

## Implementation of Tri Nga in Culinary MSMEs: A Solution to Overcome Demand Fluctuations and Technology Limitations

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### ABSTRACT

*Micro, Small, and Medium Enterprises (MSMEs) are important contributors to the Indonesian economy, but MSME players themselves often have difficulty understanding the problems they face, what they feel, and the solutions. Focusing on the problems of managing fluctuating demand and limitations in technology adoption, this community service program aims to address these issues through the implementation of Tri Nga-a concept developed by Ki Hadjar Dewantara, which emphasizes the processes of Ngerti (understanding), Ngrasa (appreciating), and Nglakoni (doing). The partner chosen in this program is Dapoerangell, a culinary MSME in Yogyakarta that faces constraints in workforce management and lack of technology utilization. Through observation, analysis, and direct engagement with the Participatory Learning and Action (PLA) method, the Tri Nga concept was applied to help partners identify core problems, understand their impact, and implement appropriate solutions. This approach enabled Dapoerangell to develop flexible work systems and plan for the adoption of production technologies to improve operational efficiency. The results of this program show that the application of Tri Nga can encourage sustainable problem solving and empower MSMEs to independently manage future challenges. The outputs of this activity have been published online as a medium to share practical insights to other MSMEs facing similar challenges.*

**Keywords:** MSMEs, Tri Nga, demand fluctuation, technology adoption.

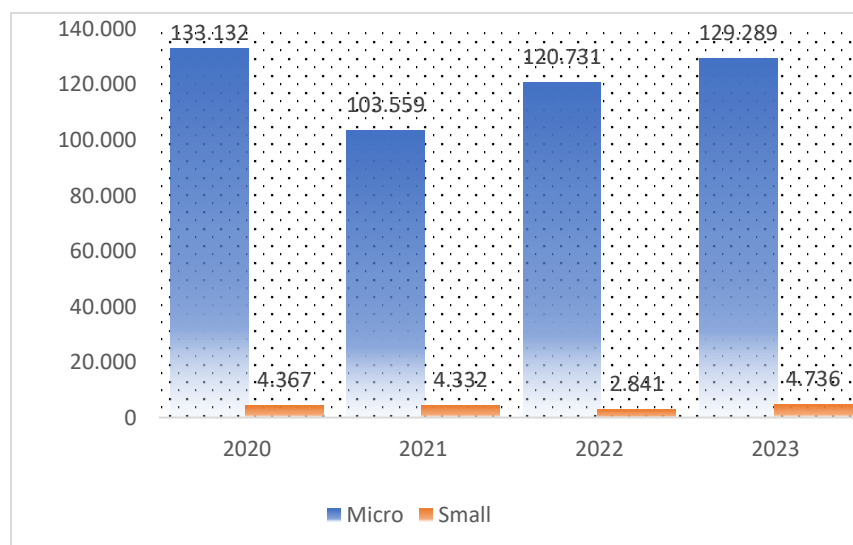
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## INTRODUCTION

Micro, Small, and Medium Enterprises (MSMEs) is a type of business managed by individuals, groups, or business entities with a limited scope of activities, but has the potential to grow and expand its business scale through various networks and market opportunities (1). MSMEs play an important role in the national economy, contributing greatly to employment and increasing community income. As the main pillar of the economy, this sector consists of around 64.19 million, dominated by micro and small enterprises of 64.13 million in 2021. (2). In 2023 (Figure 1), Yogyakarta Special Region has 129,289 micro enterprises and 4,736 small enterprises. (3). This number reflects the importance of the micro and small sector in supporting the regional economy and the great potential for business development in the region.



Source: BPS (2024).

Figure 1. Micro and Small Enterprises in Yogyakarta in Number

Competition and technological advances provide MSMEs with challenges such as increasing product and service innovation, developing human resources and technology, and expanding marketing areas. (4). Where once MSMEs were more traditional and limited to local markets, today more and more MSMEs are using technology and online platforms to reach a wider range of consumers. The graph in Figure 2 shows an example of the increase in MSMEs seeking to adopt technology, especially digital, from 7 million units in 2020 to 24 million units in 2023,

and is targeted to increase by the government to 30 million units in 2024. (5). By using the Internet, sales growth is potentially faster through messaging (6).

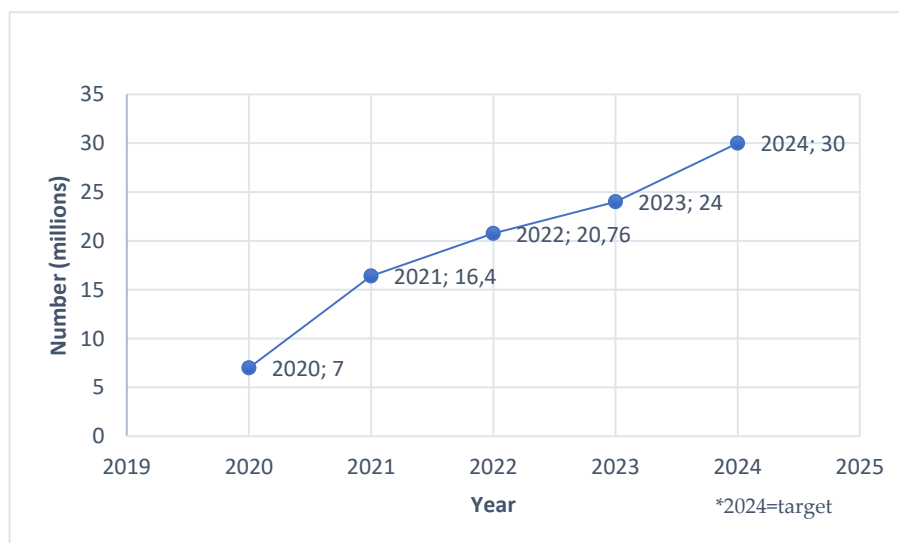


Figure 2. MSME Digital Adoption in Indonesia (2020-2024)

One of the most popular business fields for MSMEs is the culinary sector. In 2022, it was recorded that the growth of culinary MSMEs in Yogyakarta reached 300%. (7). Community service partners located in Yogyakarta and engaged in the culinary field, namely Dapoerangel, face challenges in utilizing technology and human resources. However, problem solving becomes difficult because partners do not fully understand the problems faced, do not feel the urgency to make changes, and do not take concrete steps or implement solutions.

The process of understanding, feeling, and taking steps is referred to by Ki Hadjar Dewantara as the *Tri Nga* concept. The concept of *Tri Nga-which* includes *Ngerti* (understanding), *Ngrasa* (appreciating), and *Nglakoni* (doing)-emphasizes that in applying the teachings of life or achieving ideals, not only knowledge is needed, but also deep awareness and real action. (8). *Tri Nga* is used in understanding and influencing human behavior in general, this framework is relevant to provide guidance among confusion on where to start in solving business problems. However, this concept can be used in other fields, for example in building public awareness behavior in dealing with the Covid-19 Pandemic case. (9). Likewise in business, business people often feel the

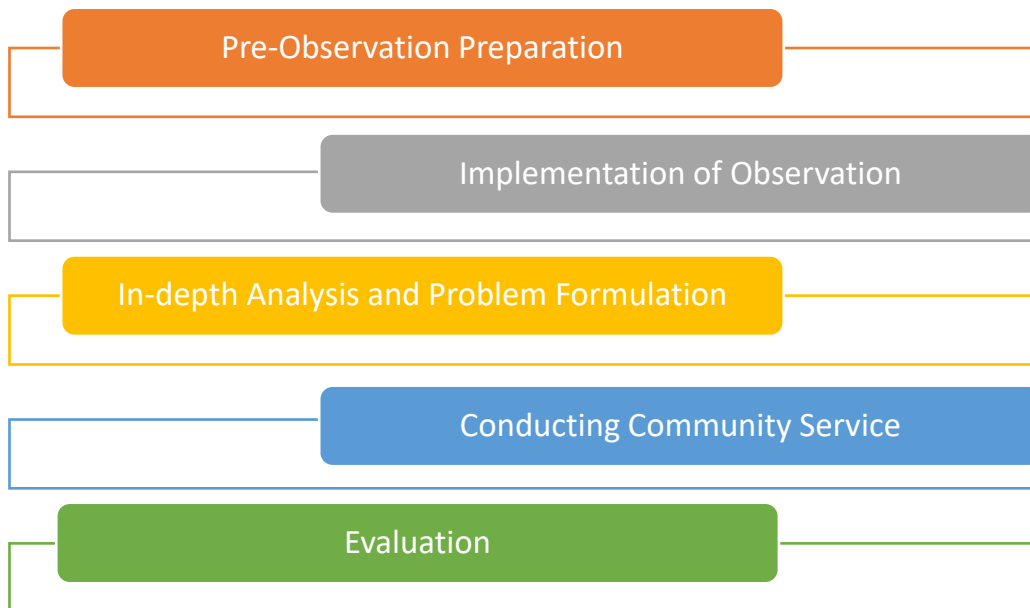
symptoms and impact of problems, but do not understand the root or main "disease", so the concept of *Ngerti* becomes very important. Furthermore, business people often do not truly *Ngrasa* - i.e. do not realize or live the consequences of every decision they make - which reflects a lack of sensitivity to the long-term impact on business operations, customers, and employees. As a result, ignorance of the problem and its impact leads businesses to make mistakes in *Nglakoni* or action, resulting in ineffective solutions and worsening the situation. *Ngerti* means clearly understanding the role, *Ngrasa* reflects a full awareness of the role that is seen through the integrity of the personality, and *Nglakoni* is to carry out the role consistently until it reaches the expected goal. (10). Thus, this community service seeks to empower partners by implementing *Tri Nga* so that partners are able to independently formulate their business problems and solve them. Knowledge without awareness and implementation efforts will not bring the desired meaning or change (8). (8).

## METHODS

The overall method of implementing community service includes 5 stages as shown in Figure 3.

### 1. Pre-Observation Preparation

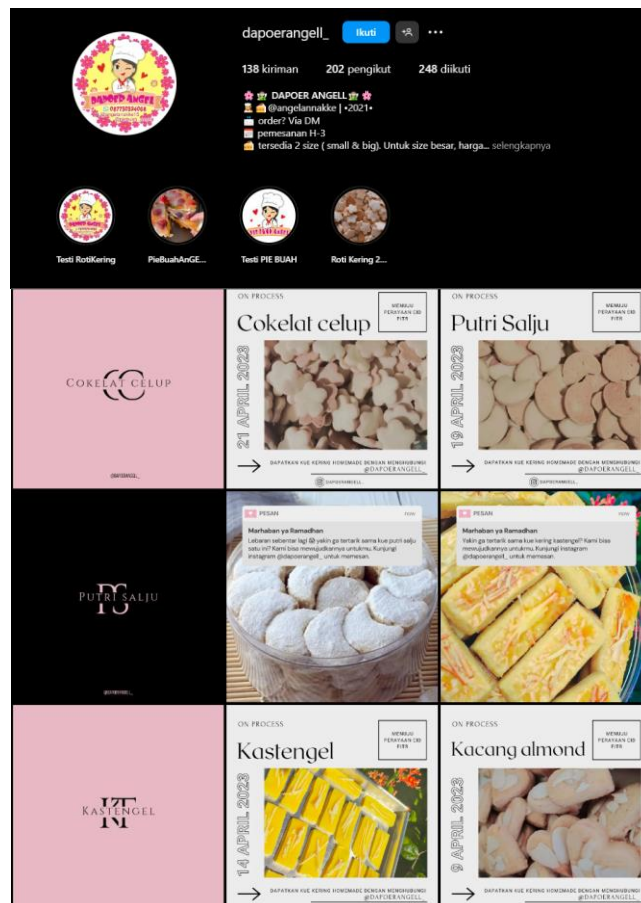
At this stage, the service team selected partners by first learning about the partner's business by acting as a consumer who buys their products and browsing the Dapoerangell Instagram account (Figure 4) to understand marketing patterns and customer interactions as well as the partner's potential to grow. The implementation strategy was organized by dividing tasks according to expertise, such as observation, partner relationship management, and material preparation. Partner readiness and involvement were ensured through initial coordination, including schedule compatibility and the owner's role in planning. Effective communication was conducted through in-person meetings and online communication to equalize perceptions and build mutual commitment through partner letters of intent, ensuring smooth activities in the field.



**Figure 3. Community Service Stage**

## 2. Implementation of Observation

Direct observation in the field is a crucial stage to obtain primary data on the actual conditions of MSMEs and the problems faced. The team used the observation method by looking directly at the condition of the production site and equipment, to understand the extent to which the operational process runs efficiently. In addition, unstructured interviews were conducted with owners and employees to explore in-depth issues that may not be visible to the naked eye, such as management constraints, demand instability, or labor limitations. This method allowed the team to capture detailed operational dynamics and gain perspectives directly from the partners. The results of these observations provide a comprehensive overview of key challenges and opportunities for improvement, while providing a relevant and accurate basis for formulating effective and tailored intervention measures on the ground.



Dapoerangell's Instagram

### 3. In-Dept Analysis and Problem Formulation

Based on the data and findings from the observations, the team together with the MSME owners conducted an in-depth analysis to comprehensively identify the root causes of the problems. At this stage, the focused discussion only involved the owner as the main decision-maker, without directly involving employees, to make the analysis more effective and remain focused. The owner provided strategic information related to the constraints faced, such as labor limitations and the challenges of dealing with fluctuations in market demand, which were not reached through initial observations. The owner's active participation in problem formulation ensured that the solutions formulated were more relevant and in line with the real conditions on the ground. By focusing on the owner's perspective, the team was able to design appropriate and sustainable intervention

steps, so that every action was aligned with the business needs and capacity of the partners.

#### 4. Conducting Community Service

At this stage, the team carried out community service activities using the Participatory Learning and Action (PLA) method, which emphasizes the active involvement of MSME owners in the process of learning and acting directly in the field. The PLA method consists of learning through discussion and exchanging ideas. The focus of this activity is the application of the *Tri Nga* concept (*Ngerti, Ngrasa, Nglakoni*), where owners are encouraged to comprehensively understand a problem, feel its impact, and take concrete steps to address it independently. MSME owners play a central role in every stage of solution identification and implementation. For example, in Dapoerangell MSME, the owner adopted a flexible scheduling system by utilizing part-time workers to deal with fluctuations in demand. In addition, the owner started integrating simple technology to improve production efficiency. The PLA approach ensures that each solution is not only contextual and appropriate but also reinforces a sense of ownership over the changes implemented.

#### 5. Evaluation

The evaluation stage is carried out to assess the effectiveness of the activities and their impact on the commitment of MSMEs, whether partners have future plans after receiving the community service program. Evaluation involves joint communication between the team and partners to measure the success of the program. As part of the output of the activity, the team compiled a report and published the results of the service in an online newspaper. This publication aims to document program achievements and share good practices with the community and other MSME players.

## RESULTS AND DISCUSSION

### Observation results and Problem Findings

In the observation phase, the team conducted a direct review of the condition of the kitchen equipment used by Dapoerangell as well as its production results to directly assess operational conditions and find opportunities for improvement. The observation results showed that this MSME still relies on traditional equipment, such as manual ovens and



conventional production tools, which are limited in supporting increased order volumes. In addition, the cakes produced, with quantities ranging from 100 to 200 pcs per month, are marketed through various channels, including Instagram, as the main promotional and marketing medium. The use of social media is effective in attracting new customers, but it also causes unpredictable fluctuations in demand, making it difficult for the owner to adjust production capacity quickly.



Figure 4. Production Equipment and Results

In addition to the equipment review, the team also conducted unstructured interviews with MSME owners to dig deeper into operational issues. One of the main issues identified was the reliance on manual labor, which led to limitations in meeting demand when there was a surge in orders. The owner revealed that sudden additions of labor are often necessary, but this creates instability in operations and increases production costs. On the other hand, the lack of technology adoption in



the production process slows down efficiency, making it difficult for Dapoerangell to adapt to increased demand.

### Implementation of Community Service and Results

This community service program sees the importance of implementing the *Tri Nga* concept in dealing with problems and finding independent solutions by partners, based on observations and interviews with Dapoerangell MSMEs by the Sarjanawiyata Tamansiswa University Community Service Team. The focus of this theme is tailored to the needs of partners and is expected to provide concrete solutions to the challenges faced. The community service activity took place on October 9, 2024 at the business owner's house in Semaki Kulon, Yogyakarta City, involving the business owner.



Figure 5. Partners and Community Service Team

This community service found that Dapoerangell, faced many challenges in running business operations. However, they were unable to identify the problems and as a result did not know what the solutions should be. It was apparent that a problem-solving framework using the *Tri Nga* concept-consisting of *Ngerti* (understanding), *Ngrasa* (appreciating), and *Nglakoni* (implementing)-was needed to manage the many problems. The community service team identified and selected the two most prominent problems to provide how the implementation of *Tri*

*Nga* is done concretely. The selected problems are (1) HR management difficulties due to demand fluctuations and (2) limited adoption of technology.

*Ngerti* (Deep Understanding of the Problem)

At this stage, focus is given to understanding the problem as a whole. **HR Management Difficulties:** MSME owners realized that fluctuations in demand led to challenges in managing the workforce. They often had to add workers unexpectedly, which caused instability in operations and increased production costs. However, previous owners did not realize that the root of this problem could stem from inefficient stock management, unmonitored market trends, or suboptimal marketing strategies.

**Limited Technology Adoption:** Businesses still rely on manual processes in production, without technology to improve efficiency. The owner did not initially understand that simple technology could help respond to demand faster and reduce reliance on manual labor.

*Ngrasa* (appreciating the impact of the problem)

This stage emphasizes the importance of realizing the impact of the problem at hand and how it affects the business as a whole. **Impact of HR Difficulties:** The owner begins to feel how instability in labor arrangements not only increases costs, but also reduces customer satisfaction due to production delays. In addition, employee dissatisfaction due to sudden schedule changes threatens business performance and sustainability.

**Impact of Lack of Technology:** In the absence of technology, production processes are slow and inefficient, making it difficult for businesses to respond to increased demand. Owners realize that if this problem is not addressed immediately, MSMEs risk losing customers and falling behind more innovative competitors.

*Nglakoni* (Implementing the Right Solution)

At this stage, MSME owners start taking concrete steps to address problems with relevant and sustainable solutions. **Flexible Work System:**

Owners implement part-time employee scheduling and work on part-time employees to deal with spikes in demand more effectively, without having to make sudden hires.

**Adoption of Simple Technology:** The owner plans to use improved production technology to speed up the process and increase efficiency. Thus, dependence on manual labor can be reduced. **Skill Enhancement:** In addition, the owner plans to train employees to be capable of using the adopted technology, ensuring a smoother production process and adaptive to changes in market demand.

### **Evaluation**

Evaluation is carried out to measure whether community service activities have an impact on partners. The results of the service showed that the partners had a commitment as shown by the owner submitting a plan to manage the production schedule more flexibly and utilize part-time workers as part of the solution in solving the problem of fluctuating demand. Partners also plan to gradually adopt the latest, more efficient production equipment and train their employees to use it. For example, *planetary* mixers to speed up dough kneading and *convection ovens* that ensure even and consistent baking. This shows that partners have understood and implemented *Tri Nga* in solving business problems and finding solutions.

As part of the output of the activity, the team compiled a comprehensive report and published the results of the activity in an online newspaper. The publication can be accessed on the media: Jurnalpost - Application of the *Tri Nga* Concept to the Dapoerangell Production Process (11). This publication aims to share good practices with the community and other MSME players, as well as increase Dapoerangell's visibility in the market.

### **CONCLUSION**

This community service program identified that Dapoerangell's MSME partners had not fully implemented the *Tri Nga concept*-*Ngerti*, *Ngrasa*, and *Nglakoni-in* their business operations, resulting in problems not being addressed effectively. The implementation of the *Tri Nga* concept focuses

on two main problems, namely HR management difficulties due to demand fluctuations and limited technology adoption. In the *Ngerti* concept, owners are invited to understand that fluctuating demand not only requires sudden addition of workers, but also requires better stock management and marketing strategies. In addition, production delays caused by the use of conventional tools limited the business's ability to meet increasing demand.

At the *Ngrasa* concept, owners began to realize the direct impact of these issues, such as delays that reduce customer satisfaction and increase operational costs. Without adequate technology, the business also risked falling behind more innovative competitors. These impacts motivated the owner to act more adaptively and innovatively in managing his business. Under the *Nglakoni* concept, the owner implemented a flexible work system with part-time employee scheduling to cope with order spikes without sudden hiring. The owner also plans to adopt newer production technology to improve production efficiency and quality.

The evaluation showed that the owners have understood and started implementing the *Tri Nga* concept, with a commitment to continue using technology and more effective management. The results of the program were published on online media as a form of good practice to the community.

## RECOMMENDATIONS

Based on the results of the implementation of the community service program at Dapoerangell, several recommendations are suggested so that the business can improve its performance and sustainability. The owner needs to manage business development issues within the *Tri Nga-Ngerti, Ngrasa, Nglakoni* framework. The owner needs to realize the technology adoption plan according to the capabilities owned and provide continuous training for employees to operate it. Evaluation of the proper implementation of the *Tri Nga* framework needs to be done as part of building an entrepreneurial mentality related to changes in business and market conditions by comparing it with business development achievements.

### Thank-you note

Thank you to Dapoerangell and its employees for their willingness to become partners and collaborate, allowing us to successfully complete this community service activity. We also express our gratitude to Sarjanawiyata Tamansiswa University for the support provided, ensuring the smooth implementation of this activity.

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