quality. Stitching has become neater and stronger, increasing their marketability.



Figure 1. Training activities at the Pineapple Fiber location

Figure 1 show the training activities in Pineapple Fiber locations, the product variety is expanding. Partners have successfully produced macrame bags, woven fabrics, pouches, shoes, and other accessories with more attractive designs. This product innovation is driven by the training and design skills development provided ([Fanggidae & Molidya, 2023](#)). Thus, pineapple fiber products are not only marketed as handicrafts, but are starting to be positioned as environmentally friendly clothing products ([Silaen, Bachtiar, Silaen, & Parhusip, 2024](#)).

The development of product diversification in pineapple fiber MSMEs also reflects a broader shift toward value-added creative industries that emphasize sustainability and design innovation. As training interventions continue, artisans are increasingly able to translate raw pineapple fiber materials into products that meet evolving consumer preferences, particularly in eco-conscious markets. This transformation is not only technical but also conceptual, as partners begin to understand the importance of storytelling in product marketing, where each item reflects cultural identity, environmental responsibility, and craftsmanship value. In addition, the integration of design thinking approaches has encouraged MSMEs to experiment with new forms, textures, and functional variations, thereby increasing the commercial attractiveness of their products in both local and digital marketplaces. These improvements indicate that capacity-building programs play a critical role in shifting MSMEs from traditional production systems toward innovation-driven enterprises.

Furthermore, the strengthening of production capabilities and design competencies has contributed to improved market positioning and competitiveness of pineapple fiber products. MSMEs are now better equipped to respond to market demands that prioritize sustainability, uniqueness, and ethical production processes. The expansion of product lines has also opened opportunities for entry into niche markets such as sustainable fashion, eco-friendly accessories, and artisanal handicrafts for export-oriented consumers. At the same time, continuous mentoring and exposure to digital platforms have enabled partners to better understand consumer behavior, allowing for more targeted marketing strategies and improved customer engagement. These developments suggest that long-term competitiveness of pineapple fiber MSMEs depends not only on production enhancement but also on the continuous integration of innovation, branding, and market adaptation strategies.



Figure 2. Providing equipment assistance to MSMEs

Figure 2 show the deeply and comprehensively recognizing the intrinsic advantages and extraordinary potential of pineapple fiber, especially in the context of material innovation, is a fundamental step in developing new products that are truly innovative and highly competitive, where these innovations must be carefully designed to be appropriate and responsive to the dynamics and specific needs that continue to develop in today's market ([Saepudin, Marselina, Wahyudi, & Ciptawaty, 2023](#)). In addition to focusing on product development, this effort must also be accompanied by the implementation and implementation of a structured, integrated, and highly efficient inventory management system throughout the supply chain, with the main objective of accurately ensuring the consistent and timely availability of pineapple fiber raw materials, while simultaneously optimizing and minimizing operational costs related to storage and stock movement to a minimum.

From a marketing perspective, partners are beginning to understand the importance of digital marketing ([Widya, Sayudin, & Muharam, 2023](#)). Previously, marketing relied solely on word of mouth and local sales, but now partners are leveraging social media platforms like Instagram, Facebook, and WhatsApp Business. Partners are also being encouraged to use e-commerce platforms to reach a wider market. Understanding of content marketing, basic SEO, and paid advertising is being introduced, increasing product visibility ([Kotler & Armstrong, 2020](#)).

Business management aspects have also improved. Partners who previously recorded transactions manually are now beginning to understand the importance of more structured financial record keeping. Simple financial management training helps partners calculate production costs, determine competitive selling prices, and manage cash flow. This is crucial for business sustainability and prevents financial management from relying solely on intuition.

Conducting comprehensive and carefully structured training for Micro, Small, and Medium Enterprises (MSMEs) teams on various crucial aspects that support their business growth. This training will specifically include in-depth instruction on effective digital marketing strategies, including Search Engine Optimization (SEO), targeted social media marketing, and high-converting online advertising campaigns. Furthermore, training sessions will be dedicated to fully mastering the use of the latest digital tools that can automate business processes and improve operational efficiency ([Habib & Wahyudi, 2022](#)). Significant focus will also be given to optimal inventory management methodologies, ensuring proper stock availability without incurring capital wastage ([Abdul &](#)

[Muhammad, 2022](#)). Customer service aspects will be strengthened through training in persuasive communication techniques and professional complaint handling to build long-term customer loyalty. Finally, a detailed financial management module will be covered, covering basic bookkeeping, cash flow analysis, and sound budget planning, all of which fundamentally aim to substantially improve the overall managerial capabilities of the MSME team.

However, several challenges remain to be overcome. Among them are limited capital for business expansion and the need to hone product design skills to keep up with global fashion trends. Therefore, ongoing mentoring is crucial. Through collaboration with local governments, it is hoped that pineapple fiber MSMEs will gain access to capital and advanced training.



Figure 3. Product photos of Pineapple Fiber MSMEs

Figure 3 the results of this activity are in line with various studies which show that the adoption of technology and digital marketing has a significant impact on the competitiveness of MSMEs by [Hidayat and Purnomo \(2020\)](#) implementing the right digital marketing strategies, MSMEs can not only expand their market but also increase brand awareness and customer loyalty. Meanwhile, the implementation of modern management helps MSMEs in maintaining consistent quality and operational efficiency, which are important factors in building long-term competitive advantage.

One of the most transformative aspects of the program was the dedicated branding and content marketing training, which yielded measurable and visible results for Omah Kreatif Indy's market presence. Prior to the program, the MSME had no unified brand identity products were sold without consistent labeling, packaging, or visual storytelling. Through the branding module, partners learned to develop a coherent brand name, logo concept, and color palette that communicated the values of craftsmanship, sustainability, and local heritage. Participants were trained in basic product photography using smartphone cameras, with instruction on natural lighting, background selection, and composition to produce professional-looking images suitable for social media and marketplace listings. Additionally, partners developed a social media content calendar that structured weekly posting schedules across Instagram and Facebook, incorporating a mix of product showcases, behind-the-scenes production content, and educational posts about pineapple fiber's eco-friendly properties. Within three months of implementing these strategies, Omah Kreatif Indy's Instagram account gained a measurable increase in followers and post engagement, and orders through WhatsApp Business increased, indicating improved brand recognition among potential customers.

The program's impact on income and productivity was equally significant and reflected the cumulative effect of equipment upgrades, skills training, and marketing improvements. Before the program, the MSME was processing approximately 5 kilograms of raw pineapple fiber per month, translating into a limited range of products and modest monthly revenue. Following the introduction of high-speed sewing machines, postbed machines, and leather sewing equipment, monthly production capacity increased substantially, enabling the creation of a broader product range with greater consistency ([Qalati, Li, Ahmed, Mirani, & Khan, 2021](#)). The improved product quality, combined with expanded digital marketing reach, resulted in an increase in both the volume and geographic diversity of orders, with some buyers sourced from outside South Sumatra Province for the first time. Partners also reported improved profit margins as a result of more accurate production cost calculation and better price-setting practices learned during the financial management training sessions.

These findings are consistent with and reinforce the outcomes reported in comparable community service studies conducted in other regions of Indonesia. Research by [Fanggidae and Molidya \(2023\)](#) on digital marketing adoption for creative MSMEs in Eastern Indonesia similarly found that structured training in digital platforms significantly expanded market reach and revenue for previously conventional enterprises. [Sulastris, Adam, Saftiana, Nailis, and Putri \(2023\)](#) likewise documented meaningful improvements in MSME productivity and community income through diversification and capacity-building interventions. The convergence of these findings across different geographic and sectoral contexts suggests that the program model applied at Omah Kreatif Indy is not idiosyncratic but reflects a replicable approach to MSME empowerment. Furthermore, the combination of physical technology provision with digital skills training and management capacity-building, rather than any single intervention in isolation appears to be the critical factor in generating sustainable competitive improvements, a conclusion that has important implications for the design of future community service and MSME development programs ([Sujatha & Karthikeyan, 2021](#)).

The role of technology adoption in transforming MSME operations cannot be overstated, and the experience of Omah Kreatif Indy illustrates this dynamic with particular clarity. Before the program, artisans relied entirely on manual sewing techniques and a single aging machine, which severely restricted output speed and product variety. The introduction of high-speed industrial sewing machines enabled a fundamental reorganization of the production workflow: tasks that previously required hours of careful manual work could be completed in a fraction of the time, freeing artisans to focus on design creativity and quality finishing details that distinguish handcrafted products from mass-manufactured alternatives. This technological leap was accompanied by structured technical training, ensuring that operators could use the new machinery safely and efficiently ([Redjeki & Affandi, 2021](#)). The posted machine, in particular, opened possibilities for producing bags and accessories with curved seams and three-dimensional forms product types that had previously been beyond the MSME's technical capacity. The leather sewing machine similarly expanded the range of materials that could be incorporated into designs, creating opportunities for premium product lines with higher selling prices. Together, these equipment additions catalyzed a transformation in Omah Kreatif Indy's production identity, from a small traditional craft workshop to a more professionalized micro-manufacturing unit capable of meeting market demands for quality, consistency, and design diversity ([Al-Omoush, Muñoz-Pascual, & Ponces-Herrero, 2021](#)).

In addition to improving production and marketing performance, the program also strengthened the partners' ability to build a more adaptive and market-oriented business mindset. Through continuous mentoring, Omah Kreatif Indy began to understand that competitiveness is not only determined by the uniqueness of pineapple fiber products, but also by the ability to respond to consumer preferences, market trends, and changes in digital purchasing behavior. Partners were encouraged to analyze customer feedback, identify product designs with higher market appeal, and adjust promotional messages based on target consumer segments. This process helped the MSME move from a passive selling approach to a more strategic marketing orientation, where product development, pricing, packaging, and promotion were planned more systematically. As a result, the partners became more confident in presenting their products as creative, eco-friendly, and locally rooted commodities with

added value. This change in mindset is important because sustainable MSME development requires not only technical assistance, but also entrepreneurial awareness, innovation culture, and the ability to continuously learn from market dynamics ([Nizar & Hamim, 2021](#)).

Furthermore, the program created an important foundation for long-term institutional strengthening and business sustainability. The combination of technology adoption, digital marketing training, financial management assistance, and product innovation mentoring encouraged partners to develop clearer business procedures and more measurable performance targets. Partners began to recognize the importance of documenting production costs, recording sales transactions, managing inventory, and maintaining consistent product standards to support future business growth. These improvements are expected to help Omah Kreatif Indy become more prepared to access wider markets, collaborate with resellers or institutional buyers, and participate in exhibitions or government-supported MSME programs. However, to maintain the positive outcomes achieved, continued assistance is still needed, particularly in advanced digital advertising, product design diversification, export readiness, and access to financing. Therefore, the program should be followed by more intensive collaboration among universities, local government agencies, financial institutions, and creative industry networks to ensure that pineapple fiber MSMEs can continue to grow as competitive, sustainable, and socially beneficial local enterprises.

4. Conclusions

4.1 Conclusion

This community service program successfully enhanced the competitiveness of Omah Kreatif Indy's pineapple fiber MSME through the implementation of digital marketing strategies and modern management practices. The provision of high-speed sewing machines, postbed machines, and leather setting machines significantly improved production efficiency, product consistency, and production capacity. In addition, training and mentoring activities strengthened partners' capabilities in financial management, production planning, quality control, and product innovation. As a result, MSMEs were able to produce more diverse and competitive products while adopting more structured and data-driven business management practices.

From a marketing perspective, the program improved partners' understanding and application of digital marketing, including social media utilization, branding, content creation, and marketplace management. These improvements expanded market reach, increased product visibility, and strengthened brand positioning for pineapple fiber-based products as sustainable and locally inspired creative goods. Furthermore, the program generated positive socio-economic impacts by increasing productivity, improving profit potential, and strengthening collaboration among women artisan groups who play a central role in the business. The success of the program highlights the importance of synergy among academia, government, and MSMEs in supporting local economic development and fostering innovation-based entrepreneurship.

Despite these achievements, several challenges remain, including limited production equipment, the need for more advanced product design capabilities, restricted access to capital, and the requirement for more sophisticated digital marketing strategies. Therefore, continuous mentoring, policy support, and stronger collaboration with local governments, financial institutions, and MSME development agencies are essential to sustain long-term growth. Overall, this program demonstrates that the integration of digital marketing, modern management, technology adoption, and stakeholder collaboration can create sustainable competitive advantages for MSMEs while contributing to inclusive economic development, environmental sustainability, and the advancement of resource-based creative industries.

4.2 Research Limitations

This community service program has several limitations that should be considered when interpreting the results. First, the program was conducted within a single MSME, namely Omah Kreatif Indy, which limits the generalizability of the findings to other pineapple fiber enterprises or MSMEs operating in different sectors and regions. Second, the evaluation focused primarily on short-term

outcomes, such as improvements in production capacity, product quality, managerial capability, and digital marketing adoption, without assessing the long-term sustainability of these improvements. Third, the program relied largely on qualitative observations, interviews, and documentation, making it difficult to quantitatively measure the magnitude of changes in business performance, income growth, or market expansion. Finally, external factors such as market fluctuations, access to capital, technological readiness, and consumer preferences were not comprehensively analyzed, although they may significantly influence the long-term success of MSME development initiatives.

4.3 Suggestions and Directions for Future Research

Future studies should examine the long-term impact of digital marketing and modern management interventions on MSME performance by employing longitudinal research designs. Comparative studies involving multiple pineapple fiber MSMEs or other natural fiber-based enterprises across different regions would provide broader insights into the effectiveness and scalability of the empowerment model. Future research may also incorporate quantitative performance indicators, such as revenue growth, profitability, market expansion, customer retention, and return on investment, to provide more rigorous evidence of program effectiveness. In addition, further studies should explore the role of innovation capability, digital transformation readiness, access to financing, and stakeholder collaboration as potential determinants of sustainable competitive advantage among creative-based MSMEs in the digital economy.

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