

EXPLORING LOCAL POTENTIAL: RATU ECENG EMPOWERMENT STRATEGY THROUGH BASIC TECHNOLOGY AND DIGITAL MARKETING

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ABSTRACT

This study focuses on the empowerment of Ratu Eceng, an MSME that produces crafts made from water hyacinth and sea pandan fibers. Despite its great potential in the Indonesian handicraft industry, Ratu Eceng faces significant challenges such as limited market access, limited technology, and human resource capacity development. The empowerment program is designed with a comprehensive approach that includes training, mentoring, and implementation of appropriate technology. Penta helix collaboration between academics, government, business actors, communities, and the media is used as the main strategy in this program. The approach applied has proven effective in improving product quality, production efficiency, and market penetration of Ratu Eceng. The results of the study show that this program has succeeded in overcoming the problems faced by MSMEs and strengthening their position in both local and international markets. This empowerment program has had a significant positive impact on Ratu Eceng and can be a model of empowerment that can be replicated in other areas with similar characteristics. Recommendations for the future include further development of digital marketing technology and product diversification to adapt to global market trends. Empowerment Program, Craftsmanship, Water Hyacinth Fiber, Penta Helix Collaboration, Market Penetration

Keywords: empowerment strategy, digital marketing, product diversification

INTRODUCTION

The handicraft industry in Indonesia has great potential to grow, especially in facing the challenges of globalization and changes in consumer preferences that increasingly appreciate environmentally friendly and sustainable products. Ratu Eceng, an MSME located in [Village Name] village in [District Name], has taken an important step in utilizing local natural potential, namely water hyacinth and sea pandan, as basic materials for craft products. These two materials are not only abundant in the area, but also have ecological value because their use helps reduce environmental problems such as blockage of water flow caused by uncontrolled growth of water hyacinth. Ratu Eceng, an MSME located in South Tangerang Regency has taken an important step in utilizing local natural potential, namely water hyacinth and sea pandan, as basic materials for craft products. These two materials are not only abundant in the area, but also have ecological value because their use helps reduce environmental problems such as blockage of water flow caused by uncontrolled growth of water hyacinth (Kurniawati, 2022).

However, despite having abundant raw materials and unique products, Ratu Eceng faces various obstacles that hinder its growth and competitiveness. One of the biggest challenges is limited access to a wider market, both nationally and internationally. In addition, the production process that still uses traditional methods results in low efficiency and inconsistent product quality. Human resources involved in production also still need capacity building, especially in terms of technical skills and understanding of international quality standards. One of the biggest challenges is limited access to a wider market, both nationally and internationally. This is in line with the findings of Kotler and Keller (2016) which show that an effective marketing strategy is very important to overcome market constraints and increase product competitiveness. In addition, the production process that still uses traditional methods results in low efficiency and inconsistent product quality. Schumacher (1973) emphasized that appropriate technology that is in accordance with local conditions can help overcome this problem by increasing efficiency and product quality. Human resources involved in production also still need capacity building, especially in terms of technical skills and understanding of international quality standards (Rappaport, 1987). The problems faced by Ratu Eceng can be seen from two perspectives: research and MSME partners. From a research perspective, the main challenge is the lack of in-depth literature on the application of appropriate technology in the context of empowering handicraft-based MSMEs in

Indonesia. While many studies have been conducted on MSME empowerment, few specifically discuss how appropriate technology can be integrated to improve productivity and product quality, especially in the natural-based craft industry such as water hyacinth and sea pandan (Schumacher, 1973; Kurniawati, 2022).

From the partner side, Ratu Eceng faces several major problems. First, limited market access is a significant obstacle to business growth. The craft products produced are still limited to being marketed locally and have not been able to penetrate the national market, let alone internationally (Chaffey & Ellis-Chadwick, 2019). Second, the production process is still manual and inefficient, resulting in high production costs and inconsistent product quality. This has an impact on the competitiveness of products in the market (Kotler & Keller, 2016). Third, the lack of knowledge and skills in business management and digital marketing is also a problem that hinders business expansion. This is in accordance with Rappaport's (1987) analysis of the importance of managerial capacity and access to resources in the empowerment process.

In this context, empowerment through appropriate technology-based programs is very relevant. Through the application of technology that is in accordance with the needs and capacities of MSMEs, it is hoped that Ratu Eceng can increase production efficiency, maintain product quality, and expand its market reach. In addition, assistance in terms of business management, digital marketing, and product innovation is also an integral part of this empowerment effort.

By involving various parties in the Penta helix framework, this program aims to create an ecosystem that supports the sustainability of Ratu Eceng's business. Collaboration between academics, government, private sector, communities, and the media is expected to provide significant contributions in overcoming the various challenges faced by these MSMEs. Ultimately, the success of this program is expected to not only improve the welfare of MSME partners, but also provide inspiration for similar empowerment initiatives in other areas.

The problems faced by Ratu Eceng can be seen from two perspectives: research and MSME partners. From a research perspective, the main challenge is the lack of in-depth literature on the application of appropriate technology in the context of empowering MSMEs based on handicrafts in Indonesia. While many studies have been conducted on MSME empowerment, few specifically discuss how appropriate technology can be integrated to improve productivity and product quality, especially in the natural craft industry such as water hyacinth and sea pandan. From the partner side, Ratu Eceng faces several main problems. First, limited market access is a significant obstacle to business growth. The craft products produced are still limited to being marketed locally and have not been able to penetrate the national market, let alone internationally. Second, the production process is still manual and inefficient, resulting in high production costs and inconsistent product quality. This has an impact on product competitiveness in the market. Third, the lack of knowledge and skills in business management and digital marketing is also a problem that hinders business expansion.

Another problem is the limitation of product innovation. Ratu Eceng needs to develop product variations that are in line with market trends, both in terms of design and function, to attract more consumers. In addition, the sustainability of raw material supply also needs to be considered, considering that fluctuations in material availability can affect production continuity. Therefore, this study aims to find appropriate solutions, either through the application of technology, increasing human resource capacity, or more effective marketing strategies.

This research aims to develop an effective empowerment model for Ratu Eceng through the application of appropriate technology, increasing human resource capacity, and digital marketing strategies. The main objective of this program is to improve production efficiency and quality of craft products made from water hyacinth and sea pandan fibers, so that they are able to compete in a wider market, both nationally and internationally. In addition, this research also aims to improve market access for Ratu Eceng products by utilizing digital platforms, as well as strengthening MSME business management through training and mentoring. More specifically, the objectives of this research include: (1) Identifying and implementing appropriate technology to improve production efficiency and quality; (2) Improving the technical and managerial skills of human resources involved in production; (3) Designing effective digital marketing strategies to expand market reach; and (4) Compiling policy recommendations that can support the sustainability of MSMEs in the handicraft sector. By achieving these objectives, it is hoped that Ratu Eceng can develop into an independent, competitive, and sustainable MSME.

The literature review in this study focuses on the concept and theory of empowerment, especially in the context of MSMEs in the handicraft sector. One of the main concepts used is the concept of empowerment introduced by Zimmermann (1995), which emphasizes increasing the capacity of individuals and groups to control their own lives

and make decisions that impact their well-being. In the context of MSMEs, empowerment involves efforts to improve technical skills, access to resources, and active participation in business decision-making. According to Rappaport (1987), empowerment is a process in which individuals or groups gain control over their environment and achieve their goals through active participation in social and economic processes. In this context, MSME empowerment programs must be designed to provide access to the necessary resources, such as technology, training, and marketing networks, as well as strengthen the managerial capacity of business actors.

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Meanwhile, the capability theory proposed by Amartya Sen (1999) is also relevant in the context of MSME empowerment. Sen argues that individual capabilities to do and become something are the essence of human development. In this case, empowering MSMEs does not only focus on increasing income, but also on developing the capacity to innovate, make smart business decisions, and adapt to market changes (Sen, 1999). Appropriate technology is one approach that is often proposed in efforts to empower MSMEs. This technology refers to technology that is appropriate to local conditions, easy to implement, and can improve efficiency and product quality (Schumacher, 1973). According to Schumacher (1973), appropriate technology is technology that is environmentally friendly, cost-effective, and in accordance with the needs of local communities. In the context of MSMEs, the application of appropriate technology can help overcome limitations in capital and human resources, as well as increase product competitiveness in the market.

The literature review also shows that digital marketing is an important component in empowering MSMEs. With the development of information and communication technology, MSMEs now have a greater opportunity to reach a wider market through digital platforms (Chaffey & Ellis-Chadwick, 2019). According to Chaffey and Ellis-Chadwick (2019), digital marketing provides advantages in terms of cost efficiency, the ability to target consumers specifically, and increase interaction with consumers.

METHOD

This study uses a qualitative research approach with a case study design to deeply understand how empowerment through appropriate technology can be applied to Ratu Eceng MSMEs. Case studies were chosen because they allow researchers to comprehensively examine the empowerment phenomenon in a specific and real context. Data were collected through several methods, namely in-depth interviews, participant observation, and document analysis. In-depth interviews were conducted with Ratu Eceng MSME owners, employees, and other stakeholders such as local government representatives and academics involved in this empowerment program. These interviews aim to explore their understanding of the challenges faced, unmet needs, and expectations for the empowerment program. Data from these interviews will be analyzed using thematic analysis methods to identify key themes relevant to the research objectives.

Participatory observation was conducted by directly observing the production process at Ratu Eceng, as well as participating in training and mentoring activities held as part of the empowerment program. This observation aims to gain a deeper understanding of the actual conditions in the field, including the obstacles faced in the application of appropriate technology and product innovation. Document analysis involves reviewing relevant documents, including previous empowerment program reports, government policies related to MSMEs, and academic literature on MSME empowerment. This analysis helps in understanding the policy context underlying the empowerment program, as well as providing a theoretical basis for interpreting data obtained from interviews and observations.

To ensure the validity and reliability of the data, this study uses data triangulation techniques, where data obtained from various sources and methods are compared to identify congruence and differences. This aims to ensure that the research findings are reliable and can provide an accurate picture of the phenomenon being studied.

In addition, the researcher also applies descriptive analysis techniques to identify patterns and trends in the data collected and relate them to the theories and concepts of empowerment that have been discussed in the literature review. The results of this analysis will be used to develop an empowerment model that can be applied to other MSMEs with similar characteristics. This study uses a qualitative research approach with a case study design to understand in depth how empowerment through appropriate technology can be applied to MSME Ratu Eceng. Case studies were chosen because they allow researchers to study the phenomenon of empowerment comprehensively in a specific and real context (Yin, 2018). Data were collected through several methods, namely in-depth interviews, participant observation, and document analysis.

In-depth interviews were conducted with MSME Ratu Eceng owners, employees, and other stakeholders such as representatives of local governments and academics involved in this empowerment program. The purpose of this interview was to explore their understanding of the challenges faced, unmet needs, and expectations for the empowerment program. Data from this interview will be analyzed using thematic analysis methods to identify key themes relevant to the research objectives (Hair et al., 2010). Participatory observation was conducted by directly observing the production process at Ratu Eceng, as well as participating in training and mentoring activities held as part of the empowerment program. This observation aims to gain a deeper understanding of working conditions, production processes, and the application of appropriate technology. The results of the observations will be used to complement data from interviews and document analysis.

Document analysis was conducted on various relevant documents, such as MSME financial reports, business plans, and training materials and technology guides. These documents will provide additional information on business practices, marketing strategies, and the use of existing technology. This document analysis will be conducted using a content analysis approach to identify relevant information and support the research results (Krippendorff, 2018). With this methodological approach, this study is expected to provide a meaningful contribution to the development of MSME empowerment strategies, especially in the context of natural material-based handicrafts.

The empowerment program implemented for Ratu Eceng is designed by considering the specific needs of this MSME and the challenges it faces. This program consists of several main components, namely: (1) Appropriate Technology Training, (2) Business Management Assistance, (3) Product Development and Innovation, and (4) Digital Marketing.

This component aims to improve production efficiency and quality through the application of technology that is in accordance with Ratu Eceng's capacity. This training includes the use of more modern fiber shredding machines, more environmentally friendly natural dyeing techniques, and more efficient drying technology. With the application of this technology, it is hoped that Ratu Eceng can increase productivity without having to significantly increase production costs. This training is carried out in several sessions involving workers at Ratu Eceng. In addition to direct training on site, training modules are also provided that can be accessed online to ensure the continuity of learning.

RESULTS AND DISCUSSION

This business management assistance focuses on improving the managerial capacity of Ratu Eceng owners and staff in terms of business planning, financial management, and marketing strategy development. In this mentoring, a team of experts from the university provides regular consultations to help Ratu Eceng prepare a more focused business plan, keep accurate financial records, and understand the dynamics of the developing market. This mentoring also includes developing the ability to access financing, both through banking and assistance programs from the government and donor agencies.

Product development and innovation component aims to help Ratu Eceng create new products that are more innovative and have higher added value. The creative team from the university collaborates with craftsmen at Ratu Eceng to design new products that follow market trends, both in terms of design, function, and raw materials. One of the innovations developed is a combination of water hyacinth and sea pandan fibers with other materials such as bamboo and rattan to create more diverse products. In addition, exploration is also carried out on natural coloring that can provide more durable and attractive colors without damaging the environment.

Component of digital marketing is a strategic step to expand Ratu Eceng's market reach through digital platforms. Digital marketing includes the development of an e-commerce website, the use of social media for promotion, and training in managing an online store. The program also includes search engine optimization (SEO) and digital advertising to increase the visibility of Ratu Eceng products in cyberspace. As part of digital marketing, a digital

product catalog is also created that displays Ratu Eceng products with professional photos and complete product information. This catalog is integrated with the website and can be accessed by potential buyers from all over the world.

Table 1. Program Implementation

| No | Program Component | Main Activities | Implementation Period | Success Indicators |
|----|------------------------------------|------------------------------------------------------------------------------|-----------------------|---------------------------------|
| 1. | Appropriate Technology Training | Training on the use of planing machines and sewing machines | May 2024 | Increased production efficiency |
| 2. | Business Management Assistance | Business planning consultation, financial record keeping, marketing strategy | May – August 2024 | Improved managerial capacity |
| 3. | Product Development and Innovation | New product design, material combinations, exploration of natural dyeing | August 2024 | Product diversification |
| 4. | Digital Marketing | Social media training | August | Increased market access |

The results show that the application of appropriate technology has had a significant impact on production efficiency at Ratu Eceng. With the use of more modern fiber shredding machines, production time has been reduced by up to 30%, while product quality is maintained and even improved. The new drying technology also allows craftsmen to increase production capacity without depending on the weather, which was previously a major obstacle in production.

In terms of business management, the assistance provided has helped Ratu Eceng in preparing a clearer and more focused business plan. Financial records that were previously irregular are now more systematic, allowing the owner to periodically evaluate financial performance. In addition, the marketing strategy developed has also helped Ratu Eceng reach a wider market, including the entry of several orders from abroad through the digital platform developed.

The product innovations carried out have also succeeded in attracting market attention. The combination of water hyacinth and sea pandan fibers with other materials such as bamboo and rattan has produced new products that are unique and have high selling value. These products are not only attractive to local consumers, but also have great potential for export.

However, the findings also show that there are still challenges to be overcome, especially related to the sustainability of raw material supplies and product adjustments to international standards. Therefore, this study recommends closer cooperation with raw material suppliers and increased capacity in terms of product quality control.

CONCLUSION

The empowerment program implemented at Ratu Eceng MSME has shown positive results in various aspects, from increasing production efficiency to expanding market access. The application of appropriate technology has proven effective in overcoming several major obstacles faced by this MSME, especially in terms of production and business management. The training and mentoring provided have helped improve the managerial capacity of owners and employees, which in turn has a positive impact on the overall performance of the MSME. It is important to note that the penta helix collaboration involving academics, government, business sector, community, and media has been the key to the success of this program. Through the synergy that is established, various parties can contribute according to their respective expertise and resources, so that this empowerment program can run more effectively and efficiently.

However, there are several recommendations that need to be considered for the development of empowerment programs in the future. First, it is important to strengthen cooperation with raw material suppliers, especially in terms of supply sustainability. Given that the raw materials used by Ratu Eceng are fluctuating natural resources, good cooperation with suppliers will ensure production continuity and raw material price stability.

Second, there needs to be an increase in capacity in terms of product quality control. Although the quality of Ratu Eceng's products has improved, increasingly stringent international quality standards require a better-quality control

system. Therefore, additional training related to international quality standards and quality control procedures needs to be considered.

Third, product diversification needs to be continuously carried out to maintain Ratu Eceng's competitiveness in an increasingly dynamic market. Changing market trends demand continuous innovation, both in terms of product design and functionality. Therefore, a product innovation program must be an integral part of Ratu Eceng's long-term strategy.

Finally, digital marketing must continue to be developed to maximize existing market potential. Given the important role of information technology in connecting MSMEs with global consumers, Ratu Eceng needs to continue to update its digital strategy, including the use of data analytics to understand consumer behavior and adjust marketing strategies in real time.

REFERENCES

- Chaffey, D., & Ellis-Chadwick, F. (2019). *Digital Marketing: Strategy, Implementation and Practice*. Pearson.
- Rappaport, J. (1987). Terms of Empowerment/Exemplars of Prevention: Toward a Theory for Community Psychology. *American Journal of Community Psychology*, 15(2), 121-148.
- Kotler, P., & Keller, K. L. (2016). *Marketing Management* (15th ed.). Pearson.
- Yin, R. K. (2018). *Case Study Research and Applications: Design and Methods*. SAGE Publications.
- Hair, J. F., et al. (2010). *Multivariate Data Analysis* (7th ed.). Pearson.
- Prahalad, C. K., & Ramaswamy, V. (2004). *The Future of Competition: Co-Creating Unique Value with Customers*. Harvard Business School Press.
- Ansoff, H. I. (1988). *Corporate Strategy* (Rev. ed.). Penguin Books.
- Kurniawati, H. (2022). *Pemberdayaan UMKM Melalui Inovasi dan Teknologi*. Universitas Gadjah Mada Press.
- Suharto, E. (2010). Pembangunan dan Pemberdayaan Masyarakat. *Jurnal Pembangunan Sosial*, 2(1), 47-63.
- Porter, M. E. (1998). *Competitive Advantage: Creating and Sustaining Superior Performance*. Free Press.