

## Enhancing The Capacity Of Kemuning Mandiri MSMEs In Identifying And Mitigating Business Risks In Cogreg Village, Bogor: A Community Service Program

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### ABSTRACT

Kemuning Mandiri MSME in Cogreg Village, Bogor, faces recurring operational, financial, and marketing risks due to limited risk awareness, informal decision-making, and minimal use of digital records. This community service program aimed to improve MSME actors' capacity to identify, analyze, and mitigate business risks through training and mentoring based on a literature study and field assessment. The program applied observation, questionnaires, and pre-test and post-test evaluation using participatory learning, case simulations, and guided use of simple digital tools for a risk register. Twenty participants joined five stages: socialization, training, mentoring, evaluation, and sustainability planning. Knowledge improved across all indicators. The overall average score increased from 50.8 (pre-test) to 79.0 (post-test), with the highest gain in using simple digital tools (45.0 to 75.5). The program produced a practical risk register template and a simple mitigation guideline for daily operations. These outcomes show that structured assistance supported by accessible digital tools can strengthen MSME readiness to manage uncertainty and support business sustainability.

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## INTRODUCTION

Parung District, Bogor Regency, West Java Province, consists of nine villages, one of which is Cogreg Village with 39 neighborhood units (RT) and a population of approximately 18,535 people. Most residents work in trade, livestock, fisheries, and plantations. Cogreg Village is known as a catfish production center in the Jabodetabek area, with a production capacity of around 40–60 tons per day. One of the economic actors in this village is Kemuning Mandiri MSME, a business community that produces processed catfish products (shredded catfish and nuggets) as well as dry snacks (tempeh chips and fried peanuts) to increase household income.

Despite its economic potential, Kemuning Mandiri MSME still faces business risks in production stability, marketing, and basic financial management. Field observations and interviews identified recurring constraints. Members often switch roles based on availability. This creates overlapping tasks, delays, and inconsistent product quality. Digital devices are available, but members rarely use them to record stock, output, and daily activities.

These conditions expose the MSME to operational risks such as production disruption and quality inconsistency, financial risks such as cash flow mismatch and untracked costs, and marketing risks such as demand fluctuation and limited market reach. Without structured risk identification and mitigation, small disturbances can escalate into larger losses and reduce business resilience.

Therefore, this community service program focuses on three objectives: (1) improving MSME actors' understanding of operational, financial, and marketing risks, (2) enabling participants to develop a simple risk register and practical mitigation actions, and (3) introducing accessible digital tools for routine risk recording and monitoring. The expected outputs include measurable knowledge improvement based on pre-test and post-test scores, a simple risk management guideline, and an internal mechanism to sustain risk monitoring after the program ends.

Based on field observations and interviews with the management of Kemuning Mandiri MSME in Cogreg Village, Bogor, several key issues affecting business sustainability were identified.

- There is a lack of understanding of business risks. Most MSME actors are not yet able to identify potential risks that may disrupt business continuity, such as financial, production, and marketing risks. As a result, many business decisions are made without analyzing their impact on long-term sustainability.
- There is no structured risk management system. Business processes are still carried out based on experience, without standardized guidelines for managing risks. There are no written procedures for assessing, monitoring, and controlling risks arising from operational or financial activities.
- There are limitations in training and mentoring related to risk mitigation. MSME actors have never received specific training on how to identify and manage business risks from managerial, marketing, or production perspectives. This condition reduces preparedness in facing market changes or operational constraints.
- Business management has not yet been professional. Some business activities are still conducted simply, with no clear division of tasks between production, marketing, and financial management. This situation affects operational effectiveness and business supervision.

- The use of technology remains limited. Although some MSME members have digital devices, their use has not been directed toward supporting systematic identification and recording of business risks.

From the production chain perspective, Kemuning Mandiri MSME has implemented processes from raw material processing at the upstream level to the sale of processed catfish and snack products at the downstream level. However, this chain is not yet supported by a risk management system capable of detecting potential losses or business disruptions. For example, there is no clear separation between production costs, profits, and risk reserves, making financial stability and business sustainability difficult to measure accurately.

Kemuning Mandiri MSME has a close relationship with the community of Cogreg Village, Bogor. Some residents are involved as suppliers of raw materials, such as fresh catfish and supporting ingredients for processed food production, while MSME products are marketed back to the local community. This interaction creates harmonious and mutually supportive social relationships between MSME actors and the community. However, this local economic potential has not been optimally utilized. Many small business actors in the area still face limitations in business management and lack an understanding of the importance of business risk management.

Based on field observations, most MSMEs in Cogreg Village operate traditionally without systematic planning and record keeping. As a result, when changes in raw material prices or declines in market demand occur, business actors find it difficult to adjust strategies to maintain business stability. From a regional economic perspective, Cogreg Village has considerable potential for MSME growth, especially in the fishery processing and snack food sectors. However, limited understanding of risk management and minimal training have hindered sustainable business development. Through activities aimed at enhancing the capacity to identify and mitigate business risks, synergy between Kemuning Mandiri MSME and the surrounding community is expected to strengthen local economic resilience collectively.

Kemuning Mandiri MSME in Cogreg Village, Bogor, has strong potential to become a model for resilient and risk-adaptive microenterprise development. The community already has a simple organizational structure, adequate production facilities, and strong collaboration among members. Support from the village government and surrounding community groups further strengthens its position as a local economic driver.

In terms of human resources, MSME members show high motivation to learn and innovate in business management. They have experience in processing catfish and dry snacks with broad market potential, both locally and digitally. The availability of communication networks and basic technological devices also opens opportunities for implementing data-based risk management systems and digital record-keeping.

With academic mentoring and the application of structured training methods, Kemuning Mandiri MSME has the potential to develop an effective business risk management system. This can enhance their ability to independently identify, analyze, and mitigate operational and financial risks. This potential represents a strategic opportunity to strengthen business sustainability while increasing MSME competitiveness at the regional level.

The implementation of this Community Service Program aims to enhance the capacity of Kemuning Mandiri MSME actors in Cogreg Village, Bogor, to identify, analyze, and mitigate various business risks that may hinder business sustainability. Through training and mentoring, MSME actors are equipped with practical knowledge and skills to identify operational, financial, and marketing risks, as well as to formulate mitigation strategies suited to their business conditions. This activity is designed to enable participants to understand systematic steps in risk management, starting from mapping potential

problems, developing preventive plans, to evaluating the outcomes of implemented actions. MSME actors are also trained to apply more professional business management practices, including clear role distribution, orderly operational record keeping, and the use of simple technologies to support risk identification and reporting.

A participatory approach is applied to ensure that MSME actors are directly involved in discussions and problem-solving processes. In addition, the activity encourages collaboration between lecturers, students, and business actors in creating contextual and sustainable solutions. The Community Service Program, themed “Enhancing the Capacity of Kemuning Mandiri MSMEs in Identifying and Mitigating Business Risks in Cogreg Village, Bogor,” also supports Key Performance Indicator (KPI) 3, namely lecturers engaging in off-campus activities, where lecturers actively provide training, mentoring, and direct knowledge transfer to the community. Furthermore, this activity supports KPI 2, namely, students gaining off-campus experience, through student involvement in training processes, MSME mentoring, and activity report preparation. With the active involvement of the academic community and MSME partners, this program is expected to improve business readiness in facing uncertainty, strengthen competitiveness, and realize a resilient and sustainable local economic ecosystem.

## **PROBLEMS AND SOLUTIONS**

Priority Partner Issues: Enhancing the Capacity of Kemuning Mandiri MSMEs in Identifying and Mitigating Business Risks in Cogreg Village, Bogor. Based on field observations and interviews with the management of Kemuning Mandiri MSME in Cogreg Village, several key issues were identified that hinder business management and sustainability. Although this MSME has strong potential in producing processed catfish products and dry snacks, constraints remain in terms of understanding business risks, operational management, and the utilization of technology (Rahmiyanti et al., 2025; Wimbawani, 2024).

### **Low Understanding of Business Risks**

Most MSME members do not yet understand the importance of risk management in business activities. Production, distribution, and sales processes are still carried out based on experience without structured risk analysis. As a result, MSMEs often face problems such as fluctuations in raw material prices, declining sales, and production losses without having clear mitigation strategies. According to Fadillah and Nuraeni (2024), improving risk awareness can help microenterprise actors assess potential losses and develop appropriate preventive measures. A similar approach was applied in training activities by Suhardoyo et al. (2023), which showed that providing risk management training increases MSME preparedness in responding to market changes.

### **Limitations in the Application of Business Management and Technology**

Most administrative and operational recording activities are still conducted manually without adequate monitoring systems. This condition makes it difficult for business actors to conduct evaluations and make strategic decisions. Findings by Kurniasih and Heliantono (2024) confirm that digital-based risk management training can improve MSME efficiency and transparency in business recording and evaluation. In addition, research by Pratiwi and Sunaryo (2024) shows that technology-based training strengthens the adaptive capacity of microenterprise actors in facing digitalization challenges. Therefore, the adoption of simple technologies such as Google Workspace or digital risk recording applications is highly relevant for Kemuning Mandiri MSME to monitor potential business disruptions in real time.

## Absence of an Integrated Risk Mitigation System

Kemuning Mandiri MSME does not yet have a formal mechanism for handling risks that arise during production and distribution processes. Each member still relies on personal experience without written guidelines or standardized evaluation systems. This is consistent with the findings of Setyawan and Rahmawati (2023), which indicate that most microenterprises in the culinary sector lack well-documented risk mitigation systems. Nailul (2025) also emphasizes the importance of implementing market risk management for MSMEs to address uncertainty and minimize business losses. Through training and mentoring using a practical approach as suggested by Maralis and Triyono (2024), Kemuning Mandiri MSME is expected to comprehensively identify potential risks, utilize technology for business monitoring, and build effective mitigation systems. These efforts will strengthen long-term business resilience and enhance MSME competitiveness in both local and digital markets (Muttaqin & Rasyid, 2023; Lestari & Hartono, 2024).



**FIGURE 1.** Presentation Identifying and Mitigating Business Risks.

Source: Personal Documentation

Based on the identification of existing problems, Kemuning Mandiri MSME requires solutions that focus on improving understanding of business risks, implementing structured management systems, and utilizing digital technology to support business sustainability. The following solution steps are designed using a community empowerment approach through training, mentoring, and the application of simple digital systems that are easily accessible to small business actors.

### **Solution 1: Training on Risk Identification and Business Mitigation Strategies**

The first step is to provide training for MSME actors on how to identify, assess, and manage business risks. The training focuses on production, financial, and marketing risks so that participants are able to identify sources of risk at an early stage. This activity also includes practical exercises in compiling simple risk lists and mitigation plans. According to Rahmiyanti et al. (2025), hands-on practice-based training is effective in increasing MSME preparedness in facing business uncertainty and reducing potential losses.

### **Solution 2: Continuous Mentoring and Risk Handling Simulations**

The second solution involves regular mentoring for MSME actors to ensure that training outcomes are applied consistently. Activities include mentoring sessions, weekly discussions, and simulations of

risk scenarios commonly encountered in practice. This mentoring approach follows the model used by Suhardoyo et al. (2023), which demonstrates that continuous guidance enhances MSME capacity to independently and measurably implement risk management.

### **Solution 3: Digitalization of Risk Recording and Monitoring Systems**

The next step is to assist MSMEs in adopting simple digital record-keeping systems, such as using Google Sheets or cloud-based reporting applications. This system enables regular recording of risks, transactions, and operational activities that can be jointly monitored. Kurniasih and Heliantono (2024) state that the adoption of digital technology in risk management increases transparency and accelerates decision-making processes in MSMEs.

### **Solution 4: Development of an Integrated Risk Mitigation System**

This solution focuses on developing written guidelines outlining risk mitigation steps that can be followed by all MSME members. The document includes risk evaluation procedures, responsibilities of each function, and communication mechanisms in the event of problems. This approach refers to the findings of Maralis and Triyono (2024), which emphasize the importance of formal mitigation systems in maintaining the stability and sustainability of small and medium enterprises.

### **Solution 5: Strengthening Ethics and Collaboration in Business Management**

The final solution emphasizes the importance of cooperation and integrity in business operations. MSME members need to understand fundamental values such as honesty, responsibility, and transparency in managing risks and finances. Fadillah and Nuraeni (2024) explain that the application of business ethics principles based on trust and transparency contributes to the sustainability of microenterprises in the food sector. Through strengthening values and collaboration, Kemuning Mandiri MSME is expected to grow into a resilient, adaptive, and highly competitive enterprise at the local level.



**FIGURE 2.** Community Service Team  
Source: Personal Documentation

The application of Science and Technology in the program “Enhancing the Capacity of Kemuning Mandiri MSMEs in Identifying and Mitigating Business Risks in Cogreg Village, Bogor” is carried out to help MSME actors understand business risks and manage them in a more systematic and efficient

manner. This approach combines risk management knowledge with the use of digital technology that is easy for small business actors to operate. In this program, risk management concepts are applied through training that provides a basic understanding of various types of business risks, including operational, financial, and marketing risks. Participants are guided to identify potential risk sources in their businesses, develop preventive strategies, and design response actions when risks occur. This approach helps MSME actors become better prepared to face market changes and uncertain business conditions.

Digital technology is utilized to support the process of risk recording and monitoring. Simple tools such as Google Sheets are used to record transactions, analyze potential risks, and monitor business conditions in real time. Through the implementation of cloud-based recording systems, business data can be stored securely and accessed at any time by MSME members. This encourages information transparency and strengthens collaboration among members in decision-making processes.

In addition, the application of Science and Technology is also implemented through the development of data-based mitigation systems. Data collected from digital records are used to analyze risk patterns and determine the most effective preventive measures. The results of this analysis serve as the basis for preparing simple guidelines for MSMEs to manage business risks sustainably. The program also emphasizes the improvement of human resource capacity through training and mentoring. Each MSME member is guided to understand risk management concepts and independently use digital technology. Thus, the knowledge provided is not only theoretical but can be directly applied in daily business activities. Through this application of Science and Technology, Kemuning Mandiri MSME is expected to build a more planned, transparent, and adaptive work culture. The combination of risk management understanding and digital technology utilization becomes a key factor in strengthening MSME competitiveness at both local and digital market levels.

### **Technology Used**

The technology used in the program “Enhancing the Capacity of Kemuning Mandiri MSMEs in Identifying and Mitigating Business Risks in Cogreg Village, Bogor” is adjusted to the needs and capabilities of MSME actors so that it is easy to understand and apply in daily activities. The use of technology focuses on simple, practical tools that do not require high costs, enabling all MSME members to use them independently. One of the main technologies applied is Google Sheets, which serves as a digital recording tool to help MSME actors document business transactions, identify risks, and prepare simple reports on operational and financial activities. With a cloud-based system, data can be accessed anytime and from any device, whether laptops or mobile phones. This makes business monitoring easier and more transparent.

In addition, WhatsApp groups are used as a communication and coordination medium between the mentoring team and training participants. Through this platform, participants can submit reports, engage in discussions, and receive guidance without having to meet in person. This simple technology plays an important role in maintaining continuous communication and mentoring after the training activities are completed. For documentation and evaluation purposes, Google Drive is also used as a storage platform for modules, digital guidelines, and activity data. All participants are granted access to shared folders so they can review materials and regularly update their risk records. The application of simple yet functional technology aims to help Kemuning Mandiri MSME build a more organized, transparent, and efficient work system without relying on complex devices or applications. Through the use of accessible digital tools, MSME actors are expected to improve their ability to manage businesses, identify risks early, and make faster and more accurate decisions.

## Technology Specifications and Features

In the program “Enhancing the Capacity of Kemuning Mandiri MSMEs in Identifying and Mitigating Business Risks in Cogreg Village, Bogor,” the technology used is intentionally simple to ensure it can be easily understood and applied by all MSME members. The selection of technology is based on devices already owned by business actors, such as laptops and Android-based mobile phones, so no additional costs are required. The primary technology used is Google Sheets, which functions as a digital recording tool for financial transactions, risk lists, and production results. This application is chosen because of its simple interface and ease of use, similar to Excel tables. In addition, all recorded data are automatically stored in the cloud, making them secure and accessible at any time by MSME members. Through document-sharing features, each member can view and update data simultaneously, making work processes more transparent and efficient.

Google Drive is also used as a storage platform for all program-related documents, including reports, training modules, and business guidelines. Files stored in Google Drive can be accessed anytime via mobile phones without the need to carry physical documents. This facilitates fast and secure data storage and sharing. For communication and coordination, the WhatsApp Group serves as the main platform. Through this group, participants can exchange information, submit activity reports, ask questions, and discuss challenges encountered. The use of WhatsApp is considered highly effective because almost all MSME members are already familiar with it in their daily lives. With the combination of these three simple technologies, Google Sheets, Google Drive, and WhatsApp, Kemuning Mandiri MSME members can manage their businesses in a more organized, transparent, and efficient manner. These technologies help them record business risks systematically, coordinate quickly, and store business data securely without requiring complex applications or additional costs.

## Benefits and Advantages of Science and Technology Application

The application of Science and Technology in the program “Enhancing the Capacity of Kemuning Mandiri MSMEs in Identifying and Mitigating Business Risks in Cogreg Village, Bogor” provides significant benefits for MSME actors. Through this program, MSME members gain not only new knowledge but also practical skills that can be directly applied in daily business operations. One of the main benefits is the increased ability of MSME members to identify and manage business risks. Before the program, most business actors did not understand how to identify risk sources such as rising raw material prices, declining sales, or equipment damage. After participating in the training, they become more aware of potential risks and understand the steps needed to prevent losses.

In addition, the use of simple technologies such as Google Sheets and Google Drive helps MSMEs manage financial and operational records more systematically. All data are automatically stored and can be accessed at any time, making business monitoring easier and more transparent. MSME actors no longer rely on manual records in notebooks that are easily lost, but instead become accustomed to using more efficient and secure digital recording systems. Another advantage is improved collaboration among MSME members. With the use of WhatsApp groups, communication between business actors and the mentoring team becomes more effective. Members can report business progress, discuss challenges, and exchange feedback without meeting in person. This fosters a spirit of collaboration and mutual learning. The application of Science and Technology also increases business actors' confidence in facing change. They begin to understand that technology is not difficult, but rather a tool that helps them work faster and more systematically. With these new capabilities, Kemuning Mandiri MSME becomes better prepared to compete in the market, reduce potential losses, and operate more professionally and sustainably.



## Relevance of Science and Technology Application to Risk Identification in MSMEs

The application of Science and Technology helps Kemuning Mandiri MSME identify and manage business risks in a simple and organized way. Through risk management training, business actors learn to recognize risks such as financial losses, production delays, or declining sales. Simple technologies such as Google Sheets are used to record and monitor emerging issues, while WhatsApp Group is utilized for communication and solution sharing. Through this approach, MSMEs can detect problems more quickly, make appropriate decisions, and prevent losses. The application of Science and Technology makes MSMEs more prepared, organized, and resilient in facing various business challenges.

## METHOD

The partner in this Community Service Program is Kemuning Mandiri MSME, located in Cogreg Village, Bogor, with a target audience of 20 participants. The MSME faces three main issues: low understanding of business risks, suboptimal implementation of risk management in production and marketing activities, and the absence of a structured system for risk recording and mitigation. To address these challenges, the program was delivered through five stages with defined duration: socialization, training, mentoring, evaluation, and sustainability planning.

- Program Socialization (1 session, 1 day). This stage introduced objectives and benefits through a short presentation and discussion. A pre-test was administered to measure baseline knowledge, followed by the distribution of introductory modules and participant commitment.
- Business Risk Management Training (2 sessions, 2 days). Training used a participatory approach combining short lectures, group discussions, case simulations, and hands-on exercises. Participants developed a simple risk register and practiced using Google Sheets for risk and activity recording.
- Mentoring and Field Implementation (4 weeks, weekly supervision). The team conducted weekly mentoring to support real implementation, including reviewing risk records, assisting participants with digital tools, and monitoring mitigation actions in daily operations.
- Program Evaluation (endline, 1 session). The program administered a post-test and a participant satisfaction questionnaire to measure learning gains and usability of materials and tools.
- Program Sustainability (final session + internal follow-up). The program established an MSME Risk Mitigation Team and an MSME Learning Forum, and provided digital templates and a simple guideline for continued use.
- Evaluation instrument justification. Pre-test and post-test instruments were selected because they provide a measurable indicator of knowledge change within a short intervention, using identical indicators to allow direct comparison. Satisfaction questionnaires captured perceived relevance and practical usefulness to refine future mentoring.

## RESULTS AND DISCUSSION

This Community Service Program involved 20 participants and addressed low-risk awareness, weak risk management practice, and the absence of structured risk recording. The results below summarize learning gains and early adoption of a simple risk register supported by accessible digital tools.

The socialization stage played a critical role in building initial awareness among participants regarding the importance of business risk management. During this stage, participants were introduced to the objectives, benefits, and overall flow of the program through a short presentation and interactive discussion. Most participants acknowledged that before the program, they had never formally discussed business risks, even though they frequently experienced problems such as fluctuating raw material prices, delayed production, equipment damage, and unstable sales. A pre-test was administered to measure participants' baseline understanding of business risk concepts. The pre-test consisted of ten multiple-choice questions covering basic definitions of risk, types of business risks, and simple mitigation strategies. The results of the pre-test indicated that participants' initial knowledge was relatively low, particularly in identifying non-financial risks and understanding preventive approaches. This finding confirms the initial problem identification that risk management had not yet become an integral part of daily business decision-making within the MSME

The training stage focused on strengthening participants' conceptual and practical understanding of business risk management. Training sessions were delivered using a participatory approach, combining short lectures, group discussions, case studies, and hands-on exercises. Participants were introduced to operational risks such as production delays and equipment failure, financial risks including cash flow instability and cost overruns, and marketing risks such as demand fluctuation and limited market access.

One key outcome of the training was the participants' ability to compile simple risk registers. Each participant identified at least five risks relevant to their business unit and proposed basic mitigation measures. The use of Google Sheets as a digital recording tool was particularly effective, as most participants were already familiar with smartphones but had never used digital spreadsheets for business purposes. By the end of the training, participants were able to input data related to risks, transactions, and mitigation actions in a structured format. The training also included simulation of real risk cases drawn from participants' experiences. These simulations encouraged collective problem-solving and helped participants understand that risks can be anticipated and managed rather than merely reacted to. This stage significantly improved participants' confidence in dealing with uncertainty and fostered a more proactive mindset toward business challenges.

Mentoring and field implementation were conducted over several weeks to ensure that training outcomes were applied consistently in daily operations. Weekly supervision sessions revealed gradual improvements in participants' discipline in recording business activities and risks. Participants began to routinely document production issues, cost changes, and marketing constraints in the digital system provided. Direct and online consultations were used to address technical difficulties, particularly related to the use of Google Sheets and basic data interpretation. Over time, participants demonstrated increasing independence in updating records and discussing mitigation strategies within their internal group. The availability of digital modules also supported continuous learning, as participants could revisit training materials when needed. Monitoring results showed that several mitigation strategies were successfully implemented, such as setting aside small contingency funds, scheduling regular equipment checks, and diversifying sales channels. These changes indicate that risk management practices had begun to be internalized within the MSME's operational routines.

The effectiveness of the program was measured through formative and summative evaluations. Formative evaluation during training showed high participation levels, with active engagement in discussions and exercises. Summative evaluation was conducted using a post-test identical in structure to the pre-test, allowing for direct comparison of knowledge gains. Table 1 presents the comparison of pre-test and post-test average scores. Below is the evaluation framework that summarizes the test results of the participants.

**TABLE 1.** Pre-Test and Post-Test Results of Business Risk Management Knowledge

No	Competency Indicator	Pre-Test Average Score	Post-Test Average Score	Improvement
1	Understanding of risk concepts	56.5	82.0	+25.5
2	Identification of business risks	52.0	80.5	+28.5
3	Knowledge of mitigation strategies	49.5	78.0	+28.5
4	Use of simple digital tools	45.0	75.5	+30.5
5	Overall average score	50.8	79.0	+28.2

Source: Data is processed in 2025

The overall average score increased by 28.2 points, which indicates that the program improved participants' understanding and skills in business risk management. The largest improvement occurred in the use of simple digital tools. This result suggests that guided practice and mentoring reduced barriers to basic digital adoption and enabled routine recording of risks and daily activities.

Improvement in risk identification and mitigation knowledge shows a shift from reactive problem handling toward early detection and planned response. Participants began to document recurring risks such as raw material price changes and production disruption, and to define mitigation actions such as alternative suppliers, basic contingency allocation, and simple monitoring routines.

Implementation challenges and limitations. Participants' digital literacy varied, so mentoring required additional time to stabilize consistent input in Google Sheets. The monitoring period was limited to four weeks, so long-term behavior change and business performance impact were not fully observed. Some data relied on self-reported records, which may introduce reporting inconsistency. These limitations indicate the need for periodic follow-up mentoring and longer observation.

The results demonstrate that a structured and participatory approach to community service can effectively enhance MSME capacity in business risk management. The significant improvement in post-test scores confirms that the combination of socialization, training, and mentoring successfully addressed the initial knowledge gap. These findings align with previous studies emphasizing the importance of practical, context-based training for MSMEs. The integration of simple digital tools proved to be a key success factor. Rather than introducing complex applications, the program utilized familiar and accessible technologies, which reduced resistance and facilitated adoption. This approach supports the argument that digital transformation in MSMEs should be gradual and aligned with users' capabilities.

Furthermore, the mentoring stage ensured that knowledge transfer did not stop at the training phase but continued into real business practice. The establishment of routines for risk recording and evaluation suggests the beginning of an organizational culture shift toward more systematic management. This cultural change is essential for long-term sustainability and resilience. Results related to partner participation also highlight the importance of active engagement. The willingness of Kemuning Mandiri MSME to provide facilities, involve all members, and implement the proposed system contributed significantly to program success. This reinforces the view that community service programs are most effective when partners are treated as active collaborators rather than passive recipients.

The sustainability stage focused on ensuring that improvements could be maintained after program completion. The formation of an internal Risk Mitigation Team and an MSME Learning Forum provided institutional mechanisms to continue risk management practices. Collaboration plans with higher education institutions further strengthen the potential for long-term development and innovation. Overall, the results and discussion indicate that the program successfully enhanced the capacity of Kemuning

Mandiri MSME in identifying and mitigating business risks. The combination of knowledge improvement, practical application, digital support, and partner participation has laid a strong foundation for sustainable business management and increased competitiveness in both local and digital markets.

## CONCLUSION

This Community Service Program was conducted to address the limited understanding of business risks, the weak application of risk management, and the absence of a structured risk recording system at Kemuning Mandiri MSME in Cogreg Village, Bogor. A systematic approach consisting of socialization, training, mentoring, evaluation, and sustainability planning proved effective in strengthening MSME actors' capacity to manage business risks.

The results show improved knowledge and awareness of operational, financial, and marketing risks. Participants became more capable of identifying potential risks, formulating simple mitigation strategies, and applying preventive actions in daily operations. The introduction of simple cloud-based digital tools supported more structured documentation of activities and risks, increased transparency, and improved decision-making. Continuous mentoring ensured that training outcomes were consistently implemented in real business contexts, while active participant involvement fostered ownership and collaborative learning. The establishment of an internal risk mitigation team further supports sustainability.

It is recommended that the MSME routinely update risk records, conduct periodic digital skills refreshment, and expand collaboration with universities and stakeholders to support innovation, competitiveness, and long term business sustainability.

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