

## Increasing Production Capacity and Financial Strengthening of Hand-Printed Batik Motif Textile Business at Kenayyu SME in Sragen Regency

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### ABSTRACT

This community service program aims to address the problems faced by Kenayyu Small and Medium Enterprises (SMEs) in Sragen Regency, particularly in the areas of financial management, accounting practices, design innovation, production capacity, and marketing. The urgency of this activity arises from the limited availability of production equipment, unstructured financial recording systems, and lack of marketing strategies, which hinder the competitiveness and sustainability of hand-printed batik businesses. To overcome these issues, the program was implemented through five main stages: (a) socialization, (b) training, (c) technology application, (d) mentoring and evaluation, and (e) program sustainability. The socialization stage built awareness and commitment among partners, while the training improved skills in financial recording, accounting applications, and batik motif design. The application of technology was carried out through the use of dynamo-powered equipment to enhance production efficiency. Mentoring and evaluation ensured continuous improvement and problem-solving, and the sustainability stage encouraged partners to maintain progress after the program ended. These activities have produced significant outcomes, including increased financial literacy, better product design innovation, improved production efficiency, and expanded digital marketing through marketplaces, leading to higher competitiveness and turnover for partner SMEs.

**Keywords:** Financial Strengthening, Hand Printed Batik, Production Capacity, SMEs.



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## INTRODUCTION

Kenayyu Small and Medium Enterprises (SMEs) produces hand-printed batik textiles. Established in 2018, the Kenayyu textile business is supported by environmental conditions and labor availability. The area still has ample space for production, easy access to water, and ample open space for drying.

The Kenayyu SME is located in Pilang Village, RT. 13 RW. 03, Masaran District, Sragen Regency. Various small and medium-scale businesses have flourished in Pilang Village. Hand-printed batik textiles are a production process using fabric processed through a screen-printing technique. The production process is manual, so the involvement of skilled workers and adequate equipment significantly impacts production results. The Kenayyu SME employs nine people in its production operations: motif designers, printing workers on the planks, color mixing, white cloth cleaning, printing workers, color locking workers, and drying workers. Due to production limitations, various tasks are carried out collaboratively, with many people covering multiple tasks. Sales are still conducted through a simple system of partnerships and word-of-mouth recommendations handled directly by the business owner.

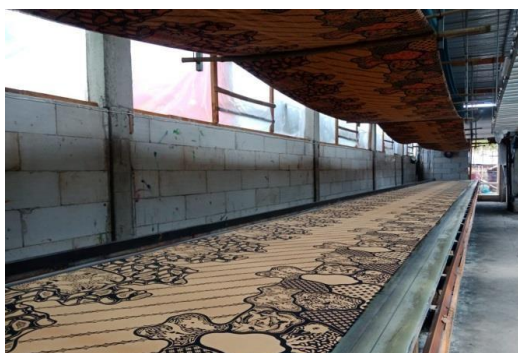
Kenayyu SME's production capacity and capabilities, based on sales, can be used to assess the business's condition. Sales data is as follows:

**Table 1. Kenayyu UKM production data**

Year	Production Quantity	Revenue
2022	24.000 meter	720.000.000
2023	27.000 meter	810.000.000
2024	30.000 meter	900.000.000

Source: processed data (2025)

The product consists of a sheet of fabric. The hand-printing and finishing process produces a batik motif on the fabric. The raw materials used in hand-printing techniques use various types of cotton, generally using prima cotton. There are other cotton material options that can be ordered according to the customer's wishes, such as primisima cotton, doby cotton, poplyn, berkolin, and so on. The production unit is the meter, with a reference to the length of the fabric in one printing process with a maximum length of 30 meters depending on the length of the printing table used.



**Figure 1. Kenayyu UKM Production Site**

Source: MSME Profile (2025)

Based on the situation and conditions of the Kenayyu SME, the business has the potential to be developed. The availability of production factors can be increased through training and business mentoring. The market and demand for batik-patterned printed fabric is very large in Indonesia, making it an affordable product for all groups producing batik-patterned products. Training and mentoring are needed to improve production quality and quantity, complemented by marketing

expansion through the use of marketplace sales channels. Based on partner observations, the following problems are formulated:

**Table 2. Identification of Partner Problems**

No	Type Constraint	Priority Issues	Evaluation Trigger Problem
1	Financial record management is not taken into account	Don't have a business financial recording system yet.	Lack of understanding and skills in business financial recording
2	Products that produced limited	Motive Which produced depends on request booking, Not yet own uniqueness own products.	Production based on order orderer, Not yet do production For stock And sale unit.
3	The equipment used is limited	New production activities are supported by 1 table, 1 gas heater, and 1 tool. feeder.	Start-up businesses, there are limited capital in procuring equipment.
4	Heating energy relies on sunlight and gas	Drying relies on uncertain sunlight, and the use of gas heaters at relatively high costs.	Drying in production by sun drying is hampered by the rainy season. The use of gas heaters is hampered relatively high costs.
5	There are no extensive marketing channels yet	Doesn't have a marketplace yet .	Marketing is carried out simply by word of mouth, does not yet have marketing skills with using the marketplace.

Source: processed data (2025)

Kenayyu SMEs operate based on customer demand. They provide batik-patterned fabrics by producing printed fabrics according to the customer's design, color, material, and quantity. The perceived problem is limited marketing channels, preventing the business owner from independently producing and marketing their own products. The resulting products lack distinctive characteristics. Kenayyu Small and Medium Enterprises (SMEs) produces hand-printed batik textiles. Kenayyu textile business benefits from the availability of raw materials, labor, and environmental support in Sragen Regency. However, limited production equipment, weak financial management, and traditional marketing practices have constrained its growth and competitiveness. The urgency of this community service program lies in addressing these barriers through a structured approach that integrates financial strengthening, design innovation, and digital marketing capacity.

Theoretically, the program is grounded in the concept of MSME capacity strengthening, which emphasizes improving managerial and operational competencies to enhance business performance and sustainability (Diana, 2019; Tambunan, 2023). Product innovation theory supports the importance of creativity and technology adoption in developing unique and marketable designs that provide competitive advantage (Schumpeter, 1934; Tidd & Bessant, 2018). Meanwhile, digital marketing theory highlights the role of online platforms in expanding market reach and improving consumer engagement (Kotler & Keller, 2006). The state of the art of this program lies in its integrated implementation model combining participatory training, technology-based production improvement, and marketplace-based digital marketing. Previous programs often focused only on skill training or marketing promotion without synchronizing the entire business process from production to sales.

The expected outcomes include: (1) the establishment of a structured accounting system, (2) improved production efficiency through dynamo-powered equipment, (3) development of unique hand-printed batik motifs, and (4) expanded online marketing through marketplace platforms. These outcomes are expected to enhance the business sustainability and competitiveness of Kenayyu SMEs while serving as a replicable model for similar MSME development programs.

The production site, measuring 238 m<sup>2</sup>, is used for production activities, including color mixing, the ngloyor process (cleaning white fabric), printing, color locking, and drying. Equipment is limited; production activities are supported by one table, one gas heater, and one gas-powered feeder. Kenayyu SMEs are a start-up, and limited capital is required for equipment procurement.



**Figure 2. Color Mixing Process**

Source: MSME Profile (2025)



**Figure 3. The Ngloyor Process (cleaning white cloth by soaking the cloth in a pool of water)**

Source: MSME Profile (2025)

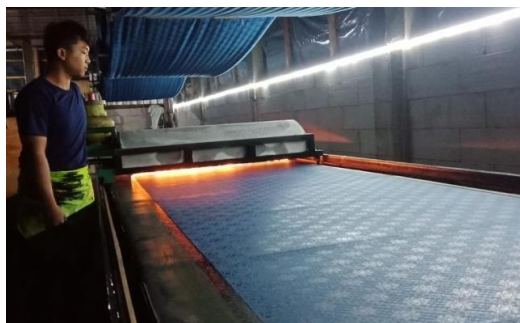


**Figure 4. Hand Printing Process**

Source: MSME Profile (2025)

The handprint production process requires water for washing and sunlight for drying. Drying involves two methods: drying after the printing process is complete using a heater, and drying after the washing process by drying in an open area exposed to sunlight. Relying on sunlight makes production unpredictable and is hampered by the rainy season, and the use of gas heaters is relatively expensive.





**Figure 5. Drying process using gas heating equipment**

Source: MSME profile (2025)



**Figure 6. Drying process using sunlight**

Source: MSME profile (2025)

There are no extensive marketing channels; marketing still relies on the owner's efforts in collaborating and accepting orders directly from customers. Marketing does not yet utilize marketplaces; marketing is carried out simply through word of mouth, and marketing development skills are lacking. The socio-economic impact on the wider community includes the creation of new innovations in local printing motifs, employment opportunities in design and production, and the potential for contributing to the economic growth of the community, particularly in Sragen Regency.

**Table 3. Solutions Offered**

No	Problems	Solution Which Offered
1	Do not have an accounting system for financial reporting	Implementing accounting applications for MSMEs .
2	Limited production products	Product quality improvement with design planning motif batik For manufactured technique <i>hand print</i> .
3	Production activities are supported by limited equipment	Increase in production quantity with addition equipment production .
4	Drying relies on sunlight and gas	Increased production quantity by adding dynamo power equipment
5	Marketing channels have not been implemented widely	Marketing training and mentoring through marketplaces and equipment sale in a manner on line or marketplace.

Source: processed data (2025)

## METHODS

The program was implemented using a Participatory Action Research (PAR) approach, which emphasizes active collaboration between the community service team, partner SMEs, and local stakeholders. This participatory approach ensured that partners were directly involved in identifying problems, planning activities, implementing solutions, and evaluating outcomes so that the program results were relevant and sustainable. The program aims to enhance the quality and quantity of Kenayu SME production through capacity building, the use of dynamo-powered technology, and the development of digital marketing channels. The success of this program is measured by several indicators, including increased production capacity and results, reduced production time through greater efficiency, higher turnover and profits, broader market reach through marketplace utilization, and improved ability of partners to prepare financial reports independently. These indicators reflect the program's contribution to strengthening business performance and supporting sustainable competitiveness for hand-printed batik SMEs in Sragen Regency. The method to achieve this goal is through the implementation of a program consisting of stages of program activities aimed at

partners, operating in the productive economic sector and aiming for a productive economy, as follows:

### 1. Socialization

The socialization stages are carried out through observation, preparation, socialization to the community, and presentation of the program by the community service team.

- a. **Observation**, at this stage it is necessary to search, collect and record valid data needed to develop Community Partnership Empowerment (PKM) at the Kenayyu UKM in Pilang Village, Masaran District, Sragen Regency.



**Figure 7. Observation of the UNS PKM Team at the Kenayyu UKM Production Location**

Source: MSME profile (2025)

- b. **Preparation**, at this stage, the entire team prepares all the necessary requirements for the program's implementation, secures all necessary permits from the Pilang Village Government to ensure the program runs according to plan, and invites relevant parties to collaborate on implementing Community Partnership Empowerment (PKM) at the Kenayyu SME.
  - c. **Socialization to the community**, at this stage, socialization was held to the community of Pilang Village, Masaran District, Sragen Regency, regarding Community Partnership Empowerment (PKM) at the Kenayyu UKM.
  - d. **The community service team presented**, the program to partners regarding efforts to improve production quality and quantity. Discussions, input, and feedback are expected to improve the Kenayyu MSME empowerment program.
- ### 2. Implementation of Training Activities and Partner Participation
- The program to improve the quality and quantity of production and the participation of Kenayyu SMEs is as follows:
1. **Financial training and mentoring, partners participate in program planning by implementing accounting applications for MSEs**, according to the theory put forward by Weygandt et al. (2018) in Accounting Principles, the double-entry system provides greater transparency and accuracy in recording assets, liabilities, and equity. The use of accounting applications helps MSE entrepreneurs monitor cash flow and understand the business's financial condition in real time, which is important for strategic decision-making (Weygandt et al., 2018). For example, applications such as Buku Warung or Sleekr provide an easy-to-understand interface with features such as automatic tracking of income, expenses, and profit and loss reports. These advantages make simple double-entry-based accounting applications an ideal tool for MSEs to increase professionalism and competitiveness.
  2. **Improving product quality by designing batik motif designs to be produced using hand print techniques**, the training method and designing batik motif designs are carried out in stages: first, the PKM implementation team involves Kenayyu UKM partners to discuss what are the characteristics and motifs that are often in demand by the market. Second, the team and participants from Kenayyu UKM explore and search for motif design ideas. Third, training in the use of Photoshop computer graphics software in the motif creation process. Furthermore, the output is a batik motif design used for the production of printed cloth using hand print techniques (Nuzuli, 2019).

### 3. Application of Technology

- a. **Increasing production quantity by adding dynamo-powered equipment**, additional production equipment in the form of: first, a dynamo-driven feeder using a dynamo. The feeder is used for the dyeing and color locking process (Sugito et al., 2022). Second, a dryer using dynamo power. The dynamo power converted into heat energy is used to dry printed fabric production. The use of dynamo-powered heaters aims to be a production solution during the rainy season. The involvement of Kenayyu SMEs in training the use of feeders and heaters. Supporting facilities related to the location, dynamo channels, and layout of the production location are required.
- b. **Training and mentoring through the marketplace**, the sales training method used in the marketplace involves providing lectures on marketplace knowledge to participants from the Kenayyu SME. The training material includes direct learning related to online marketing tutorials through Shopee as well as verbal and visual communication techniques. Participants from the Kenayyu SME are directly involved in implementing the use of the Shopee marketplace by creating online store accounts, photographing products, providing mentoring, uploading products, and advertising to expand their marketing (Blandina Hendrawardani et al., 2022; Kumar et al., 2024).

### 4. Mentoring and Evaluation

- a. **Evaluation of program implementation with Focus Group Discussion (FGD) involving UKM Kenayyu partners**, evaluation and recommendations are the final stage in program implementation. Evaluation is carried out on the results of the PKM program implementation, carried out through focus group discussion (FGD) activities between the PKM Team and training participants from UKM Kenayyu. FGD activities play a role in formulating recommendations for program follow-up at UKM Kenayyu. Evaluation and recommendation assessments are based on: (1) the impact of creating new motif designs, (2) the impact of adding supporting equipment for the production process, (3) the influence of using dynamo-powered equipment, (4) the creation of the Shopee online store, (5) increased turnover after program implementation.
- b. **Monitoring**, the monitoring phase aims to ensure the sustainability of the program implemented by Kenayyu's UKM partners and to assess the need for guidance during the program's implementation and execution. The objectives of the monitoring phase are as follows:
  - 1) See the progress of programs that have been implemented.
  - 2) Knowing the obstacles that exist in the program implementation process.
  - 3) Seeking solutions to existing problems, so that the Kenayyu UKM Community Partnership Empowerment that is implemented is truly effective and optimal.

### 5. Sustainability of the Program in the Field After the Activity is Completed

The sustainability of the Kenayyu SME production quality and quantity improvement program must be ensured and developed. Quality improvement can be achieved through the creation of motif designs, upgrading workforce skills, adding dynamo power equipment, and expanding marketing through marketplaces. An eight-month mentoring program will be conducted to assess the progress and impact of the program, through evaluation and improvement. Financial applications will be monitored periodically after the program.

## RESULTS AND DISCUSSION

Service program was implemented smoothly, involving Kenayyu SME partners, Pilang Village, the community service team, and students. This activity is expected to provide optimal solutions in financial management and accounting, production, and sales. The program is targeted to improve financial management, production quality, and choice motif from product which produced, improvement knowledge and skills with use equipment power dynamo Which impact on efficiency and improvement quantity production, as well as the creation of sales channels through the marketplace to expand marketing with manufacturing shop on line. The walk program no off from



participation party partners and government Village Pilang. Partners provide time, place as well as power work in operate program training and mentoring. The Pilang Village Government is involved in licensing and ensuring program can implemented on partners who already targeted, and participate in escorting sustainability program.

The implementation of this community service activity includes the following activities:

1. **Socialization to UKM Kenayyu regarding the urgency of activities, schedules, and roles of each member and partner**, this activity was carried out on June 25, 2025 and aimed to gain a common understanding regarding community service activities between the service team and UKM.
2. **Financial and accounting application training for MSMEs**, held on July 2, 2025, aims to provide MSMEs with bookkeeping skills, enabling them to prepare financial reports independently. This training provides MSMEs with information on the company's operating results, financial position, and cash flow. The financial training aims to provide knowledge MSMEs with basic financial management skills to avoid funding difficulties.



**Figure 8. Training on financial and accounting applications for MSMEs**

Source: MSME profile (2025)



3. **Training in creating designs that determine product competitiveness and mentoring in creating batik designs**, this activity was held on July 3, 2025 and August 9, 2025 with the aim of providing knowledge and skills regarding batik designs with distinctive motifs so that they have a fairly high competitiveness and are expected to increase consumer purchasing interest in the resulting products. Thus, it is expected to increase sales turnover and profits for the Kenayyu SME. In addition, the design results have been registered to obtain copyright for the design with the name of the motif "Kala Rupa Aksara" and these motifs have been produced and have received orders from customers.



**Figure 9. Kala Rupa Aksara Motif**

Source: MSME profile (2025)

4. **Training on the use of feeders and heating machines** was held on July 19-20, 2025, to provide knowledge and skills in the use of feeders and heating machines using dynamos. This is expected to accelerate production operations and improve product quality. After the program implementation, production efficiency improved significantly. Using the dynamo powered feeder machine, 100 meters of fabric can now be processed in about 5–7 minutes, compared to the previous 30–60 minutes using manual methods. Similarly, the heating machine reduced drying time for 30 meters of fabric from around one hour under sunlight to only 5–7 minutes. These improvements show a clear increase in production speed and efficiency after the program.
5. **Marketplace marketing assistance**, this activity was held on August 10, 2025, with the aim of expanding marketing through online stores with various online shopping platforms, one of which is the online shopping platform Shopee. Shopee is a marketplace platform. or leading online shopping in Southeast Asia and Taiwan, with presence Shopee in countries other which keep going develop. Shopee support full seller with give access to various feature promotion as well as service delivery integrated to help seller develop business. Through online store creation and product promotion on marketplace, partner SMEs succeeded in expanding their market reach and attracting new customers beyond the local area. As a result, the partners experienced a twofold increase in turnover compared to the period before the program implementation.
6. **Procurement of feeder machines, heating machines and squeegees**, the procurement process was completed on August 15, 2025. Tools feeder is equipment Which used for coloring cloth in production *hand print*, functioning moment process dyeing dye and locking color. Feeder used to simplify and speed up the process of dyeing cloth. The tool is made of material iron and stainless steel which consists of from: tub dyeing, roll plate iron & stainless steel, gear and the player that connected to a dynamo, as well as frame iron. Feeder specifications are as follows:

- a. 1 front pipe is made dynamic and uneven (wavy) so that the fabric can expand
- b. 1 The second pipe is made to rotate, so that it lightens the movement/flow of the fabric after it is dyed.
- c. Added rollers on the top, making it easier to wring out and the cloth dries faster.

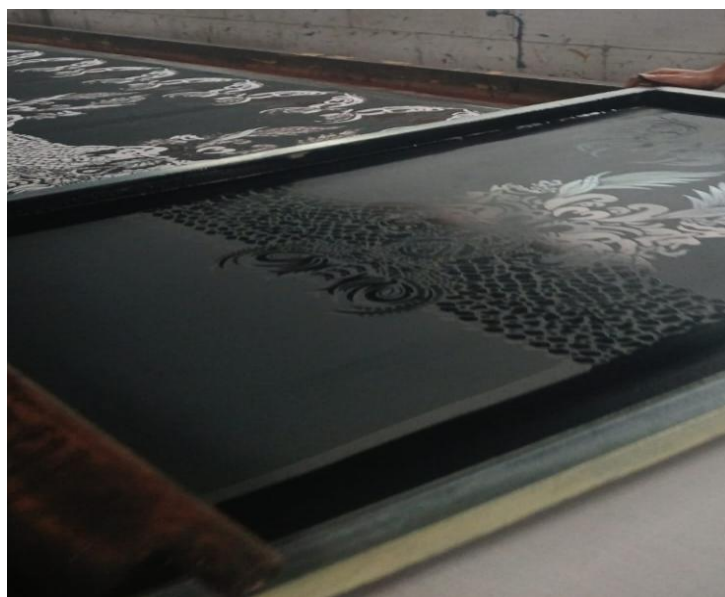
Heating dynamo is modification tool heating production cloth *hand print*, use dynamo as source heating. Tool heating used for speed up drying the fabric after the printing process and improving the quality of the fabric dyeing to be better evenly. The heating tool is made of iron frame material and stainless steel components. equipped with wheels connected to rails along the production table, which function for operate the dryer. A squeegee is a tool used in the manual dyeing process to push and press the ink through the screen so that it adheres to the fabric. After the installation of the new feeder and heating machines, there was a significant improvement in production performance. The production capacity doubled, and the total production output increased by approximately 150 percent compared to the period before the program implementation.



**Figure 10. Feeder Tool**  
Source: MSME profile (2025)



**Figure 11. Heating Machine**  
Source: MSME profile (2025)



**Figure 12. Squeegee**  
Source: MSME profile (2025)

7. **Evaluation and sustainability of the program**, was carried out on August 23, 2025. This activity was carried out through FGDs involving Kenayyu UKM partners, village communities, and the PKM team with the aim of assessing the sustainability of the program by Kenayyu UKM partners and evaluating the need for guidance during the program implementation and execution process.

## CONCLUSION

This community service aims to improve the quality of hand-printed fabric product designs. as one of the determinants of competitiveness, increasing knowledge about financial management and product innovation creation skills, increasing the acceleration and increase in production quality through the addition of dynamo-powered feeder and heating equipment, as well as improving digital-based marketing. This goal is achieved through accounting and financial training activities for MSMEs, training and mentoring in design creation, training and mentoring in the use of feeder and heating machine tools, and marketing mentoring through the marketplace. This activity is expected to be implemented sustainably and continuously and evaluated periodically to ensure that the program runs well and provides benefits to MSMEs and the surrounding community. We would like to thank the Directorate of Research and Community Service, Directorate General of Research and Development, Ministry of Higher Education, Science, and Technology of the Republic of Indonesia as the funder in the Community Partnership Empowerment Scheme for the 2025 fiscal year with contract number 1187.1/UN27.22/PT.01.03/2025.

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